



EXPOSITION

SOUVENIR

CHICAGO 1873

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BOOK-SELLER,

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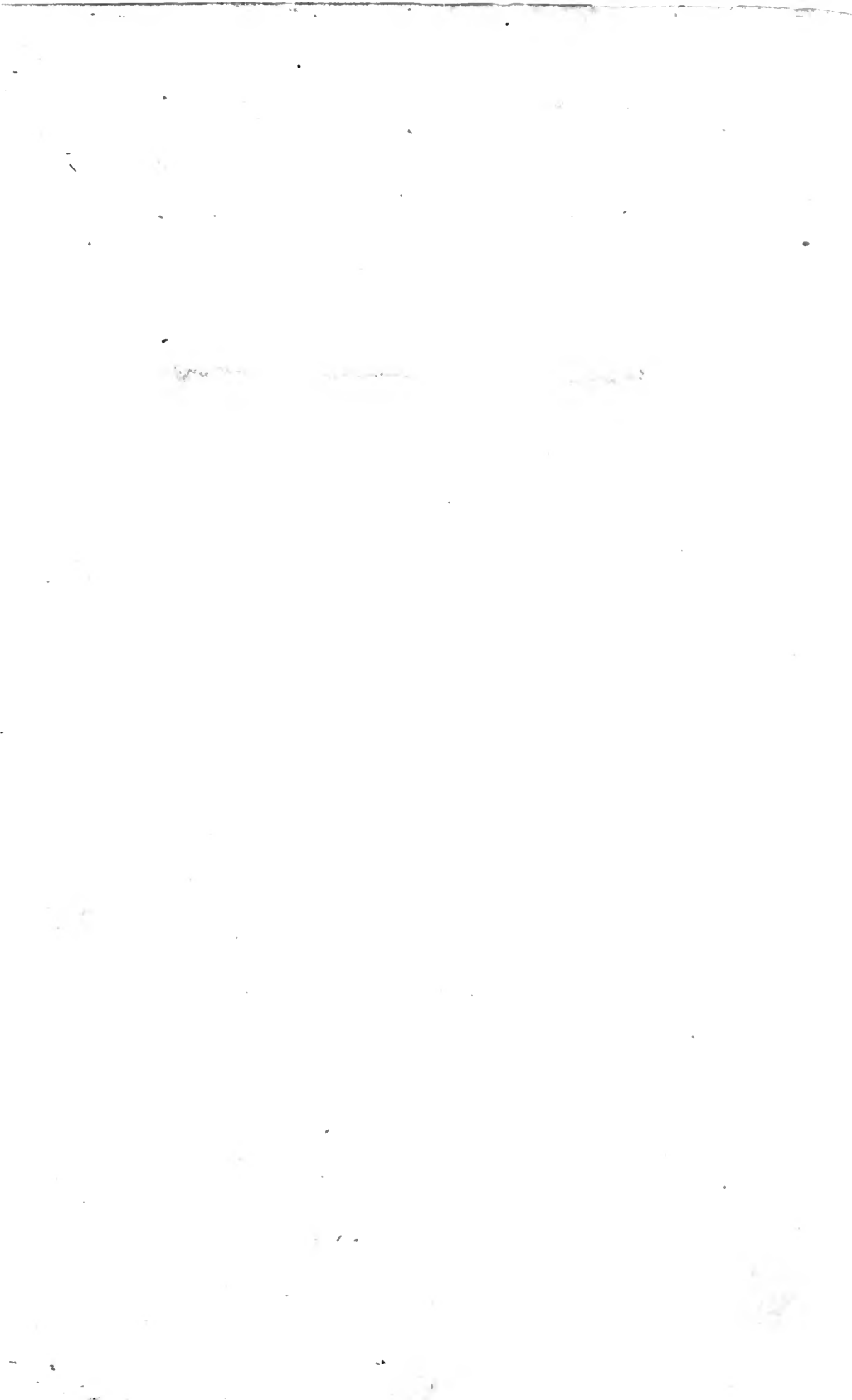
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Potter Palmer

PRESIDENT.

INTER-STATE INDUSTRIAL EXPOSITION.

THE
INTER-STATE
EXPOSITION SOUVENIR;

CONTAINING A

Historical Sketch of Chicago ;

ALSO A RECORD OF THE

GREAT INTER-STATE EXPOSITION OF 1873,

FROM

ITS INCEPTION TO ITS CLOSE; NAMES OF EXHIBITORS,
AND DESCRIPTION OF ARTICLES EXHIBITED;
TOGETHER WITH VALUABLE STATISTICAL
INFORMATION OF CHICAGO'S MERCHANTS
AND MANUFACTURERS.

CHICAGO:
VAN ARSDALE & MASSIE, PUBLISHERS.
1873.

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Dedication.

TO

N. S. Bouton, Esq., Chairman,

Geo. W. Lakin,	Potter Palmer,	Jno. B. Drake,
R. T. Crane,	Edwin Lee Brown,	Geo. S. Bowen,
T. W. Harbey,	David A. Gage,	W. W. Taylor.

THE EXECUTIVE COMMITTEE,

AND TO

Jno. P. Reynolds, Sec'y, AND J. Erving Pearce, Treas.

Of the Inter-State Industrial Exposition, prominent citizens and leading business men, by whose intelligent zeal and untiring energy so much was done to make the Great Exposition of 1873 the unprecedented success it was, and whose able efforts in the interest of Chicago will ever be gratefully remembered by her citizens,

This Volume is most Respectfully Inscribed

BY THE PUBLISHERS.



Research Reserve 105c15 Nisbet 300

1873



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Introduction.



ISTORY tells us of not a city since the world began, that has taken such a leading place in the commerce of the world, in so short a time, as has the City of Chicago—and it is entirely unnecessary to add how much of this is due to its many eminent merchants and manufacturers, those who have, by untiring industry and a strict attention to their affairs, enlarged their business and increased their stock, until the palatial warehouses, reared as monuments to their enterprise, were filled with innumerable goods of value and artistic beauty, not only from our own country but from many foreign ones.

The business men of Chicago have the deserved reputation, both at home and abroad, of being men of extraordinary business capacity, judgment and enterprise, and in the rearing of the immense Exposition Building in the short space of ninety days, Chicago has shown enterprise unparalleled throughout the world, and our city stands to-day pre-eminently forth without a rival as the wonder and marvel of the age.

Upon the following pages we propose to spread before our readers a brief history of Chicago from 1795 to the present time, with interesting statistical matter of her merchants and manufacturers; also a complete and official record of the Inter-State Industrial Exposition

from its inception to its close, naming each exhibitor, and giving an extended description of the goods exhibited.

Well knowing the great value of this work, and the importance of its reliability, the data, etc., from which it has been compiled, has all been gotten directly from official and reliable sources, and it is with mingled pride and pleasure that the publishers place the same before you for your consideration and, we trust, approval, well knowing that neither time, care nor expense have been spared to make this work one that may be referred to in after years as a Souvenir of Chicago and her Great Exposition of 1873.

If such be the case, our object will have been attained.





Historical Sketch of Chicago.



RICHARD COBDEN, it is said, once remarked that no man ought to die without visiting America, to see Niagara and Chicago. The city of Chicago has been regarded as one of the marvels of the age. Her rapid growth and her stately magnificence have been the astonishment of the world. Her early history, when contrasted with her wealth and grandeur at the present time, becomes of peculiar interest.

Chicago is situated near the head of Lake Michigan, and has an elevation of five hundred and ninety-one feet above the sea. It is situated upon both sides of the Chicago river, a slow stream, which, at a point little over half a mile from the mouth, is formed by the junction of two streams or branches, one flowing from the northwest and the other from the southwest. The river and branches divide the city into three natural parts, legally known as the South, North and West Divisions. The South Division includes all the territory east of the south branch and south of the main river. The North Division includes the area east of the north branch and north of the river; while the West Division includes all that part of the city west of the two branches. From 1681 to 1795, during the time of the French possession, and after its cession to England, very little is known of Chicago or the surrounding country. After the declaration of peace between the Colonists and the English, the latter, by intrigue, stirred up the border Indian warfare, which became general in the Western States, and continued until 1795, at which period, having been effect-

ually chastised by General Wayne, the chiefs of the several tribes of Indians, by his invitation, assembled at Greenville, Ohio, and there effected a treaty of peace, which closed the War of the West. Among the numerous small tracts of land where forts and trading-posts had been established, then ceded by the Indians to the United States, was one described as follows: One piece of land, six miles square, at the mouth of the Chikajo river, emptying into the south-west end of Lake Michigan, where a fort formerly stood. Here we have an account of the *first land trade* of Chicago—the first transaction in that line of business which has at times distinguished Chicago above every other city of the nation—the first link in the chain of title to thousands upon thousands of transfers that have been made of the soil thus parted with by the Indians.

When the first settlers of Chicago began to congregate and erect their cabins, with the view of forming the nucleus of a town, the point selected as the most available for village purposes was the tract on the West side, at the junction of the north and south branches, and at first called Wolf's Point. In addition to the few buildings that were standing in 1818, we have only to mention this group at Wolf's Point, two or three buildings on the south side, between the point and the fort, and the Miller House, on the north side.

The Miller House stood on the point of land between the north branch and the main channel. It was a log structure partly sided, and was erected by Mr. Samuel Miller, who resided here with his family and a brother by the name of John Miller. This house was used as a tavern. A little above its mouth on the north branch, was a log bridge, which gave access from that quarter to the business of the agency, and the little trade which may have continued up to this time on the north branch.

But the center of attraction was at Wolf's Point, opposite the Miller House. Here, too, was another tavern, the public house, *par excellence*, of Chicago—the schoolhouse and church, as well as the store. On the south side, the most prominent object of interest was the tavern kept by Mr. Elijah Wentworth, a man familiarly known as "Old Geese," not as a burlesque on the worthy landlord, but as a compliment to his distinctive and original character. This building was partly log and partly frame, and was situated on the ground north of Lake Street Bridge, now occupied as a lumber-yard. North of this tavern was an oblong building, which had been erected by Father Walker, a missionary of the Methodist Episcopal Church, for a place

of worship and for a school-house. Mr. Walker had at times ministered to the spiritual wants of the settlement from this rude temple. Mr. W. had a residence in the country, known as Walker's, which distinguished the locality at that time, which is now Plainfield, Will county. This log tabernacle was the meeting-house of the town. Mr. See, who, it seems, was the local preacher or exhorter, and who resided at the Point, was the supply which was most generally afforded. Preaching was upon a par with other callings and employments of the place. Mr. Wentworth's tavern was the best one kept in Chicago. It was the place where men of character who visited the town always stopped. It was the headquarters of Gen. Scott, when he came to Chicago with the troops for the Black Hawk War, in 1832. The distinctive name of this celebrated tavern, as familiarly used by all the settlers, was "Rat Castle," in contrast with its rival in distinction on the north side, "Cobweb Castle," and in commemoration of a large class of regular boarders that infested its premises, as well as every other cabin on the river shore. Next south of Wentworth's tavern was the residence of James Kinzie.

Next to these were log cabins in which resided Alexander Robinson, and here occasionally resided Billy Caldwell, whose wife was the wild daughter of an Indian chief, and her presence did not always hallow his wigwam with the sanctity of peace. Still further south of these was the store-house of Mr. Robert A. Kinzie, son of Mr. John Kinzie, who had succeeded his father in the Indian trade, and his stock consisted of groceries, Indian goods and supplies for the settlers, and was the store of the village as essentially as Wentworth's was the village tavern. Across the south branch, on the west side, resided Mark Beaubien, brother of Gen. J. B. Beaubien, who also kept a tavern. In 1831, his establishment had risen to a two-story dwelling, painted, with green blinds, and soon attained to the title of the Saganash Hotel—which was the Indian name of Billy Caldwell—and so called in honor of that distinguished chief and man of the times, for he was then one of the prominent residents of Chicago. It stood near what is now the southeast corner of Lake and Market streets. By this time there had been a place of amusement started in a little, low, log shanty, where was set up a billiard table, at which citizens of leisure amused themselves in knocking about three cracked balls. Further up the south branch was the residence of a French Indian trader by the name of Bourissa. In the South Division, near the "slough" that drained the marshes of the south side, and emptied

into the river at State street, was the trading-house of Medert Beau-bien — son of Col. Beaubien — a cabin of small pretensions. Upon the lake shore, a little distance south of the fort, Col. Beaubien resided in the cabin which he had purchased of the American Fur Company, in 1817 — which he had elevated to the dignity of a home-stead, and which was now familiarly known among the settlers by the name of the “Wigwam.” Near this residence was his store, in which the American Fur Company kept a stock of goods for the Indian trade.

Further south, the old Dean House had started on the way to ruin ; the water of the lake had gradually encroached upon the shore until it had undermined the foundations of the cabin, and it had fallen backward down the bank, where it lay, a type of ruin, an emblem, in the estimation of the croaker (who existed at that time, as well as the present), of the future of Chicago. Another settler about this time had taken up his residence in the suburbs, to be rated with the other “outside settlers” who had linked their fortunes with Chicago, for better or worse — and this was Dr. Harmon, the father of Isaac D. Harmon, who had made a claim a mile and a half south, on the lake shore, on the site of the Indian battle-ground of 1812, and was making a fine improvement there. This was the place since known as Clark’s, the site of which is now occupied by some of the finest residences in Chicago.

In the year 1804, the United States erected Fort Dearborn upon the south bank of the river, just east of the present Michigan avenue. Mr. Kinzie and his son John H., Indian traders, were the only white residents until the war of 1812, when the post was abandoned. The small garrison, in attempting to escape, were captured by the Pottawatomies, and massacred at a point now represented by Twelfth street and Michigan avenue. In 1816 the fort was rebuilt, and the Kinzies returned, and the fort served for many years as a resting-place for emigrants passing to the west. The inhabitants did not exceed half a dozen families until, in 1827, Congress made a grant of land to aid in the construction of a canal to connect the waters of Lake Michigan with those of the Illinois river. In 1829 the State Legislature appointed a commission to mark out the route of the canal, and a surveyor arrived to mark out the town. Besides the garrison, at that time there were eight families, engaged mostly as Indian traders, in the place. Gov. Bond, the first Governor of Illinois, in his inaugural, in 1818, called the attention of the General Assembly to the import-

ance of opening a canal to connect Lake Michigan with the Illinois river. In his valedictory, in 1822, he again urged its importance. The session of Congress, 1821-2, passed an Act granting "permission to the State of Illinois to cut a canal through the public lands connecting the Illinois river with Lake Michigan, and granting to it the breadth of the canal and ninety feet on each side of it," coupled with the condition "that the State should permit all articles belonging to the United States, or any person in their employ, to pass *toll free* forever."

With a hard and protracted struggle by numerous individuals, and especially by Daniel P. Cook, Esq., who was at that time Representative in Congress, and from whom Cook county was named, an Act was passed by Congress, March 2d, 1827, granting to the State for the construction of this work, "each alternate section of land, five miles in width, on each side of the proposed canal." We make mention of these facts because it was from this Act of Congress the State acquired the title to those lands which have formed the basis for many of its most important financial transactions; from which originated the titles to the valuable canal lands on which a large portion of the city is built—on which, too, villages, towns and cities have sprung up all along its line.

In the autumn of 1829, commissioners authorized the laying-out of the "Town of Chicago," on the alternate section which belonged to the canal lands—lying upon the main channel of the river, and over the junction of the two branches. The first map of the original town of Chicago, by James Thompson, bears date August 4th, 1830. This was the *first beginning of Chicago* as a legally recognized place among the towns and cities of the world—the first official act of organization, which must accordingly be dated as its birth, or real starting-point, and the town was comprised within the limits of what are now known as Madison, State, Kinzie and Halsted streets, or about three-eighths of a square mile. Hence this city, with a population of nearly 500,000—the leading mart in the world for grain, pork, lumber—arrived on the 4th day of August, 1873, at the precocious maturity of forty-three years. In 1831 Cook county was organized, embracing, in addition to the present county, the territory which is now known by five other large and populous counties. The prospective work on the canal was attracting population, but, in 1832, the cholera visited the incipient city, and was very severe. In 1832, the first public religious worship was held in a log hut erected for that purpose. The

tax-list for 1832 amounted to \$148.29. Lake street was laid out the same year. In 1833 the settlement had increased enough to have a post-office, a postmaster and a weekly mail; and late in the year, the *Chicago Democrat*, a weekly paper, was started by John Calhoun. On the 10th of August, the voters of Chicago held an election to determine whether they would become incorporated, and to elect trustees. Every man voted, and the number of voters was twenty-eight, many of whom are now living; and the levy for city taxes in 1834 was \$48.90. In 1834 the number of voters had increased to one hundred and eleven, and a loan of \$60 was negotiated for public improvements. In 1835 the number of the voters was two hundred and eleven. In 1836 the town applied to the State Bank for a loan of \$25,000, and was refused. In 1837 the Legislature incorporated the city of Chicago, and in May following the Hon. William B. Ogden was elected Mayor of Chicago.

Thus, on the first Tuesday in May, 1837, thirty-six years ago, commenced the city of Chicago, which then contained a population of 4,179. The following is a statement of the population of Chicago, for each year since that time :

Year.	Population	Year.	Population.
1837	4,179	1854	65,872
1838	4,000	1855	80,023
1839	4,200	1856	86,000
1840	4,470	1857	93,000
1841	5,500	1858	not taken
1842	6,590	1859	90,000
1843	7,580	1860	109,263
1844	8,000	1861	120,000
1845	12,088	1862	137,030
1846	14,169	1863	150,000
1847	16,859	1864	161,288
1848	20,023	1865	187,446
1849	23,047	1866	200,000
1850	28,269	1867	220,000
1851	34,000	1868	242,383
1852	38,734	1870	293,977
1853	60,662	1871	334,270

At the present time (1874) the population is fully 450,000

This has been the extraordinary growth of this wonderful city.

The natural line of the site of Chicago was but a few feet above that of the lake, and there was no drainage, and in seasons of rain the surface was covered with water. In the winter of 1855-6 the

city ordered a change of grade, raising the height of the carriage-ways an average of eight feet. This placed the lower or ground story of each building several feet below the level of the street; but the inconvenience was rapidly overcome by raising all the buildings — brick, stone and wood — up to the level. All the large buildings, including many hotels, business blocks, warehouses, etc., were raised, by means of screws, from their foundations a height of from six to ten feet, and new foundations built under them. This secured deep, dry cellars, and admitted a thorough system of sewerage. The city ordered an effective dredging of the harbor, and the clay thus obtained served to fill the streets to the new grade. For several years, while this process was going on, the passage of Chicago streets was a work of trying difficulty to pedestrians. The expense was great, but was cheerfully borne by the property-holders. Then commenced the works of permanent improvement in the city, and how far they had progressed may have been seen before the great fire, and is again apparent since her re-building. Probably no city in the world has so wonderful a record as has Chicago, and the great conflagration of October, 1871, which almost entirely obliterated the city — from which but few cities would have recovered in a century — only seemed to demonstrate the indomitable energy with which Chicagoans are possessed; for although but two years have passed, we again find Chicago shining with redoubled splendor, and eclipsing her palmiest days. Where stood wood and brick when the city was destroyed, now are reared stately commercial palaces of marble and stone.

As improbable as this history may appear, yet nevertheless it is the fact and demonstrates the adage that "truth is stranger than fiction," and serves well to illustrate to all the world that Chicago is (as she is properly termed) "a wonderful city."





The Exposition.



THE conception of the Great Exposition of 1873 may be said to date as far back as 1869, when an organization was formed under the name of the "Northwestern Mechanical and Agricultural Association," having in ultimate view, the holding of an Inter-State Industrial Fair, but it was found that nothing could be done at that time towards bringing about the desired effect, and the project was passed over temporarily; and, although many fruitless efforts were made from that time up to the great fire in October, 1871, yet nothing like an organization with the desired view in end could be effected. Then came the memorable conflagration, and all previous thoughts of the Exposition were banished in the contemplation of the smoking ruins; but after a brief period of down-heartedness, the work of reconstruction began, and while this work was in its first heat and force there was no time to think of anything else; all minds and energies were engrossed in the contemplation of the systematic piling of brick and stone. Not many months had elapsed before it became evident that no fears need be entertained as to the resurrection of the city, and then it was that the enterprising minds turned to something else, and among other things, came up, like Banquo's ghost, the favorite topic of the Exposition; and in June, 1872, several gentlemen, including John B. Drake, Geo. S. Bowen and John Irving Pearce, the last three leading members of the present enterprise, got their license for a corporation "to establish a permanent institution in the way of an Industrial Fair, etc." The capital stock was fixed at \$50,000, but the money was not forth-

coming, and the matter was held in abeyance, to be carried out at some future day. Thus ended the Industrial Exposition scheme for the time being—not dead, but sleeping. In February of the present year, the matter was revived by Mr. Bowen. Several meetings were held at various places in the city, but still no nearer the consummation of the all-absorbing topic, apparently, than before. Finally, at an adjourned meeting, held at the Sherman House, the last of February, of this year, Mr. H. H. Taylor offered the following resolutions, which were adopted:

Resolved, That it is the sense of this committee that a great Inter-State Industrial Exhibition shall be held in the city of Chicago during the coming fall, commencing on or about September 15, and continuing four or more weeks.

Resolved, That the main object of the Exposition should be to exhibit in systematic arrangement, in one immense collection, the products of all kinds of mechanical, artistic, and industrial skill and labor, including the products of manufacturers, mines, inventions, agriculture, horticulture, painting, sculpture, and all the trades and arts, together with the raw and wrought materials of commerce in all forms.

Resolved, That while the main object of the Exposition should be as above, the management should also provide amply for musical and other popular entertainments, and also cordially co-operate with any respectable auxiliary association that may undertake to inaugurate a grand live-stock exhibition, to be held in the vicinity of Chicago during the term of the Exposition.

Resolved, That the Exposition should be national and metropolitan in its scope; that the people of all States and all countries be cordially invited to contribute articles for exhibition in every department, and that our friends from abroad be assured of a warm welcome, hospitable entertainment, and equal facilities in every respect.

Resolved, That, in the opinion of this Committee, the most eligible location for such an Exposition is that portion of the Lake Park situated north of Congress street, the same being in the great Burned District, near the heart of the city, near the central termini of all the street-car and omnibus lines, as well as within from two to ten minutes' walk of all the principal hotels, and all the railway depots and steamboat landings of the city.

Resolved, That such location on the Lake Front will be equally accessible from all divisions and suburbs of the city, and thus promote the comfort and convenience alike of citizens and visitors from abroad, and especially render feasible the giving of evening entertainments, thus not only enlarging the sources of revenue, but enabling the business man, the mechanic, the clerk, the laboring man, and their families, comprising more than nine-tenths of the population of the city and its suburbs, to enjoy the advantages of the Exposition and attend the entertainments, evening after evening, at little or no cost for transportation, and without infringing on the hours of labor or business, and interrupting the city's industries.

Resolved, That, in the opinion of this Committee, the increased receipts resulting from such accessible central location of the Exposition, with its attendant advantages for evening exhibitions, musical and other entertainments, regardless of inclem-

ent weather, will be more than equivalent to the whole cost of erecting even temporary, but ample and attractive buildings, certainly after allowing for the remaining value of materials after use therein.

Resolved, That while a permanent Annual Exposition in Chicago is extremely desirable, and it is expected that such an institution will be the natural outgrowth of a successful result of the present enterprise, it is feared that there now remains insufficient time to consider and dispose of rival schemes, to raise sufficient capital for adequate, permanent buildings, and to erect the same in localities on the outskirts of the city, and that such an attempt at this time would jeopardize the holding of an Exposition this year at all.

Resolved, That a mass meeting of the citizens of Chicago be called, for the evening of Saturday, the 8th inst., at the Chamber of Commerce, or other suitable place, to subscribe a guarantee capital of \$150,000, conditioned that no part of the subscription shall be called in until two-thirds of the amount is subscribed, nor until the city authorities shall have granted the free use of the Lake Park until the 1st of January next, and conditioned also that, as soon as two-thirds of the capital is subscribed, the stockholders shall be duly called together for permanent organization, and to elect a President, a Board of Directors, or Commissioners, and such other officers as they may deem necessary to carry out their wishes.

From this time forward the good work went bravely on, and it was beyond peradventure of a doubt that Chicago would soon realize her fondest hope.

At the adjourned meeting held in the Board of Trade hall, the Hon. John P. Reynolds, now the valued secretary of the enterprise, was called to the chair. After remarks from many prominent gentlemen present, including His Honor, Mayor Medill, Mr. R. T. Crane offered the following :

Resolved, That the amount of capital stock of the Inter-State Industrial Exposition shall be \$150,000, in shares of \$100 each.

Resolved, That there may be the fullest co-operation of the entire city, \$50,000 of the stock is appropriated to each of the three divisions, but only \$35,000 in each division will be subscribed for the present ; the subscription books will be kept open to the residents of each division only from March 10 to March 15, inclusive ; no one person, firm, or company will be allowed to take more than ten shares of the stock during such period ; on and after March 17 the books will be open to the citizens generally, who may then subscribe for as many shares as they please, until the whole \$105,000 is taken ; the remainder, \$45,000, to be subscribed for as required ; no subscription to be binding until the \$105,000 is subscribed for in full.

Resolved, That a committee of nine be appointed to superintend the matter of soliciting subscriptions, three from each division of the city ; such committee shall also take the necessary steps to perfect the incorporation of said Exposition Company under the laws of Illinois.

Resolved, That those persons who did reside in the burnt district, and who contemplate removing to their former places of residence, are considered, for the purpose of subscription, as residents of the Division in which they formerly lived.

Resolved, That the above named committee shall consist of the following gentlemen: North Division, J. T. Ryerson, A. C. Hesing, W. K. Nixon; South Division, N. S. Bouton, J. W. Harvey, Jacob Rosenberg; West Division, E. A. Bishop, D. W. Whittle, Peter Schuttler.

Resolved, That it is the sense of this meeting that the recommendation of the Committee of Twelve is not only feasible, but highly desirable, and, if properly carried out, will prove of immense benefit to the city and profitable to the stockholders, as similar enterprises have proved elsewhere.

Resolved, That an association shall at once be formed for the purpose specified in the Committee's report, and that its name shall be "The Inter-State Industrial Exposition of Chicago."

From these resolutions, which were unanimously adopted, it will be seen that to Mr. Crane belongs the honor of "christening" the enterprise. The ball was now open in good earnest, and the work in the hands of men in every way qualified for the labors they had taken upon themselves. The next meeting was held on March 10 in the Staats-Zeitung building, at which time and place the committee on organization met, and, on motion of Major Whittle, the following additional resolutions were adopted:

Resolved, That subscriptions taken under the resolutions as read shall not be called for until the proper authority has been granted by the City Council for the free use of the grounds on the lake front on which to erect the Exposition building; and be it further

Resolved, That no one call shall exceed twenty-five per cent. of the amount subscribed, and that not less than thirty days shall elapse between each call.

The following address to our citizens was then submitted:

We, the undersigned, were appointed by a public meeting, held in the Board of Trade rooms on Saturday, evening, March 8, to solicit subscriptions to the capital stock of the Inter-State Industrial Exposition of Chicago. The object of this enterprise is mainly to hold a grand exposition during the next fall in celebration of the anniversary of the fire. It is expected that musical and other entertainments will be added. There is no question but that this enterprise, if properly conducted and thoroughly indorsed by the masses of our people, will prove a great success, especially so when we take into consideration the following facts:

First.—The favorable location of Chicago for such an Exposition, and the location in the city—the lake front having been decided upon as the place to erect the building.

Second.—The immense hotel accommodations Chicago affords.

Third.—The great desire there is undoubtedly entertained by people throughout the entire country to see the new Chicago, which, by fall, will be in a superb condition for inspection. From the experience of similar enterprises in other cities, we have no hesitation in saying that the stock will prove a profitable investment.

Fourth.—This movement will prove of vast benefit to the whole people, as it will afford a cheap and profitable amusement that cannot fail to elevate the working

classes. It is hoped that it will result in a permanent organization, which will give us an exposition each year.

Fifth.—We are gratified to represent a movement which shows upon its face that it is not gotten up in the interest of a real estate "ring," as all the people have the privilege of subscribing to the stock, which will secure to them all the benefits to be derived from the enterprise.

We will add that in our view, should the citizens fail to take advantage of this most auspicious time for a grand Exposition, that cannot fail to prove of immense value to the city, they will certainly regret it, and it will be looked upon as an evidence that our people are not keeping up that spirit of enterprise for which they have become so noted.

A. C. HESING,	JACOB ROSENBERG,
W. K. NIXON,	E. A. BISHOP,
JOEL D. HARVEY,	D. W. WHITTLE,
N. S. BOUTON,	PETER SCHUTTLE,
T. W. HARVEY.	

The following sub-committees were then appointed :

Banks.—J. Irving Pearce, Third National ; Ira Holmes, Manufacturers' National Bank.

Wholesale Dry Goods.—L. Z. Leiter, of Field, Leiter & Co.; Shaw, of Shaw, Winslow & Co.

Boots and Shoes.—C. M. Henderson, William E. Doggett.

Rolling Mills.—O. W. Porter, A. B. Meeker.

Railroads and Express Companies.—H. A. Sargent, Charles Fargo, United States Express company.

Wholesale Clothing.—H. W. King, Louis Wampold.

Hardware, Iron Merchants and Founders.—W. G. Hibbard, William Blair.

Wholesale Druggists, Paints and Oils.—Frank Milligan, Horace A. Hurlbut.

Furniture.—W. W. Strong, A. L. Hale.

Carpets and House Furnishing.—E. F. Hollister, John H. Allen.

Real Estate.—H. H. Honoré, Col. Pierce.

Hides and Leather.—L. B. Sidway, C. E. Page.

Groceries.—H. B. Rand, Charles Coryell, of Day, Allen & Co.

Hotels.—David Gage, F. B. Gardner.

Jewelry.—B. S. Pike, W. B. Giles.

Crockery and Notions.—Ira Bowen, Adolph Ruhling.

Books, Stationery and Paper.—A. B. Cook, H. Z. Culver, of Culver, Page & Hoyne.

Places of Amusement.—J. H. McVicker, R. M. Hooley.

Distillers and Wholesale Liquors.—Henry H. Shufeldt, Edward McQuade.

Brewers.—Alderman McEvoy, Alderman Schmidt.

Commission Merchants.—Charles Randolph, W. F. Tompkins.

Manufacturers and Dealers in Lumber.—T. W. Harvey, A. G. VanSchaack, for the lumber districts on the South Side ; R. T. Crane and Peter Schuttler, for manufacturers and the lumber dealers on the North Side.

On Saturday, ¹⁴March 15, another meeting was held, and it was found that 475 shares of the stock had already been taken, and that the prospect of getting the required amount at an early day was more promising than had been anticipated. The next move was the selection of the site, and in this much difficulty was experienced. The next meeting held was on the 20th, when it was ascertained that 800 of the 1,500 shares of stock had been taken. At this meeting a committee of three was appointed, technically known as the Committee on Location, whose duty it was to overcome any existing difficulty, if possible, regarding the site for the building on the lake front. This committee obtained the full consent of all the property holders, and nothing now remained but the passage of a resolution by the Common Council allowing the use of the ground. This was done on the 28th of April, and thus was the perplexing point of location definitely settled.

On the 27th of March, the Committee published a long appeal to the citizens, reciting the resolutions adopted at the meeting on the 8th, and giving the names of the subscribers up to that date. They said :

The time having expired within which were limited subscription to ten shares, the balance of the stock is now open to the public at large, and it is to be hoped that those who have been backward hitherto will at once come forward and close up the list, so as to enable the Committee to go to work putting up the building, notifying manufacturers and other probable exhibitors, and preparing for the grand event. An Exposition of such a character as the Committee propose cannot fail of being a great benefit to our city and the public at large. The following resolutions embrace their ideas, and it is for those who subscribe to the stock to modify or re-arrange the plan thus presented, if necessary for the general good :

The gentlemen whose names are subjoined have so far identified themselves with the movement, and are further prepared to aid in pushing the work to ultimate success.

The Committee feel that the stock should be divided up among the citizens generally, and not be monopolized by a few, even though these few should subscribe purely on the ground of public interest. This is a Chicago enterprise, for the benefit of the whole city, and every citizen whose interests are permanently here. Therefore, all should unite and contribute, so far as their means will allow, towards making the event worthy of our name and history. The money thus contributed will not be a simple gratuity, but an investment which will pay a large dividend, not only in money, but in the resulting increase of business, the establishment of new lines of trade and manufacture, and the increase in existing values of property.

Let every live Chicago man add his name to the list of subscribers to Chicago's Grand Inter-State Industrial Exposition.

At the next meeting, which was held on the 29th, Secretary Nolan reported that stock to the amount of \$105,000 had been subscribed, being a sufficient amount to warrant the completion of the organization, which up to that time, had been provisional or temporary.

Owing to the new Constitution, the originators of the enterprise were unable to procure a special charter, and therefore organized under the general law concerning corporations, which requires that when any number of persons, not more than seven nor less than three, propose to form a corporation, they must send to the Secretary of State a statement of the name of the proposed corporation, its object, etc., whereupon that officer issues these persons a license as Commissioners to open books for subscription to the capital stock. Application for this license was made March 17. It was granted March 18, and received here March 20. The law further provides that when the stock has been subscribed, the Commissioners shall convene a meeting for the election of Directors.

Thereupon, upon hearing the Secretary's statement, the meeting of the Temporary Directors adjourned, and a meeting of the Commissioners, authorized by the act of incorporation to form the Inter-State Association, was organized. They were W. K. Nixon, A. E. Bishop, Jacob Rosenberg, N. S. Bouton, J. D. Harvey, D. W. Whittle, and A. C. Hesing. The latter was chosen Chairman, and Major Whittle, Secretary, and a meeting of the stockholders was called for April 10, in order to elect a Board of Directors and complete the organization.

On the 10th of April the stockholders held their first meeting in the Common Council Chamber. Gen. Chetlain presided, and after some discussion a motion to elect twenty-five Directors was agreed to; and a committee, after due consultation, reported the following named out of a printed list of a hundred: T. M. Avery, N. S. Bouton, R. T. Crane, George W. Lyon, W. F. Coolbaugh, J. Irving Pearce, Charles Fargo, W. E. Doggett, John B. Drake, C. Furst, Marshall Field, the Hon. Charles B. Farwell, N. K. Fairbank, David Gage, T. W. Harvey, Wirt Dexter, T. B. Bryan, George S. Bowen, the Hon. Joseph Medill, A. C. Hesing, George H. Laffin, John P. Reynolds, Potter Palmer, H. H. Taylor, Jacob Rosenberg.

The report of the Committee was confirmed by a vote of 73 to 7.

The organization was now legally perfected, and had only to select its officers and commence the work before it.

The following day the Board of Directors met at the new Sherman

House, and Messrs. Hesing, Laffin, Crane, Palmer, and Reynolds were appointed a committee to nominate permanent officers. This they did at a meeting held on the 24th, when they made the following report, which was adopted :

President — Potter Palmer.

Vice Presidents — The Hon. Joseph Medill, the Hon. W. F. Coolbaugh, Jacob Rosenberg, N. K. Fairbank, C. B. Farwell.

Secretary — The Hon. John P. Reynolds.

Treasurer — J. Irving Pearce.

Executive Committee — N. S. Bouton, Chairman, George S. Bowen, R. T. Crane, George H. Laffin, T. W. Harvey, David A. Gage, Potter Palmer, Edwin Lee Brown, H. H. Taylor, John B. Drake.

The selection of these gentlemen was judicious and praiseworthy, Mr. Reynolds having had many years experience in State Fairs, etc., and possessing great qualities as an organizer, while the gentlemen composing the Executive Committee, on whom rested the greater part of the work, were among Chicago's most trusted and experienced business men ; and to them the success of the Exposition is undoubtedly due. Upon the succeeding pages will be found correct illustrations of the Officers and Executive Committee.

The Directors met again on the 2d, but no quorum being present, adjourned to the following day, when all were present, and the By-Laws were adopted. T. M. Avery resigned and Edwin Lee Brown was elected to fill the vacancy. Mr. Coolbaugh offered the following resolution, which was adopted :

Resolved, That the Executive Committee be, and they are hereby, instructed to proceed without delay and take such measures as may be necessary to secure the construction of the necessary buildings for the Exposition to be held during the coming fall, and that they are authorized to make such contracts and incur such expenses as may be proper.

The Executive Committee having now been entrusted with full power, proceeded to provide for the erection of the building. W. W. Boyington, the popular architect, whose interest was manifested in the enterprise at its first inception, had long before prepared a plan for a structure, which he afterwards remodeled to adapt it to the site obtained. The plan provided for a building between Monroe and Jackson streets, of 800 feet by 200 feet, and Mr. Boyington's plan was adopted. A full description in detail of the building will be found upon succeeding pages.

The Executive Committee reported their action at a meeting of the

Board of Directors, held on the 10th of June, and stated further that bids had been advertised for the work to the amount of \$198,323, and that in part payment the contractors would take \$50,000 in stock, which was then beginning to become popular, or would wait for that sum till the receipts from the Exposition began to come in. An additional sum of money would be needed to cover plumbing, gas-fitting, sewerage, etc.

Since the capital stock amounted to only \$150,000, which was plainly insufficient to cover the cost of the building, Mr. N. C. Fairbank, of the Finance Committee, moved that the necessary steps be taken to raise it to \$250,000,—that is, that the Secretary should advertise, calling a meeting of the stockholders to vote upon the question of an increase of the amount of capital stock. This was agreed to, and the Executive Committee was authorized to proceed to let the contract for the erection of the building in accordance with Mr. Boyington's plans.

That same day the Executive Committee held a meeting and agreed to send out a circular, with a classification of objects, the work of the thoroughly informed Secretary. It was as follows :

OFFICE OF THE INTER-STATE INDUSTRIAL EXPOSITION, No. 77 WASHINGTON STREET, CHICAGO, June 10, 1873.—The following classification of objects to be admitted to the exhibition of 1873 has been adopted, and its publication ordered in advance of the regular programme for the earlier information of intending exhibitors. In each section of a department certain objects are specified, not because the exhibition is limited to them, but merely to indicate the general character of the section, and to enable exhibitors to determine the appropriate department in which to apply for space to exhibit articles not enumerated. Applications for space will be received at the Secretary's office from this date until July 15 proximo, and each applicant must state in a letter of application :

1. Full name and address, inclosing business card, if any is used.
2. The department and section in which space is desired, together with brief, clear, and accurate description of objects to be exhibited (for catalogue).
3. Extent in square yards of floor or wall surface required.
4. If steam or other power is needed, the nature and amount of the same.
5. If the privilege of selling and delivering articles within the building is desired, it should be so stated, and the terms arranged with the Executive Committee.

As soon as the acceptance or rejection of an application for space or privilege of selling is decided upon by the Committee on Admissions, the Secretary will notify the applicant by mail, accompanied with such other suggestions as may be necessary.

Exhibitors will be permitted to place articles on exhibition in such manner as they may desire, subject only to the approval of the Executive Committee, so as to secure the proper harmonious effect, and a due regard to the equal privileges of all.

As the space and time are both limited, it is very desirable that applications be made as early as possible.

The following classification has been adopted in preference to one more elaborate in systematic detail, because it is thought better calculated to meet the conditions under which the present exhibition must be held. Many intending exhibitors are dealers in several commodities which, though allied by custom in commerce, are widely different in character, and hence in a thoroughly systematic classification would be placed in different departments distant from each other. For the convenience of such, therefore, each department and each section has been made as comprehensive as possible without sacrificing too greatly that general harmony necessary to a well-ordered and attractive exhibition.

In the enumeration of articles in the several sections it is designed merely to indicate the character of each section, so that exhibitors of articles not enumerated may be at no loss to determine the allied group in which to make application for space. In case of doubt, the Secretary will supply the information.

DEPARTMENT A.

Fine and Liberal Arts.—FINE ARTS.—Section 1. Paintings in oil and water colors. 1½. Sculpture. 2. Architecture and design. 2½. Engravings and chromos. 3. Photography. 3½. Wood carving, bronzes, and terra-cotta. 4. Stained glass. LIBERAL ARTS.—5. Typography and book-binding, including books, stationery, and materials. 6. Musical instruments. 7. Apparatus and instruments of medical art, surgery, etc. 8. Apparatus and instruments for instruction and scientific investigation, optical instruments, etc. 9. Telegraphy—electrical apparatus and instruments.

DEPARTMENT B.

Objects Used in Dwellings and for Personal Wear.—Section 1. Furniture, picture and looking-glass frames, book-cases, ornamental wood-work, etc. 2. Glassware, china, porcelain, lamps, gas-fixtures, etc. 3. House-furnishing goods and notions, including willow-ware, brooms, brushes, etc. 4. Clocks, watches, chronometers, cutlery, plastic work, jewelry, and ornaments. 5. Toilet and fancy articles—perfumery, extracts, soaps, etc. 6. Textile fabrics—woolen, cotton, silk, mixed, and other mill and hand-made fabrics, piece-goods, etc. 7. Embroideries and fancy work in silk, cotton, wool, hair, wax, feathers, leather, etc. 8. Garments for both sexes and all ages—including coiffures, wigs and hair-work, straw goods, hosiery, boots and shoes, hats, caps, bonnets, gloves, fans, umbrellas, parasols, canes, dolls and toys, trunks, India-rubber goods, carpets, furniture, tissues, leather, cordage, travelers' equipments, etc. 9. Portable articles for hunting, fishing, and encampment—fire-arms, fishing-tackle, traps, tents, etc. 10. Horse equipments and stable furniture, harness-work, saddlery, etc.

DEPARTMENT C.

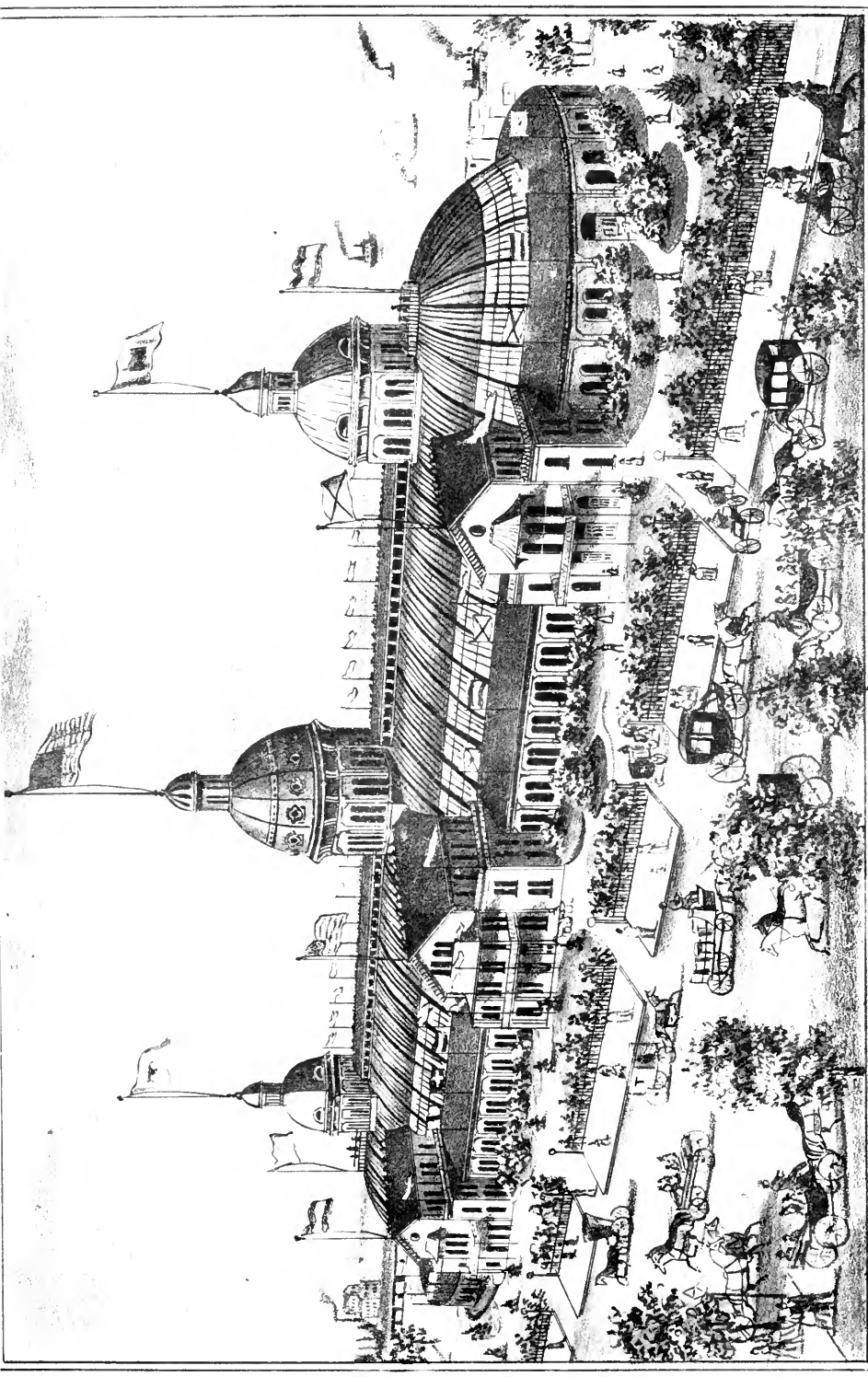
Minerals.—Their Wrought, Cast, and Manufactured Products not included in Department B.—Section 1. Collections and Specimens of Ores and Raw Metals—Gold, silver, copper, iron, zinc, tin, etc. 2. Building and Paving Materials—Stone (natural and artificial), marbles, cement, brick, terra-cotta, tile, slate, coal, gypsum, salt, petroleum, asphaltum mixtures, roofing material, etc. 3. Wrought and Cast Work from the Useful Metals—Printing and card presses, builders' hardware, edge-tools for carpenters, joiners, coopers, etc., safes, locks, scales, bells, copper,

vidually responsible for it. The day of opening had been fixed, and the Board would make out a programme for the opening evening.

This was, perhaps, the last meeting of the Board of Directors of any note. The preliminaries were now *all* satisfactorily arranged, and the remaining time intervening between the opening or inauguration, was filled by the Secretary in awarding space, and by the Committee in seeing that the building should be completed. How well they performed their respective labors has been fully demonstrated by the unprecedented success of the Exposition.



LIBRARY
OF THE
UNIVERSITY OF ILLINOIS



CONCRETE AND INDUSTRIAL REPOSITION



The Building.



ON the 20th day of June, 1873, the first pile was driven that was to form a part of the foundation for the immense structure, as, owing to the peculiar nature of the soil of Lake Park, it was found necessary, to insure a solid foundation, to first pile it. This work was under the management of Mr. O. B. Green, and was completed in five days.

These piles were of oak, 18 inches in diameter and 20 feet long; 328 of them were driven for the support of the immense truss arches, and an indefinite number for the foundation walls.

In a week the pile-drivers and excavators for sewer, gas, and water pipes were out of the way, and the bricklayers and carpenters came to the front, and went at their work with a fervor and rapidity rarely seen, even here. By the 12th of July the floor-laying was completed, and the bricklayers were growing toward the close of their task. These outer walls were run up with almost incredible speed.

The trusses referred to were made by the simple process of nailing one plank of an inch thick over another plank of an inch thick, and that over another, and so on, until six (or eight) had been so nailed together, the ends dovetailing, and the whole being afterward bolted firmly.

Upon the piles rest the trusses which support the lofty and rounded roof. There are 31 main ones and 10 half ones at each end. These trusses are supported each by four piles, capped by oak timbers 12x14 inches thick and 4 feet long. Across these cap-sticks are laid four oak sub-sills 12x12 inches in thickness, and, like the caps, 4 feet in length. Placed side by side on the top of these sticks rest the

main sills, which extend across the building, supporting the trusses at each end. The spring of the arch is placed at 4 feet above the floor, or 7 feet above the main sill. The main ones are of 150 feet span, 4 feet thick, and 12 to 14 inches wide, and are made of one and three-quarter dressed pine plank, fastened with bolts and diagonal tie-rods, the lower being 54 feet from the floor. The half trusses are only 9 inches wide, but of the same thickness and materials as the main ones. For the first 28 feet they are built solid.

The exterior walls of the first story are of brick, 24 feet in height, and are 15 feet outside of the line of trusses. Receding from them is a shed roof, touching the spring of the main roof, which for 17 feet above that point is made of hammered glass. Above that it is of galvanized iron.

On the 2d of August almost all the brickwork was built. Of the 31 trusses, 14 were in position, while 4 more were ready for erection. They were built on the floor of the building and raised to their places by six derricks. Ponderous as they were, it took but half an hour to raise one to its place, though the necessary preparations for that operation took from eight to nine hours. The following Monday, notwithstanding that rapid progress had been made, a hundred more men were put on it, and the work went forward with redoubled speed, watched, not only by the Superintendent, but also by some member of the Executive Committee, who was constantly on hand during working hours.

By the 19th the building was nearly wholly inclosed, except at the ends, and the half trusses at the south end were in place. The glazing in the roof was begun, and the great smoke chimney, just north-east of the building was nearly finished, and the work progressed with like rapidity until the building was completed and ready for its many occupants, and reminded one of the palace reared by the slaves of Aladdin in a single night.

The building is 800 feet long by 260 feet in extreme width, and the exhibition surface afforded is 232,800 square feet; a middle front projection at the grand entrance, 120 by 20 feet; and two end projections, 80 by 20 feet. The grand center dome is 60 feet in diameter and 165 feet high. The end domes are 48 feet square and 140 feet in height.

The entire superstructure rests upon oak piling, of which 16,500 lineal feet were driven for support of same. The building is supported by 31 main trusses, and 10 half trusses at each end. The

former are 150 feet span, 4 feet thick, 12 to 14 inches wide, and are made of $1\frac{3}{4}$ inch dressed pine plank, fastened with bolts and tie-rods. The latter run at each end of the building from the circle, are only 9 inches wide, but of the same thickness and material as the main trusses. The arches are 80 feet in height from the floor to the top of the truss.

The style of the architecture is Italian. In other buildings of this character the ends are nearly square; in this one the ends are circular, permitting the continuation of the gallery, in circular form, around the entire building, giving an unbroken skylight, and an effect to the building on the exterior, and the gallery in the interior, which could not be obtained by any other style of finish.

There have been used 16,500 lineal feet of 12-inch oak piling, 2,000,000 bricks, 5,000 cubic feet of stone, 3,500,000 feet of lumber, 1,500 squares of tin (each being 10x10 feet), 840 squares of composition roofing, 130 tons of bolts, nuts, and plates, 4,600 feet of galvanized iron cornice, 1,000 feet of galvanized iron conductor pipes, 8,500 feet of glass in the windows, 5,000 feet of sheet glass in the ventilators, and 30,000 of $\frac{3}{8}$ -inch ribbed glass in the skylights; in the doors and offices there are 1,000 feet, and in the art hall 2,160 feet additional of glass. There are 16,000 feet of gas-pipe in the structure, half of which is very large—some of it being three inches in diameter. The supply of water comprises not only the city water works, through their street-mains, but in addition thereto, a pumping engine has been placed on the dock near by, steam being kept up in the boiler to run the same at all times. This pump is connected with a 4-inch main encircling the entire building, with sufficient connections for hose attachments, so that the water-supply is ample for any emergency.

In the center of the Michigan avenue front is the first projection, three stories high, 20 feet clear of the main wall, and 120 feet long. The first story has an altitude of 24 feet, the second 16, and the third 14. Over the third story is a pediment or "gable-end" 25 feet in height. In front of this projection or portico is a carriage drive 20 feet wide, upon which open two large entrance-doors. Two double windows flank the doors on each side. Covering the drive is the balcony of the second story, 20 feet wide and 80 long. French double windows open from the second story upon the balcony, which in turn is covered by a handsome awning suspended from above the windows of the third story. The same description applies to each

of the two other projections, situated near the ends of the building, except that they are 20 by 80 feet in ground measurement, and three doors open upon the carriage-drive in each case, instead of two, as in the grand portico.

There are 473 windows in the building, 160 of which are in the first story, or brick portion. Of doors there are 18. The two main doors are 10 feet wide by 14 feet high, with semi-circular transoms, adding 6 feet to their height. Six of the doors in the end projections are 8 feet wide, and the ten doors in the sides and ends of the building are 10 feet wide; the height is uniform. On the second story there are four doors opening to the balcony on the front portico; these are 6 by 10, with transoms. At each of the end projections there are two doors 8 by 12 feet.

The grand dome is just back of the Adams street entrance and exactly in the middle of the roof. It is twelve-sided, 60 feet in diameter, with 40 feet perpendicular height, and a radius of 38 feet 8 inches for the curve. Above the perpendicular part the dome is 36 feet high, making a total height from the top of the truss to the base of the lantern of 76 feet. The lantern is 13 feet in diameter, has a perpendicular face 12 feet high, crowned by a rounded cover 8 feet high. From the apex of the lantern springs a flagstaff 58 feet high. The distance from the ground to the base of the flagstaff is 176 feet. In each face of the circular part of the dome and lantern is a round dormer window, crested and ornamented with galvanized iron work. In each of the perpendicular faces is a large double window. From the north and south sides of the grand dome a ventilator extends along the roof to the end domes. This ventilator is 12 feet high and 26 feet wide. The sides are glass and the top—which is supported by iron posts set 10 feet apart in the sides—is galvanized iron. Along the ridge of the top extends an ornamental railing.

The end domes are each 48 feet square and 32 feet high to the base of the lantern, which is 140 feet above the floor. The lanterns have each a height superior to its dome of 16 feet, so that from the floor to the summit is 156 feet.

The grand center dome is the greatest feature of the whole building, and, facing Adams street, forms an imposing terminus for that street. From its summit, too, one can get about the finest view of Chicago and the lake that can be found anywhere in the city.

The arrangements for lighting the building at night are of the most comprehensive character. A large center ring, 18 feet in diam-

eter, with 60 burners, hangs beneath the great dome. Distributed over the building are 50 6-foot rings, each one having 36 burners; these hang 24 feet above the floor. There is an eight-light pendant every 10 feet under the galleries, or 170 of these pendants, having in all 1,360 lights. On all the arches above the gallery there are brackets with four lights each. The art-room is lighted with perforated pipe having about 500 burners, a foot apart. The pipes hang about 16 feet from the floor, and are so connected with the main pipes, that any one of the three departments into which the art-room is divided may be lighted alone.

The building itself is regarded as a model structure, and to the contractors to whose care was confided the strength and beauty of the building, this is largely due, and we herewith append their names:

W. W. Boyington, architect; W. L. Carroll, superintendent; P. H. Decker, carpentry; Reeves & Wells, mason work; Heath & Milligan, painting and glazing; J. S. Bassett, plumbing; Wilson & Wilbard, gas fitters; Lester & Updyck, sheet glass; T. E. Canda & Co., bolts, nuts and plates; Foot & Rice, hammer glass; N. S. Bouton & Co., cast iron work; D. B. Hall & Co., bolts and rods; Dewey & Jones, tin roofing and galvanized iron work; M. A. Powell & Co., composition and gravel roofing.





The Inauguration.



N Thursday evening, September 25, 1873, the great Inter-State Industrial Palace was formally inaugurated in the presence of fully 20,000 people, and the ceremonies were of a very imposing character, which will ever remain green in the hearts of all present, for here was the consummation of Chicago's long cherished hope.

"That called impossible was swift begun,
And in less than ninety days the task was done."

At 7 o'clock the building was lighted, and amid a blaze of light, the thunder of cannon, and the strains of Vaas & Hoffman's superb band, the great building was dedicated. At 8 o'clock the distinguished gentlemen who were to take part in the exercises entered the building, escorted by the Superintendent of Police, consisting of Gov. Beveridge, Gen. Logan, Mayor Bond, Senator Oglesby, Hon. C. B. Farwell, Hon. W. F. Coolbaugh, the Board of Directors, and others. In the absence of Potter Palmer, Esq., the President, Mr. Coolbaugh, the Vice-president of the association, presided. He said he "regretted the absence of Mr Palmer, and that he was compelled to preside. The meeting would please come to order, and listen to an address by Mr. Bouton." Mr. Bouton then spoke as follows:

Mr. President, and Gentlemen of the Board of Directors :

The project of holding in this city a grand Exposition of industry and art has been agitated for at least the past ten years. Preliminary steps, such as public meetings, formal and informal organizations of citizens, and even large subscriptions of money, have been taken at different times within that period. The last of this series commenced in February of the current year, and at first contemplated merely

a temporary union of the general manufacturing interests of the city with those represented by the Woolen Manufacturers' Association — an itinerant organization which had already held attractive exhibitions in this and other western cities. By the first day of March the idea had expanded with characteristic rapidity of growth, when, at a public meeting held in the new Sherman House, it was resolved "that a great Inter-State Industrial Exposition shall be held in the city of Chicago during the coming fall, commencing on or about September 15, and continuing four or more weeks," and that "the people of all States and all countries be cordially invited to contribute articles for exhibition in every department." It was also further resolved "that the most eligible location for such an Exposition is that portion of Lake Park situated north of Congress street." A mass meeting was then called, to be held on the 8th of March following at the Chamber of Commerce, at which the previous resolutions were fully indorsed, and provision made for a permanent organization with a capital stock of \$150,000. On the 18th day of March the authority to open books of subscription was obtained, and on the 10th day of April following the first meeting of the stockholders was held and the first Board of Directors elected. On the 3d day of May the complete organization of the Board, by the election of officers and the adoption of by-laws, was accomplished, and it was further ordered "that the Executive Committee be, and they are hereby, instructed to proceed, without delay, to take such measures as may be necessary to secure the construction of a suitable building for the Exposition to be held in during the coming fall, and that they are authorized to make such contracts and incur such expenses as may be proper." Meanwhile, on the 28th day of May, 1873, a resolution of the City Council offered that portion of Lake Park lying between Monroe street on the north and Van Buren street on the south, as a site for the Exposition and grounds, thus removing the only remaining obstacle to the early prosecution of the great work.

Your Committee, thus charged, proceeded at once to carry out the views and instructions of your honorable Board by first availing themselves of the services of Mr. W. W. Boyington, an architect of large experience, who produced the ground design of the building, which, with slight modifications, we meet this evening to formally dedicate. The plans, specifications and proposals for the erection of this structure were formally laid before you at your regular meeting on the 10th of June last, and, it appearing from the bids and estimates that the cost of construction would largely exceed the entire capital stock of the corporation, you took proper legal measures to increase such capital stock, to the sum of \$250,000, and at the same time ordered the Executive Committee, in anticipation of such increase, "to proceed at once to let the contracts for the erection of the Exposition building in accordance with the plans and specifications prepared by the architect, W. W. Boyington, and now before the Board."

Accordingly, on the same day, contracts were let to the amount of \$202,319.40, and subsequently to the amount of \$41,038.48, making an aggregate of \$243,357.88.

The Exposition building itself, whether for architectural beauty or for its adaptation to the purposes of its erection, is regarded as a model structure. It affords an exhibition surface of 230,000 square feet, exclusive of the rostrum, and also exclusive of two outside exhibition sheds, floored and roofed, which, together, afford an additional exhibition surface of 20,800 square feet.

Here Mr. Bouton gave a description of the building, material of construction, etc., which has already been given by us in the preceding pages. He continued :

No serious accidents have occurred during the progress of the building, and we are pleased to bear testimony to the energy, promptness, and ability displayed throughout by the architect, superintendent of construction, contractors, and laborers, in their united and successful effort to fulfill their several duties in pushing the work to completion, in all its parts, on the time first appointed.

In addition to the erection of the structure, as required by your resolution above referred to, the Executive Committee are also charged by the by-laws with the plans and arrangements for the Expositions which may be held from time to time.

In accordance, therefore, with the spirit of your instructions, as soon as the construction of the building itself became a fixed fact, we authorized the issue of a programme and classification for a representative exhibition of the products of industry and art, to be held in the projected structure the present fall.

In view of what now surrounds us on every side, we need not tell you that the response to our invitations has been as generous as the most sanguine could have dared to anticipate ; so generous, in truth, that, immense as we thought this palace to be, the applications for space from those who desired to exhibit have been largely in excess of its capacity.

From almost every State and Territory in the Union, as well as from foreign countries, valuable and interesting contributions have been placed in the hall, while many more have been necessarily excluded ; and as a whole, we are persuaded that this will take rank with those great industrial exhibitions which stand to-day more prominently than any other great victories as the landmarks of progress in the life of nations.

The result of our labors, gentlemen, is before you. We beg you to accept it as the discharge of our obligation, voluntarily assumed at your request, and which we have labored cheerfully and faithfully to meet.

Mr. Coolbaugh, upon behalf of the Board of Directors, made the following remarks in response to Mr. Bouton :

MR. CHAIRMAN AND GENTLEMEN OF THE EXECUTIVE COMMITTEE: The duty has been assigned to me of saying a few words in behalf of the Board of Directors of this Association, in response to the remarks made by Mr. Bouton, and in view of the fact that I am to be followed by able and distinguished speakers, who are to

ke the set speeches on the occasion, I will endeavor to do justice to myself, to them, and to you, by being as brief as possible. The prospect of erecting in the city a suitable building for such an Exposition as we already find here was agitated only a few months since. It was felt by the public-spirited gentlemen who were connected with the enterprise that the time had come, and with that resolute will with which the people of Chicago are wont to do what they undertake, they set to do it. An association was organized, officers were elected, stock books were opened, and the moment the subscriptions seemed to justify the success of the enterprise, the Executive Committee, of which you are the honored Chairman, were instructed to

ahead. The result is before us, and, in the magnificent structure, which, in three short months, has risen in all its symmetrical proportions from the dust, we behold the coming triumph of New Chicago. It was an enterprise undertaken with no selfish or mercenary purpose, or expectation of individual gain, but, in the belief that the agricultural, manufacturing and commercial interests of the northwest, as well as the promotion of the arts and sciences, required some fit place in which might be exhibited the trophies of our skill and industry. It was hastened, probably, by a proud determination, somewhat characteristic of our modest citizens, that, in the encouragement of everything that stimulates industry, Chicago cannot afford to be outdone by her older and full-grown sisters, Cincinnati and St. Louis. If their hopes shall be realized with respect to the public benefits which may follow from their undertaking, the projectors of this Exposition will not only be satisfied, but gratified, whatever may be its pecuniary result. And now, in accepting, on behalf of the Board of Directors of the Inter-State Exposition, this work at your hands, I beg to tender you their sincere thanks, and with ours the thanks of the stockholders of the Association, and of all the people of Chicago, for the indomitable energy which, in so brief a space of time, has reared this grand Industrial Palace. May it stand here for an enduring monument for years of the public spirit of this city, and of the sound judgment, good taste, and comprehensive views of Mr. Bouton and his associates, under whose supervision it has been built.

Music followed, and then Mayor Bond, who was received with applause, welcomed all present to the great hall to examine the triumphs of the arts around them, and in examining them think, not merely of the articles they saw, but also of the inventors. He wanted them, as they wandered around, to consider the mechanic, and think of what he had done. The vast building was erected in ninety days, but it was really the growth of six thousand years; for only the slow progress of mechanic arts had made this city and the Exposition building possible. He had long felt that the influence of the mechanic had been too much ignored, even by a man like Buckle. Yet the mechanic had done more to advance humanity and civilization than any other class. It had been wondered why railways were not sooner invented, but they were not practicable till hundreds of other little things had been worked out. Too often, in looking at some one thing, they forgot the long train of mechanics whose labors had been called on to perfect it. The least little thing they could find in the building had become what it was only by the slow progress of mechanics through the ages.

He said he had been urged to talk about finance. In conclusion, he believed a man who had a theory about finance was a dangerous man. He believed there was no cause for alarm, and that the men who rebuilt the city would get safely through the present crisis.

Governor Beveridge was introduced, and said that first came markets, then fairs, then expositions—the root, the tree, the foliage. Cities, ancient and modern, had their market-places, where buyer and seller met. Chicago wisely abolished that, and left it to private enterprise. In Europe, fairs had been held for ages to promote commerce. Merchants and traders gathered to dispose of their products. They were amply enlarged markets. In an early day they promoted commerce and softened national antipathies. He mentioned the celebrated fairs of England, France, Germany, and Russia. Here, fairs were held, not for commerce, but to exhibit fine stock, etc., and to acquaint people with the products and resources of the country. These fairs were instituted in the interests of agriculture. They elevated labor and encouraged the producer. In this country and State, with its fertile plains, these fairs should be fostered and protected. In Illinois they had constitutional protection. Of later years they had assumed a wider range and international significance. They were held to represent the civilization, wealth, and power of individual nations, and to associate in one enterprise all races of men. Such were the Expositions in Paris, New York, Vienna, and London, and the Centennial Exposition to be held in 1876. Might not they hope that the last one would be a fit memorial of the events it commemorated, and would represent the spirit and progress of America, and be visited by people from all States and lands, and that in its perfect completeness it would surpass all former expositions, and be one the nations of the world would be proud to emulate. In imitation of these expositions, various cities had established them, like Cincinnati and St. Louis. Chicago had its now. In memory of the ashes, in honor of the rebuilding, Chicago now inaugurated its Exposition on ground which, two years ago, was blackened with fire. Now in the presence of a vast concourse, to the sound of sweet music, is dedicated to art, commerce, and industry, that magnificent temple. Chicago, in every respect imaginable, vied with the cities of the world. In one night the fire fiend laid it in ashes. The accumulation of years was swept away. The people, crippled in resources, but not bankrupt in spirit, with hopeful courage and trust in Providence, blew away the smoke and ashes, removed the rubbish, piled up the brick and stone higher and stronger, and finished all, and Chicago to-night, with its industries and warehouses, its hotels and banks, and Exposition, sat like a queen on the lake, grander and more magnificent than ever—the wonder and glory of the world.

Senator Logan was next introduced. It was a happy thought, that of exhibiting the products of agriculture and mechanics. The habit among literary men a hundred years ago, of meeting in clubs and comparing writings, had led to improvements and to the perfection of their style. So to these exhibitions, farmers and mechanics brought specimens of their products. The florist brought his flowers and the lady her embroidery. Was it a mere show to please the eye, or give premiums to a few? No. It was intended to accomplish a higher purpose. The gratification of curiosity was a mere minor result. The chief ones were the result on the minds of those who learned, by comparison, defects in their own works, which they had hitherto considered perfect. An artist absorbed in his work, was often unconscious of its defects, but when it was placed side by side with another he saw its faults. So was it with the mechanic, and, in every avenue of life, contact with others was essential to the full growth and development of genius. The minister confined to his own parish became narrowed and restricted. These expositions were the assemblies and councils of artisans and artists. The mechanic saw before him the progress that others had made, and in what points they had surpassed him. As he looked, his field of perception became enlarged. These silent influences formed one series of the useful results of these expositions, leading to improved machinery and better trained labor.

Those who visited expositions from mere curiosity, learned much. Few departed without seeing something which they could apply in the daily walks of life. It facilitated the spread of inventions, and quickened the return of the rewards of genius. These expositions, rightly considered, had a good moral effect, showing, as they did, the varied power of the human intellect, and that man was only a little lower than the angels; not akin to the brute, but linked to a higher and more glorious order of existence.

The next speaker was Senator Oglesby, who said he came one hundred and seventy-five miles to participate in the service. After that long journey he felt he was not yet in speaking distance of them. Had they heard speeches enough? The night was far advanced and he would like to withdraw. Still he would say a few words. While he was Governor he attended the first Exposition of the woolen men. From that little gathering came the edifice in which they stood. The articles they saw were gathered from a dozen States, and shown to 50,000 more people than in 1868. They

had been told of the growth and development of manufactures. They co-existed with creation. America, less than a hundred years of age, stood in advance of all the ancient nations, and was equaled by England, France, and Germany only. Did those present come out of curiosity? If the Exposition had no greater aim, it would produce no good result. There was a higher idea in the beautiful articles exhibited. Mechanics and artisans here were in competition with the skilled labor of the world. It was an honorable contest for glory and wealth. England should be on her guard to save her laurels, for America would outstrip the world. No order could be given that could not be filled here in Chicago for complicated or costly pieces of mechanism or physical industry. The building they stood in was built in ninety days, and but few of those present had put a hand to it. Place the mechanic who devised the building by the side of Senators and Governors, for he was their peer. He told Europe, in the kindest spirit, to beware of the energy, courage, pluck, and impudence of Young America. He did not envy the English, and thanked them for what they had done for civilization. He also thanked Massachusetts, Pennsylvania, and New Jersey, for their noble efforts, but he warned them that the northwest had another problem to solve. The nation which paid the highest wages prospered the most, and if the northwest wanted to excel it must solve the problem of increasing the wages of the laboring man. The Republican party talked for years of elevating labor, and of the dignity of labor. It was elevated by educating the masses. The difference between here and Europe was that all in subordinate employments were educated here. Could educated men like these be kept down? Would they stick to the idea that wealth grew out of low wages? The toiling millions must rise. Look at the contest raging in England now between educated mechanics and the national federation of employers. That conflict would not stop until labor dictated its own terms. All had been lifted up here. The farmers of Illinois were educated, and the result was the stir of the last twelve months. An educated mass would have power and would be heard. So the Exhibition brought together men to push on these mighty engines of wealth, but not to cut down the prices of labor. Could Europe be met on the basis of high wages for labor? It was a problem for capital and labor to settle, and it would be settled without any law of Congress. The whole subject of labor was divided into three parts, transmutation, transformation, and trans-

portation. The first, agriculture, the second, the mechanic arts, and the third, commerce. They were nice terms, well understood in the school of political economy. But there was no big name for money-currency, the Stock Board, these places where the representatives of the wealth of the country met. But they had better be called transmogrification, for the banks here had been for some hours in a trance state. Did that give rise to concern? Was there cause for uneasiness? He thought not. The banking capital of Illinois, so far as he could judge, had been mainly, almost entirely, in the hands of discreet, honest, and prudent men, and, under the National Bank Act, there was no reason to say bankers have intended to take advantage of their creditors. When the temporary panic was over the northwest and the Union would go on prosperous as ever. This was no panic in commercial circles. The wealth of the country remained untouched. There was more wealth than in 1870. They were all healthy and able, and there was no just ground for fearing an universal panic. If it did come, it would be but a moment before the country would recover from it.

The action of everybody in Chicago showed how little the panic had effected them. Currency would soon return to its accustomed channels, and trade would go on as before. He closed by thanking the noble men who got up the Exposition, and wishing the amplest and richest returns to them all.

After Senator Oglesby's speech, the bands discoursed some fine selections, and the Industrial Palace was declared duly inaugurated and the official programme carried out, which brought the first entertainment to a close, and at a late hour the doors closed upon the first successful day of the Grand Exposition.





The Exhibitors.



WE have now followed carefully Chicago's last and most magnificent enterprise — the Exposition — from its inception to inauguration, and come at last (but by no means the least) to the Exhibitors, who have done so much to make the enterprise a success, and one of interest to all, by the splendid display of their wares. Upon the following pages we give a classified list of the Exhibitors, and description of goods exhibited, the perusal of which will be found of much interest.

DEPARTMENT "A."

Fine and Liberal Arts.

SECTION I.

Paintings in Oil and Water Colors.

I.—AUTUMN IN THE SIERRAS. By Albert Bierstadt, of national reputation. (Artist, owner.) The talented artist presents a view in this painting on the head-waters of the south fork of King river, in southeastern California. The scenery of that portion of the Golden State has never been previously painted, and this is the first instance that the picture has ever been exhibited outside of California. The lines of the mountain range are drawn in great variety, and mark the skill of the painter. Grandeur and immensity are the

two aims of the painting, and in these respects the artist fulfilled his intention. The whole painting has many of the massive effects of Bierstadt, but is peculiar, and differs from all of his previous works. As a whole, it is a careful representation of some of the grandest scenery our country affords.

2.— FIRE MEMORIAL PAINTING. By E. Armitage, R. A., London. (City of Chicago, owner.) This painting has been subjected to the most severe criticism, not only by art connoisseurs but by the public and religious press of the country, and in nearly every instance adversely criticised, yet as a work of art this picture *is* a most decided success. Whether the expression is pleasing or the story flattering to American pride are not questions to be raised. The laws of art have been complied with in the drawing, grouping, and arrangement of color and light, and the painting already has a wide reputation. The picture was presented to the city of Chicago, for her new City Hall, by the proprietors of the London *Graphic*, by whom the artist was selected to paint an allegorical picture which would represent the aid afforded by England to suffering Chicago in her distress at the time of the great fire. True to his commission, the artist portrays vigorous Chicago stripped of her beautiful clothing of purple, of which the last vestige is seen still smoking, and though losing her possessions, she has escaped from personal injury in an almost helpless state. America, who has partially raised the fainting form, has administered a stimulating cordial, and has apparently done all in her power for poor Chicago, now turns appealingly to Britannia, who comes to the aid with fresh strength. The same idea is expressed in the watchful and tired eagle, and the quiet lion at rest. This picture cannot be fully understood without study, and to one who enjoys a true work of art it cannot fail to be appreciated, as well as the great talent of the artist displayed.

3.— LONG BRANCH BY MOONLIGHT. By C. G. Rosenberg. (Artist, owner.) The above picture by this artist is the first one which has ever come to the west, but his paintings are well and favorably known in art circles of the metropolis. The picture exhibited here represents "On the Beach" at the great summer resort. The foreground is filled with a group of people, finely drawn, but the contrasts of light and shadow have a somewhat unpleasant effect, yet the quiet ocean, and the soft moonlight which streams over it with such beauty, can rarely be excelled.

4.— CENTRAL PARK is by the same artist as No. 3, and is also

owned by him. It is a faithful representation of the steps in Central Park between the lake and the mall, with a gay group of people in the foreground engaged in contemplating the surrounding beauties. This picture is well executed, and in the artist's usual commendable manner.

5.—BASKET OF RASPBERRIES. By Mrs. R. G. Packard, of Morristown, N. J. (Artist, owner.) A basket has been carelessly overturned, spilling the red and luscious fruit, which is scattered about in profusion. The execution of this picture is particularly fine.

6.—GROUP OF FISH. By Samuel M. Brooks, of San Francisco, Cal. (E. Bierstadt, owner.) The beautiful specimens of the sea, as depicted in this picture, are grouped in a graceful manner, partially hung up and partly lying upon a coarse mat covering the table, and the happy effect of the reflected light from the scales, and the easy blending of lights and shadows, makes this picture a valuable acquisition to any gallery of art. The artist has won an enviable reputation for success in fish painting.

7.—NORWAY LANDSCAPE. By J. Hammerstadt, of Chicago. (Artist, owner.) This is an ambitious picture, representing the scenery of the artist's native land, and fairly executed.

8.—HARD TO MANAGE. By Clarence M. Johns, of Pittsburg, Pa. (Artist, owner.) This picture is a correct representation of nature. The spirit displayed, and grouping, make it a good horse picture.

9.—GLENCOE, SCOTLAND. By Arthur Parton, of New York. (Emigh, owner.) This artist, whose small pictures have always been admired in Art Exhibitions, exhibited a large landscape with the above title, in which he has made a very attractive picture out of very unpromising material. The landscape is a barren and monotonous one, and yet it is marked by very poetical feeling.

10.—LAKE MEMPHRAMAGOG. By J. C. Wiggins. (Emigh, owner.) In the foreground, the beach sweeps around in easy lines; the formation of the distant hills is beautifully grand, and the atmospheric effects and the water particularly good. In compliment to the artist, although several other lake scenes were exhibited, this picture does not fail by comparison.

11 & 12.—ADIRONDACKS. By Arthur Parton, of New York. (Emigh, owner.) These two small sketches by this popular artist were gems, and executed in his usual masterly manner, characteristic of all his small pictures.

13.—FLOWERS. By Miraudote, of Paris. (Emigh, owner.) This

picture is a large flower piece, in which the profusion of flowers and their variety of color, somewhat detracts from the merits this painting really possesses.

14.—UNEXPECTED FRIENDS UPON THE BATTLE-FIELD. By H. Balling, of New York. (Artist, owner.) This picture possessed but few commendable features, but the subject was worthy of much better representation.

15.—I DO LISTEN. By the same artist, was a more artistic painting, and represented the Norwegian shepherdess listening for a missing member of her flock. From the execution of this picture, the fact is apparent that the artist is capable of much better productions.

16.—GROUP OF CHILDREN. By Pine, of Chicago. (J. W. Doane, owner.) This was a large and exceedingly well executed picture, but the faces of the children presented too mature an appearance for the subject, and had a sameness of expression which materially detracted from the otherwise good merits it possessed.

17.—THE BEAUTIFUL GARDENER. By Plassan, of Paris. (Kellogg, owner.) This is a superior picture, and shows great harmony in color between the complexion of the lady and the tints of the flowers and drapery.

18.—COMMITTING TO MEMORY. By Holfeld, of Paris. (Kellogg, owner.) Represents home-life of the young scholar who is endeavoring to fix a passage in his memory from a book which is open before him. The painting, although small, is a very valuable one, and is really a fine piece of art.

19.—THE LOCKET. By J. Coomans, of Paris. A companion to No. 18, and owned by the same owner, represents a boy intently examining the pleasing present of a locket, supposed to contain the face of some dear friend; perhaps the giver. Like its companion, this painting is superb and valuable.

20.—LAKE IN THE WOODS. By Geo. H. Smillie, of New York. (Artist owner.) This is a quiet landscape in the Adirondack mountains, and represents a beautiful sheet of water shut in on one side by a high cliff, the rocks of which are very naturally portrayed. This painting is a very charming composition and is worked out in very careful detail.

21.—LAKE CHAMPLAIN. By D. F. Bigelow. (Artist, owner.) The above lake, which is near Burlington, Vt., is beautifully represented, and so accurately that every son of Vermont would at once not only recognize it, but the easy lines of the Green mountains, seen in the distance.

22.—SYCAMORES. By H. C. Ford. (E. Burnham, owner.) This picture dates with the earlier efforts of the artist, and is very pleasing by the careful blending of colors.

23.—ENTRANCE TO THE SOUTH PARK. By H. A. Elkins. (E. Burnham, owner.) This painting is a characteristic representation of the scenery of Colorado, without being in all respects a literal view.

24.—OCTOBER WOODS. By H. C. Ford. (Artist, owner.) Few pictures exhibited presented more attractions than this one. The artist vividly portrayed the trees, of the many kinds of woods, and the light stealing through the tree tops to illuminate the rocks and moss is grandly beautiful. The charm of this picture lies in the long vista, beneath the branches, to a clearing far away.

25.—MARINE COAST OF MEXICO. By L. Holtz. (Artist owner.) Like other marine views, but little presents itself to make the beautiful. The water was well done, while the clouds are poorly executed and lack artistic treatment.

26.—STEAMSHIP BALTIC. By Wm. Forgerson. (White Star Line, owners.) A well executed painting of one of the steamships at sea of the White Star Line, by whom it is owned.

27.—PORTRAIT OF MISS AITKIN. By Schwordt. A well executed portrait of the above lady, by whom it is owned.

28.—BROOK IN THE ADIRONDACKS. By Chas. A. Fiske, Fairfield, Conn. (Artist, owner.) Represents the tangled wildwood of the great wilderness of the north woods, and the little canvas possesses many beauties, both in the water and the fidelity to nature of the varied tree trunks.

29.—THE CHRISTMAS GIFT. By Halfeld, Paris. (Kellogg, owner.) This exquisite little gem is finely done.

30.—VIEW ON THE DESPLAINES. By Annie C. Shaw. (Artist, owner.) A riverside landscape, in which the artist displays marked talent.

31 & 32. PORTRAITS. By F. W. Freer, by whom they are owned.

33.—AN INTERIOR OF THE 16TH CENTURY. By Knarren & V. Taussens, Brussels. (Kellogg, owner.) A servant holds out a plate of cherries, standing near a table at which some one has taken luncheon. This is an admirably well executed picture.

34.—PORTRAIT OF THE HON. LEONARD SWETT. By A. E. Darling. Owned by Mr. Swett.

35.—PORTRAIT.

36.—MY LITTLE SISTER. By J. R. Stiles. (Artist, owner.) A pleasant little picture, a description of which the title is suggestive.

37.—PORTRAIT. By H. E. Peterson. (Artist, owner.)

38.—THE QUEEN OF PEACE. By Illenbach, Dusseldorf. (Kellogg, owner.) Is a Madonna and child on a gold panel, with the motto, *Regina Pacis*. The artist is of the Dusseldorf school, and one of power, as his pictures show.

39.—TEA-PARTY IN THE GARRET. By Sam'l Verplanck, of Fish-kill, N. Y. (Artist, owner.) This picture represents a little girl's tea-party, and the assumed character of matronly dignity of the children is finely given.

40.—THE YOUNG ORATOR. By Sam'l Verplanck. (Artist, owner.) While this picture is by the same artist as No. 39, it is not so good a picture; there being too much stiffness in the subject representing a youthful Demosthenes on the stage of a country school-house.

41.—A BEACH SCENE. By William Bradford. (Artist, owner.) This is a good painting by an artist deservedly famous in this country and in England.

42.—GRAND-PA'S LITTLE GIRL. By Rose F. Peckham, of Providence, R. I. The artist of this picture is entitled to credit for a fine production.

43.—PORTRAITS. By John Phillips. (Artist, owner.)

44.—PORTRAITS. By S. Kelley. (Artist, owner.)

45.—FRUIT. By J. P. Andrews, N. Y. (Artist, owner.)

46.—ON THE SCHUYLKILL. By M. Kollock. (Artist, owner.) Is a fine representation of the river.

47.—STORM ON THE SHAWANGUNK MOUNTAINS. By G. H. McCord, of Yonkers, N. Y. In which the heavy shadows of the cliff are brought out by the soft sunlight falling on the trees near the brook. It is a close representation of the stormy side of nature.

48.—GRAPES. By Mrs. Henshaw, of New York. (Artist, owner.) A fruit piece well executed.

49.—FOUNTAINS OF POMPEII. By J. Coomans, Paris. (Kellogg, owner.) This painting was one of the finest figure pieces exhibited. The position of the figures is graceful, and the interior court of an old Roman home is faithfully represented.

50.—PORTRAITS. By S. Kelley, of Chicago. (Artist, owner.)

51.—ON THE CONNECTICUT. By J. F. Kensett. (Emigh, owner.) This is entirely unlike the usual pictures of the genial Kensett, who was always extremely faithful in his painting. In this picture, while

the day is unusually warm and bright, the water is dull, and there is a want of liquid transparency to it.

52.—LAKE GEORGE. By J. F. Kensett. (Emigh, owner.) In this picture the water has great depth and all the feeling of nature, and the distance has been expressed by careful handling. This painting is a good memento of the power of this artist, who passed away so quickly nearly a year ago.

53.—SUNSET AFTER A STORM. By K. Van Elten. (Emigh, owner.) In this picture the effect desired by the artist has been carefully studied and fully attained.

54.—A NOVEMBER DAY. By J. R. Brevoort, of New York. (Emigh, owner.) Is a gloomy representation, but a faithful picture of late autumn life.

55.—CORN HUSKING DOWN EAST. By Eastman Johnson. (Kellogg, owner.) The husking is over, and an old man sits in a chair, tying together the golden ears of seed corn, and beyond a large pile of husks his wife can be seen disappearing, while the little girl watches the arrangement of the golden ears. The drawing of the figures is excellent, and the lights and shadows perfect.

56.—THE OLD NOBLEMAN. By Siegert, Dusseldorf. (Kellogg, owner.) The painting of this artist of the Dusseldorf school is a valuable one, and, both in composition and effects, is worthy of high commendation.

57.—AFTERNOON ON THE HUDSON. By Wm. Hart, of New York. (Kellogg, owner.) This picture is the production of one of the most careful American artists, and it need only be said is equal to his former productions.

58.—THE FORGE. By Verschour, of Holland. (Kellogg, owner.)

59.—PORTRAIT OF OWEN MCCARTHY, ESQ. By F. L. Rockwell. (Artist, owner.)

60.—PORTRAIT OF J. C. GAULT, ESQ. By F. M. Pebbles. (J. C. Gault, owner.)

61.—PORTRAIT OF MRS. J. W. HODGKINS. By F. M. Pebbles. (J. W. Hodgkins, owner.)

62.—PORTRAIT. By H. E. Peterson (Artist, owner.)

63.—WHO'S AFRAID! By Miss Florence B. Morton. (Artist, owner.) This is a saucy little sketch, which evinces spirit and progress in correct drawing.

64.—LAKE MAGGIORE. By A. Waagen. (M. Ryerson, owner.) Is a beautiful Swiss scene, the deep blue water of the lake appearing in

the distance, and the foreground being filled with rocks and trees of very good texture; a country cottage gives variety to the scene.

65.—LANDSCAPE NEAR ROME. By H. Burckel. (M. Ryerson, owner.)

66.—LANDSCAPE. Bavarian Mountains. Same artist and owner.

67.—THE PILLAR LAKE. By Reckmann. (M. Ryerson, owner.) This is a companion picture to No. 64, but there is not the feeling of nature in it, although fairly executed.

68.—CONGREGATIONAL SINGING. By Teniers. (Kellogg, owner.) Is an original by D. Teniers in 1628; the grouping is good, and the color is harmonious.

69.—FLOWERS AND VASES. By Robie, of Brussels. (Kellogg, owner.) The reputation of this artist as a great flower painter is fully sustained by this picture, in which the artistic carving of the larger vase and the natural tints of the other, made of shells, are very natural.

70.—LEAVING HOME. By Carl Hubner, Dusseldorf. (Kellogg, owner.) Is not a fair representation of this artist's work. It lacks the masterly power his works usually possess, yet some portions are painted in his usual fine style.

71.—A FLEMISH INTERIOR. By Van Hove, Holland. (Kellogg, owner.) Is a small, but an exceedingly good painting. The architectural character and the perspective have been faithfully studied, and the harmonies of color well preserved.

72.—THE HOME OF MOTHER CAREY'S CHICKENS. By F. M. H. DeHaas, of New York. (Kellogg, owner.) Is one of this celebrated artist's superb views, in which the water is full of depth, clearness, and actual motion. The coast rocks, and passing vessel, add a picturesqueness to the work, which is in every way a grand marine picture.

73.—THE STUDENT. By Fredericks, of New York. (Kellogg, owner.) Is well executed, and one deserving more than passing notice.

74.—THE SLEEPY NURSE. By Wm. Morgan, of New York. (Kellogg, owner.) In some particulars this picture is very good, but the drawing of the figure is faulty; though the shadows are commendable, and give strength to the painting.

75.—APPLES. By M. Brown, of New York. (Kellogg, owner.) Are well painted, and in position, form, color, and texture, they are praiseworthy.

76.—CATTLE. By Beekhausen, of Copenhagen. (Kellogg, owner.) This is an old painting, which is good in drawing and color.

77.—CHICKENS. By Tait, of New York. (Kellogg, owner.)

78.—FRUIT AND WINE. By Wilms, of Florence. (Kellogg, owner.) This artist stands in the front rank of all fruit painters, and "Fruit and Wine" is a good representation of his style. The sparkling wine bubbles in a clear glass, and the grapes are beautiful and transparent, while the vine leaf is fresh and crispy.

79.—EXPECTATION. By Victor Chavet. (Kellogg, owner.) Is an expressive piece of painting, and superbly executed.

80.—A GLIMPSE OF THE CATSKILLS. By A. D. Shattuck, of New York. (Kellogg, owner.) This picture, being one of the artist's old productions, does not resemble his recent pictures. Still the feeling of distance has been finely expressed, and the foliage of the trees is graceful.

81.—VENICE. By David Neal. (Kellogg, owner.) Is one of the many famous productions by this justly celebrated artist, and fully represents his power as a painter of the interior of buildings.

82.—THE CHILD'S PRAYER. By Meyer Von Bremen, Berlin. (Kellogg, owner.) This was the smallest picture exhibited, but it is exquisite in its microscopic finish—the child and the drapery both being beautifully finished.

83.—TAKING THE LIKENESS. By Ed. Frere, Paris. (Kellogg, owner.) The name of this artist is famous, and his style can be obtained from this little picture of a boy "taking the likeness" of his playmate.

84.—CABBAGE PATCH. By J. Merahn. (Kellogg, owner.)

85.—SUMMER. By J. D. Smillie, of New York. (Kellogg, owner.)

86.—SAPPHO. By Leslie, of London. (Kellogg, owner.) This picture is by one of the most famous English painters, of American parentage, and attracted much attention by the elaborate finish characterizing all works of this artist.

87.—THE SAILOR. A copy, by Miss Eva Hammond. (Artist, owner.)

88.—THE HAWK-BOY. Conteur. A copy from Healey's picture, by Miss Eva Hammond; is very faithful.

89.—CINDERELLA. By A. Pickering, of Chicago. (Artist, owner.) Is not a picture possessing many perceptible points of excellence, and but a poor representation of the fair young princess of the glass slipper.

90.—THE SAVOYARD. By Kate Cameron. (Artist, owner.) Is one of the best paintings of this artist, who has availed herself of long study in Paris, and but lately returned.

91.—PORTRAIT OF GEORGE HARVEY. By John Phillips. (George Harvey, owner.)

92.—PORTRAIT OF MRS. WALKER. By John Phillips. (Mr. Walker, owner.)

93.—AFTER A SHOWER. By H. Von Elton, of New York. (Emigh, owner.) Is a carefully studied picture, and the effects desired by the artist have been fully attained. The setting sun breaking through the leaden clouds is faithfully portrayed.

94.—PASSING SHOWER. By J. F. Kensett, of New York. (Emigh, owner.) Is a study of nature, and shows the sympathy of the artist with the changeful moods of out-of-door life.

95.—KENSINGTON GARDEN. By Mignot. (Emigh, owner.)

96.—SEALING THE LETTER. By George H. Harvey, of Chicago. (Artist, owner.) Is a beautiful figure piece by this artist, and carefully painted, representing a blonde in the act of melting the wax to seal a letter. The color of drapery and graceful position are exceedingly good. This painting would be a fine acquisition to any art gallery in the world.

97.—COAST SCENE. By J. R. Brevoort, of New York. (Emigh, owner.)

98.—FLOWERS AND VINES. By Mrs. A. C. Freeland. (Miss Morton, owner.) Are drawn and colored well.

99.—ONLY WAITING. By Le Souer. (Samuel J. Smith, owner.)

100.—AUTUMN SUNSET. By Prof. Streight, of Chicago. (Artist, owner.)

101.—PASTEL PORTRAIT—THE CREOLE LADY. By J. Gollmann, of Chicago. (Artist, owner.)

102.—CRAYON PORTRAIT OF DAVID A. GAGE, ESQ. By J. Gollmann, of Chicago. (D. A. Gage, owner.)

103.—PORTRAIT OF GOV. BROSS. By J. Gollmann, of Chicago. (Gov. Bross, owner.)

104.—PORTRAIT OF P. A. HALL. By J. Gollmann, of Chicago. (P. A. Hall, owner.)

105.—CONTENTED. By the same artist, who is the owner.

106.—IN THE CORN FIELD. By E. W. Hall. (Artist, owner.) Is a landscape, which the painter has treated artistically—the monotony of the scene.

107.—CRAYON PORTRAIT OF J. YOUNG SCAMMON. By Mrs. S. M. Fassett. (Mr. Scammon, owner.)

108.—CRAYON PORTRAIT OF H. W. HIBBARD. By Mrs. S. M. Fassett. (Mr. Hibbard, owner.) All the portraits of this artist are vigorous, and there is a softness about them which marks the artist as one of ability.

109.—CRAYON STUDY OF A CHILD. By Mrs. S. M. Fassett. (Artist, owner.) This crayon is really very fine, and done with the precision of sculpture.

110.—CRAYON PORTRAIT OF LOUIS WAHL. By Rabat. (Louis Wahl, owner.)

111.—CRAYON PORTRAIT OF MAYOR J. MEDILL. By Rabat. (Mayor Medill, owner.) A life-like representation of Chicago's worthy Mayor, reflecting credit upon the ability of the artist in crayon pictures.

112.—CRAYON PORTRAIT OF DR. MILLER. By Rabat. (Dr. Miller, owner.) Another of the popular artist's crayon drawings, which are pictured true to nature.

113.—STILL LIFE. By P. Schneider, of Chicago. (Artist, owner.) The painting of this picture is carefully and well done, but the color and light are not artistically carried through it.

114.—PROTECTING HER PETS. By Dieffenbach. (Owner, unknown.) A true German picture, in which a little girl turns up a bright dish before the mother hen, who at once gives the alarm to her brood and charges furiously at her supposed rival. It is a beautiful study of life.

115.—PORTRAIT OF A CHILD. By Mrs. St. John. (Artist, owner.)

116.—PORTRAIT OF A CHILD. By Mrs. St. John. (Artist, owner.)

117.—INTERIOR OF ST. MARK'S CHURCH. By C. G. Dyer. (Artist, owner.) A splendid representation of the interior of the famous Cathedral of Venice.

118.—CRAYON PORTRAIT OF MR. RUNNION. By J. Gollman. (Mr. Runnion, owner.) This picture, like all by the above artist, is excellent.

119.—LANDSCAPE. By E. Von Perbrandt, Dusseldorf. (M. Knoedler, New York, owner.) This is an exquisite painting, and worthy of special commendation. The quality of color is good, and the harmony pleasing.

120.—CHRISTIANS LEAVING JERUSALEM. By Meirielt, after Kaulbach. (Mr. Rverson, owner.)

121.—WRECK IN MID-OCEAN. By Paul Brown, of Chicago. (Artist, owner.) In all marine views this artist commands considerable attention, and this painting is undoubtedly the best he has ever painted, and is possessed of real merit.

122.—OFF SLEEPING-BEAR POINT. By Paul Brown, of Chicago. (Artist, owner.) Although by the same artist, is not so good a picture; yet it suffers more by comparison with No. 121 than its actual faults.

123.—WASHINGTON. After Houdin's cast, by J. W. Dodge. (Artist, owner.) This is a fine water-color, and shows careful study on the part of the artist.

124.—ONE THAT THIRSTETH. By A. F. Brooks. (Artist, owner.) A pleasing sketch of an old woman drinking at the fountain of Grace Church.

125.—THE OLD, OLD STORY. By A. F. Brooks. (Artist, owner.) An India ink drawing of an old man and his bible.

126.—PORTRAIT OF ROBERT COLLYER. By A. F. Brooks. (Artist, owner.)

127.—PORTRAIT OF LADY AND CHILD. By G. P. A. Healy, Rome. (L. W. Volk, owner.)

128.—THE LETTER. By A. Pabst, of Paris. (M. Knoedler, owner.) All pictures by this artist are executed with skill and harmony, and "The Letter" is no exception to his usual style.

129.—THE DANCING LESSON. By Otto Guenther, Dusseldorf. (M. Knoedler, owner.) Is full of suggestive figures. The old teacher, with his fiddle under his arm, is teaching the step to two ladies.

130. GOSSIP. By J. Carolus, of Brussels. (M. Knoedler, owner.) Is well understood by the artist, and painted in pleasing style.

131.—FLOWERS. By Van Bakhuizen. (M. Knoedler, owner.) Is a large flower piece in which there is a great variety of roses, yet distinctly represented as to bear close examination, and having a fresh look of nature, which the artist has transferred to the canvas with decided vigor.

132.—THE FIRST BUTTERFLY. By O. Rethel, Dusseldorf. (M. Knoedler, owner.) An old woman and child watch the first comer of spring. The shadows are heavily depicted, and the picture choice.

133.—PLEASURES OF CHILDHOOD. By C. Beinck Dusseldorf. (M. Knoedler, owner.) Is by another artist of the Dusseldorf school, and affords a fine opportunity for the study of color.

134.—MOORISH PEASANTRY. By L. C. Tiffany, of New York. (Artist, owner.) In which is especially noticeable a beautiful vein of color, traceable from the red sand through the group in white drapery.

135.—HIGHLAND SHEEP. By E. Schenck, Paris. (M. Knoedler, owner.) Is a good picture, and has been well and gracefully painted.

136.—THE ANTIQUARIAN. By A. K. Littschauer, Dusseldorf. (M. Knoedler, owner.) In which an old man is expatiating the beauty and value of an antique mug. The colors are finely blended, and the painting is without a fault.

137.—THE OLD CLEARING. Landscape, by A. H. Wyant; deer, by A. T. Tait. (A. H. Wyant, owner.) The landscape is painted by A. H. Wyant, and the deer is added by A. T. Tait, and both artists have acquitted themselves with credit.

138.—ASKING BEARINGS. By Norton, of Boston. (Edwin Lee Brown, of Chicago, owner.)

139.—WOOD SCENE. By W. Wittridge. (Edwin Lee Brown, owner.) Is a beautiful painting, in which the characters of our native trees are faithfully represented.

140.—HEAD OF BEETHOVEN IN CRAYON. By Rabat. (Owner unknown.) Well executed.

141.—PORTRAIT OF A YOUNG LADY. By Albert Jenks, of Chicago. (Artist, owner.)

142.—PORTRAIT OF GEN. GEO. H. THOMAS. By A. F. Brooks, of Chicago. (Artist, owner.) Admirably painted, and a faithful likeness.

143.—PORTRAIT OF DR. A. E. SMALL. By Mrs. S. M. Fassett. (Dr. Small, owner.)

144.—PEARS. By D. Wagner, of Norwich, N. Y. (Mrs. L. M. Wagner, owner.) A small fruit piece, finely painted, and so naturally represented that the luscious odor is all but perceptible.

145.—MARINE SKETCH. By D. T. Williams. (Artist, owner.)

146.—STUDIES OF VENICE. By S. A. D. Volk. (L. W. Volk, owner.)

147.—RASPBERRIES. By D. Wagner, of Norwich, N. Y. (Mrs. L. M. Wagner, owner.) Another correct and natural representation of fruit which seems to characterize the paintings of this artist, and be his specialty.

148.—COLORADO SUNSET. By Geo. S. Collis. (Artist, owner.) A small landscape, representing a brilliant sunset over the plains of Colorado.

149.—PORTRAIT OF A YOUNG LADY. By A. F. Brooks. (Artist, owner.)

150.—INTERIOR OF A STUDIO, AND FLAGS. By Miss Gage. (Artist, owner.)

151.—LANDSCAPE IN THE GREEN MOUNTAINS. By Geo. S. Col-
lis. (Artist, owner.) A neat little painting, presenting the cool
greens of a luxuriant summer in Vermont.

152.—PORTRAIT OF MR. PERRO. By A. F. Brooks. (Mr. Perro,
owner.) A most truthful picture, and one in which the artist has
excelled his usual accurate productions.

153.—PORTRAIT OF A YOUNG LADY. (Owned by M. Kimball.)

154.—PORTRAIT OF MILES STANDISH. This is a picture of the
puritan hero, scarred by many battles with the Indians, and with a
disfigured eye. This painting is said to be an original one, painted
in England; but the closest inquiry has failed to elicit the name of
the painter.

155.—BLACK AND TAN. By H. C. Bispham, of New York.
(Artist, owner.) In canine representations this artist is excellent.
In this painting he has given an animated picture of the mother
seeking her puppies. The drawing, and beautiful contrasts in color
are faultless.

156.—PORTRAIT OF A GIRL. By J. W. Dodge. (Mr. Davis,
owner.)

157.—RAM'S HEAD. By F. W. Freer. (Artist, owner.) Is a fine
head of the ram, which is well drawn in a threatening position.

158.—PORTRAIT OF MR. DAVIS. By J. W. Dodge. (Mr. Davis,
owner.)

159.—JOYS OF SPRING. By C. Wagner. (Mrs. L. M. Wagner,
owner.)

160.—PORTRAIT OF MISS CLAYBERG. By C. F. Schwardt. (Miss
Clayberg, owner.)

161.—FRUIT AND WINE. By Geo. Harvey, of Chicago. (Artist,
owner.) Very good; the wine being well painted, while the Califor-
nia pear and the grapes, are finely arranged and possess the liquid
freshness of ripe fruit.

162.—FRUIT AND NUTS. By A. F. Brooks. (Artist, owner.)
Well done; and it is hard to choose between the apple and the nuts
in excellence of quality and color.

163.—AUTUMN. By Geo. H. Smillie, of New York. (Artist,
owner.) This is worked out in careful detail, and commends itself

to the observer as a thoroughly artistic effort to interpret the real feeling of nature.

164.—TROPICAL ORCHARD. By M. J. Hunde, of New York. (Artist, owner.)

165.—PASSING FROM THE MALL TO THE LAKE—CENTRAL PARK. By Emma Scarfe, of New York.

166.—PEAR AND GRAPES. By M. Ream, of New York. (Artist, owner.) The fruit productions of this artist are well known, and like all his efforts in this specialty, are done with a nicety and excellence which is equaled by few painters in this country.

167.—DELICIOUS TABLE. By M. Ream, of New York. (Artist, owner.) Another of this artist's able efforts, well produced.

SECTION 1½.

Sculpture.

168.—BUST OF ALLEGRO. By David Richards, Chicago. (Artist, owner.) The subject representing the Goddess of Mirth, taken from Milton's poem of "Allegro," and finely executed in marble. The artist has here produced mirth without hilarity, and the production is one of his finest works of art.

169.—BUST OF WALTER COBB. By L. W. Volk, of Chicago. (S. B. Cobb, owner.) Is like *all* the works of this artist, faithfully and vividly portrayed. This bust is sculptured out of Carrara marble, and superbly done.

170.—KNOWLEDGE IS POWER. By Edward V. Valentine, of Richmond, Va. (Artist, owner.) The life, in Virginia, of this artist has enabled him to truthfully delineate the varied character of the colored race. The subject represents the talented young negro who, while seeking for "knowledge" in the newspaper, has been overcome by the "power" of sleep, which appears to have been stronger than the "knowledge" obtained and represented by the artist with much sarcasm.

171.—THE NATION'S WARD. By Edward V. Valentine, of Richmond, Va. (Artist, owner.) This is another fine conception of the little black rascal, by the same artist, whom he calls the "Nation's Ward," representing the sunny little nig. with a U. S. army cap perched upon his head, while his face beams with all the importance of a major-general.

172.—STATUETTE—ABRAHAM LINCOLN. By L. W. Volk, of Chicago. (Artist, owner.) Is well executed, and a faithful representation.

173.—STATUETTE—STEPHEN A. DOUGLAS. By L. W. Volk, of Chicago. (Artist, owner.) The artist enjoyed the intimate acquaintance of this statesman, and has here expressed his idea of the character of the man.

174.—ROGERS' GROUPS. By John Rogers, of New York. (West & Co., 282 Wabash ave., Chicago, Agents.) Sixteen of the renowned "Groups" of this celebrated artist were exhibited by West & Co., who are the agents for the sculptor. Everyone is so fully conversant with Rogers' Groups that a description of them is unnecessary.

175.—BUST OF THE YOUNG AUGUSTUS. By L. W. Volk, after Antique. (Mrs. J. Y. Scammon, owner.) Is a copy of a bust found at Ostia, the old harbor of Rome, only a few years ago, and which is supposed to have been made as a portrait of the Emperor at an early age.

176.—IONE. By L. W. Volk, of Chicago. (H. O. Stone, owner.) Is an original statue of the artist, and was a commission from the owner, based on the description by Glaucus, in a passage of Bulwer's "Last Days of Pompeii," of the beautiful maiden, of Athenian descent, whom he met in the Temple of Minerva, at Naples. He describes her as having raised her veil in prayer, and when their eyes met he felt her face was exquisitely moulded and animated with beauty. Addressing her in respectful tones, he invited her to place her olive garland with his own upon the altar. Such is the scene which the artist has represented, and the quiet face looks out to meet Glaucus, as though she could trust the stranger. The possibility of movement has been finely expressed by the artist, and the lines of the upraised arm are beautifully moulded. The statue is done in Carrara marble, and is a masterpiece of sculpture, reflecting great credit on the artist. The statue has never before been exhibited, and the thanks of an admiring public are due to H. O. Stone, Esq., the owner, for the opportunity given to view this last great effort of Chicago's eminent sculptor.

177.—ZENOBIA. By Harriet Hosmer. (Potter Polmer, owner.) Is pronounced by the most able critics to be a work of art of the highest order. This copy of Zenobia, the Queen of old Palmyra, is reduced to life size from the original heroic statue, but there is the same beauty of form, without the majestic presence. This is the

tenth copy from the original made by this artist, demonstrating that her works of art are fully appreciated, as they deservedly should be.

178.—BUST OF J. YOUNG SCAMMON. By L. W. Volk. (J. Y. Scammon, owner.) Is done in plaster, but is deserving of being in a more substantial material, so faithfully true to nature has the artist rendered his subject.

179.—DREAMING. An ideal bust. By A. L. Lansing. (H. S. Lansing, owner.) Marks the progress of the student, and ought to incite him to study closely the laws of art.

180.—HEBE. By Canova. (Public Library of Kentucky, owner.) The history of this statue is romantic, and worthy of mention. While carping critics deny that this work came from the hands of the great Canova, they concede a master's hand in its execution. Thirty years ago Robert J. Ward, a wealthy merchant of New Orleans and Louisville, purchased this statue of a Spanish merchant, who was in destitute circumstances, having fled from Spain to avoid the penalties of participation in an insurrection. The price paid was some \$7,000 in gold. Ten years ago it passed into the hands of M. Muldoon & Co., of Louisville, the largest marble dealers in the world, who had large interests in Carrara, Italy. Critics examined the statue, and a difference of opinion as to its authorship prevailed. Mr. Muldoon, desiring to satisfy himself, went to Italy with photographs of the statue, and met the celebrated sculptor, Fabricotti, who, interesting himself, introduced him to Tennerani (since deceased), who was then the Pope's sculptor in charge of the art records of the Vatican. The original Hebe was recorded as in the Royal Art gallery at Berlin, and is said to have been purchased at a cost of \$100,000 in gold. Two other copies were traced to reliable sources, and the third, the one exhibited at the Chicago Inter-State Exposition, passed out of Rome in 1820, by permission of the Pope, into the possession of a noble of the house of Bellagoi. Entering into one of the numerous political complications of that country, he was arrested, imprisoned, and his property confiscated. A Spanish merchant purchased the Hebe, and in the course of time fell into similar political troubles, was hunted, and finally escaped from Spain, reaching New Orleans, as recited, with this solitary remnant of his art treasures. From the Ward family Hebe passed into the possession of Muldoon & Co., who, about one year ago, sold it for \$20,000 to the Public Library of Kentucky, an extensive institution situated at Louisville, and which owns, besides Hebe, a number of rare and costly works of art, a

museum of 250,000 specimens, a library of over 50,000 volumes, a building costing \$210,000, and after the consummation of its arrangements, under a special act of the Kentucky Legislature, will have an endowed fund amply sufficient to make it self-sustaining.

SECTION 2.

Architecture and Design.

- 181.—Court House Design, W. L. B. Jenney.
 182.—Court House Design, Sturgis.
 183.—Court House Design, Armstrong & Egan.
 184.—Court House Design, De Forrest & Fisher.
 185.—Court House Design, A. J. York.
 186.—Court House Design, Jas. Murdoch.
 187.—Court House Design, Wheelock & Thomas.
 188.—Court House Design, Adam L. Robb.
 189.—Court House Design, L. C. Welch.
 190.—Court House Design, Thomas Tilley. Adopted by Common Council of Chicago, and from which the new Court House will be built.
 191.—Perspective View of Leading Buildings of Chicago, James B. Tyerman, Reaper Block.
 192.—Ink Drawing of Evening on Staircase of Bruhlsche Terrace, in Dresden, A. Howard Parslow, Nixon Bd.
 193.—Ink Drawing of Night on Staircase of Bruhlsche Terrace, in Dresden, A. Howard Parslow, Nixon Bd.
 194.—Ink Drawing, The Little Mother, A. Howard Parslow, Nixon Bd.
 195.—Genealogical Tree of the Morris Family, nine generations, from 1654, carried out perfectly to the present time.
 196.—Pen Design, H. B. Bryant, Chicago.
 197.—Pen Designs, Ornamental, Business Writing and Drawing, M. R. & S. M. Powers, 105 Madison street.
 198.—Pen Design, Sidney S. Hurlbut, 66 Warren ave., Chicago.
 199.—Pen Design, W. H. Starr, Chicago.
 200.—International Exposition, Philadelphia, Photographs of ten competing plans.

SECTION 2½.

Engravings and Chromos.

1.—BAKER & Co., cor. Clark and Monroe street, (Foot Block,) Chicago. Specimens of Wood Engraving. This old and well-known house made a fine display of specimens of their art, consisting of several frames, embracing exterior and interior views of buildings, machinery, lettering, etc. This firm also exhibited specimens of illuminated engraving in several colors, which was superiorly done, and the only specimens of this kind of work which were exhibited.

2.—CHICAGO ENGRAVING COMPANY, s. e. cor. Clark and Madison streets, Chicago; J. M. Miller, Business Manager. Specimens of Wood Engraving. The display made by this Company, of which Hugo Wangeman is Superintendent, consisted of four large walnut frames of fine wood engravings done by them, and comprised exterior and interior views of buildings, machinery, trade-marks, illustrations for periodicals, etc., all done in a superior style, and were properly termed engravings, some of the specimens exhibited being so finely executed as to closely resemble steel plates. The facilities of this Company are unequalled in the northwest for fine work, of which they make a specialty, and the quality of work shown by them fully demonstrates their capabilities for executing engraving in a thoroughly artistic manner. The display made was commendable, and reflected great credit upon the Company.

3.—CHICAGO LITHOGRAPHING COMPANY, cor. Fifth avenue and Washington street; Essroger, Ruehlow & Co., Proprietors. Specimens of Lithography. Comprising chromos, labels, bonds, headings, cards, etc.; a particularly fine specimen of their work being the business card of the Company done in several colors. Lithographs of the Exposition were printed in the building, showing the operation of the impression from the stone.

4.—JACOB MANZ, 70 LaSalle street, Chicago. Specimens of Wood Engraving. Comprising views of all kinds, buildings, machinery, etc., some of the work exhibited reflecting much credit upon the exhibitor, being done in a highly commendable and artistic manner. If the samples shown are a representation of the usual work done by this house, it certainly places it in the foremost ranks of wood engraving establishments.

5.—VANDERCOOK & Co., State and Madison streets, Chicago. Specimens of wood engraving. Engraving in great variety, comprising large poster-work, magazine illustrations, views of buildings, etc., which reflected much credit upon the skill of this firm, who, although young in the business, evinced a thorough knowledge of their profession, and showed their capability to execute engraving in a superior manner.

6.—WESTERN BANK NOTE COMPANY, Chicago. Specimens of Steel Engraving, finely executed.

7.—WHITE & BRAYLEY, Buffalo, N. Y., and 160 LaSalle street, Chicago. Specimens of plain and colored lithography in great variety. This house is one of the largest and most favorably known in lithography in this country. The specimens of their art displayed were particularly fine.

SECTION 3.

Photographs.

Photography was first known in the year 1780, and originated in England. A Mr. Bolton, of Soho square, London, did an extensive business in the photographing line, in 1781. A Mr. Wedgewood made several additional discoveries in the art, and Mr. Fox Talbot succeeded in fixing the pictures in 1834; but it was not until 1850, however, that the collodion process was introduced. The present photographic society was established in 1853.

1.—E. L. BRAND & Co., 596 Wabash avenue, Chicago. Photography in all branches of the art. Perhaps no more attractive display was made in the photograph line than by these artists. To criticise the specimens shown by them would be impossible; while to commend their many superior qualities would be equally as hard a task, as the pictures were faultless, and among the most artistic on exhibition. Especially noticeable was a life-size crayon portrait of Geo. H. Laffin, Esq., finished in India ink. The entire display bespeaks for this firm the fact that they have undoubtedly arrived at a point of perfection in photography beyond which it seems impossible to go.

2.—COPELIN & SON, 244 W. Washington street, Chicago. A fine collection of portraits, life, cabinet, and other styles, were shown by these artists; all of which were finely executed; and the exhibition was artistic throughout, and reflected much credit upon the artists

for the skill displayed and the perfection attained by them in the photographic art.

3.—S. M. FASSETT, 501 Wabash avenue, Chicago. Specimens of Photographs in various styles; prominent among which was the celebrated ideal picture. The display of India ink and crayon work was commendable; while the smaller pictures showed care in finishing, and were noticeable for clearness. The high reputation of this artist for superior work was fully sustained by the display made.

4.—C. GENTILE, s. e. cor. State and Washington streets. Portraits of all description, in Photography; Landscapes, etc. The exhibition made by this artist was of a varied character, embracing not only specimens of the photographic art, but Indian costumes, curiosities, and portraits of Apache and other Indians. The photographic specimens shown by this artist are very good, and in which his ideas of arrangement are particularly noticeable. His pictures are clear, and will bear favorable comparison.

5.—P. B. GREEN, 315 W. Jackson street, Chicago. Landscape Scenery, and Views of Prominent Buildings in Chicago, before and after the Conflagration. All the specimens exhibited were well executed, being sharp and clear. The landscape views shown were exceedingly fine. This particular branch of the photographic art is made a specialty of by this exhibitor, and in which he certainly excels.

6.—ALFRED HALL, 217 W. Madison street, Chicago. Portraits, Cartes de Visite, etc. Among the collection of photographs shown by this artist were several specimens of the art, very finely executed.

7.—GEO. J. KLEIN, Chicago. Photographs of several styles were exhibited by this artist, executed in a commendable manner.

8.—LOVEJOY & FOSTER, 88 State street, Chicago. Stereoscopic Views of Chicago, Niagara Falls, Colorado Cañons, American Scenery generally. Several large views of the Yo Semite Valley, Cal., were finely executed.

9.—C. D. MOSHER, 951 Wabash avenue, Chicago. Portraits of Celebrities, life size, worked in crayon, Photographs, Imperial, Cabinet, and Carte de Visite. The display of this artist occupied a prominent position among the many exhibitors in the photographic line, and attracted much attention. Many of the pictures were excellently well executed, and all elegantly mounted and framed. The specimens of work exhibited bespeaks for this artist more than a passing mention.

10.—E. D. ORMSBY, 309 W. Madison street, Chicago. Four large walnut frames, containing cabinet specimens of this artist's ability, were shown, and were executed in a commendable manner.

11.—H. ROCHER, 724 Wabash avenue, Chicago. Portraits, Life, Cabinets, Carte de Visite, etc. The specimens of the photographic art displayed by this artist were remarkably fine and would bear the closest comparison with the best New York work, being noticeable for their clearness and pleasing tone, and while every part of the subject was superbly executed, yet the drapery was defined by unusual sharpness, and more especially noteworthy. The productions of this artist were excelled by none upon exhibition, and indeed it would be no easy matter to equal them, the laws of art having been so thoroughly complied with.

12.—B. L. RIDER, 335 W. Madison street, Chicago. Specimens of Photographs.

13.—THOMAS SEVERN, 134 Madison street, Chicago. This artist exhibited some fine specimens of Porcelain Pictures, well mounted.

SECTION 3½.

Wax Work, Etc.

1.—MRS. I. M. BELL, 14 North Sheldon street, Chicago. A variety of specimens of wax flowers.

2.—MISS LIZZIE BAXTER, 343 West Adams street, Chicago. Wax work.

3.—MRS. COOK, 650 Burnside street, Chicago. Wax flowers.

4.—MRS. C. E. GALLOWAY, Lee Centre, Ill. A large wreath composed of seeds, which closely resembled wax work, or artificial flowers. It was attractive in itself, but rendered still more so upon reading the card appended, which informed you by whom it was done, and "that the exhibitor was seventy years of age."

5.—MRS. L. E. HEAP, 19 North Green street, Chicago. A wreath of memorial flowers done in wax.

6.—MRS. C. E. LEONARD AND DAUGHTER, 508 Fulton street, Chicago. Specimens of feather flowers.

7.—MRS. M. E. SWEETLAND, 32 Honoré block, Chicago. An oval glass case containing a medallion portrait of Abraham Lincoln surrounded by a wreath of flowers, the whole being done in wax, and was a very artistic piece of workmanship.

8.—JOHN LEBER, 243 Larabee street, Chicago. A fine piece of work representing flowers, leaves and birds, the whole being composed of all varieties of garden seeds.

9.—MRS. L. MCLEAN AND DAUGHTER, Chicago. Wax work, representing garden vegetables, etc., and very natural in appearance.

10.—MISS VIOLA POLLARD, Fort Madison, Iowa. Wax basket of fruits. A large wax basket, as pure and white as the unsullied snow-flakes, was filled with flowers so exquisitely wrought, so like nature's own, their very odor seemed perceptible, while behind them, arranged in an elegant wreath, were others so "life-like" that one could fancy a troop of blushing roses, pale lilies and modest violets had joined hands and sat for their pictures. Besides these were fruits most tempting to behold; luscious peaches, delicious grapes, slices of watermelon that seemed melting with ripeness, apples whose bruised sides assured the beholder they had fallen from the tree, and cherries the very birds would have mistaken for the genuine. The motto, "God bless our home," with the clasped hands beneath, would make a beautiful and most appropriate bridal gift, and bespoke for the artist a degree of perfection of which she may justly be proud. Specimens of this artist's work can still be seen at 120 Eighteenth street, Chicago.

SECTION 4.

Stained and Cut Glass.

1.—JAMES BERRY & Co., 85 Jackson street, Chicago. Ornamental Plate, of Cut Glass. The sheet of glass displayed by this firm was a specimen of the most particular part of glass cutting, and certainly reflected great credit upon the exhibitors for the fine manner in which the work was executed. The design of the specimen shown was the United States coat of arms, surrounded by the names of the several Presidents, from Washington to Lincoln. It was a splendid piece of workmanship, and done with a precision and nicety that seems almost impossible when aware that all this ornamental "cutting" is done by a revolving stone wheel worked by steam power. All the delicate characters to be cut are first traced in pencil, and then manipulated by the workman upon the flying wheel, and the result is, such specimens are daily produced as the one exhibited.

2.—GEO. A. MISCH & BROS., Chicago. A Stained Glass Window, representing the Goddess of Liberty, which was one of the finest pieces of workmanship in the building. It was of large size, and depicted the subject in the many colors of the rainbow. The drawing and blending of the various colors was highly commendable and in perfect harmony, marking this firm as masters of their art, and gaining for them a justly earned reputation by their artistic display.

3.—OTTO JEVNE & Co., 226 E. Washington street, Chicago. Stained Glass Windows. The stained glass window over the center of the Art Gallery was probably unnoticed by a few visitors, since it was hung so high. The subject was the Nativity of Christ, and the the proud mother is exhibiting to wondering angels the beautiful, babe sleeping in the manger. One angel is kneeling, another has a wreath of roses, and, beyond, the cherubs close the scene. Joseph stands under a rustic background with a look of intelligent responsibility. The grouping is easy and natural, and both the design and execution evince the talent of the artist, Henry Goetinck, one of the members of the firm of Otto Jevne & Co. The drapery falls in graceful folds, especially from the Madonna, and the flesh tints are good, with fine gradations of color and strong effects of shadow. The window is $4\frac{1}{2}$ feet wide and 11 feet high, and is an original work of this firm, who also display two windows in the southeastern wall of the main building, representing the Good Shepherd and ornamental work. The process of manufacturing is to paint the glass with mineral colors, and then introduce it several times into a kiln until it is vitrified, and then, by "leading up," to fit the portions into a complete window.

SECTION 5.

Liberal Arts.—Typography and Book-binding, including Books, Stationery and Material.

1.—D. APPLETON & Co., 549 and 551 Broadway, New York. Moses Warren, Agent, 103 State street, Chicago. The enterprising agent of this well and favorably known publishing house made a large and attractive display of popular subscription books, finely bound; prominent among which may be noticed such really meritorious works as Appleton's New American Encyclopedia, bound in calf, and Apple-

ton's Annual Encyclopedia, bound in sheep. Another work of great merit, noticed in this excellent collection, was Picturesque America, probably the most superbly illustrated work ever published in this country. Seward's Travels, Hill's Business Forms, and a great variety of other works of equal merit, completed the display. Of Hill's Business Forms too much cannot be said in praise, it being a book adapted to the wants of everybody, man, woman, and child, containing forms of every kind of legal and commercial instrument, correspondence, styles of printing, etc. To enumerate *all* this valuable work contains would be to devote the entire space of the "Souvenir" to its description. The exhibition showed some of the most valuable works the country affords, and the agent is to be complimented in representing such works of merit, which reflected greatly to his credit and the house he represents.

2.—BRADNER, SMITH & Co., 110 and 112 Madison street, Chicago. Paper of all kinds. Specimens of paper were exhibited by this firm in large variety, of their own manufacture, and consisted of Wrapping, Express, Dry Goods, Manilla, and Tea Paper, made at the Winnebago Mills, Rockton, Ill., and Book, News, and Colored Papers, made at the Rozet Mills, Three Rivers, Mich., both of which mills are owned and operated by this old established firm, who, in addition, are also proprietors of the New Chicago Mills, built since the great fire, and which are run exclusively on Print Paper, making *four tons* per day. Specimens of this paper was also exhibited, together with a large assortment of Envelopes, Shipping Tags, Twines, etc. The papers shown were of excellent quality, and taken from ordinary stock in store, and fully sustained the reputation the papers of this firm have, the imprint of any of their mills upon a piece of paper being a sufficient guarantee of its quality.

3.—J. W. BUTLER & Co., 184 and 186 Monroe street, Chicago. A large and varied assortment of Coarse and Fine Papers of every description, also Card and Straw Board. The goods of this house are well known, and are always of standard quality, and those exhibited were but fair representations of their general stock.

4.—CARTER BROS., 27 Milk street, Boston, Mass. Inks and Mucilage. To attempt any description of the merits of Carter's Inks and Mucilage would be useless, as perhaps there are but few business men in the country who cannot fully bear testimony to the excellence of these staple articles (particularly the Inks), and can date their knowledge back to their schoolboy days, when first learning to wield

that which "is mightier than the sword," and with a reputation like this, and of so long standing, no comments are here needed; suffice it to say, the display made of these goods was like their quality—standard.

5.—COX, HENDERSON & Co., Book-binders, made a fine display of the various styles of binding as executed at their establishment, corner of Clark and Adams streets (Lakeside building), Chicago. Among the hundred volumes exhibited were a few very beautiful samples of fine calf and morocco work, which evinced a positive knowledge of their business, and spoke *volumes* in praise of this justly celebrated firm, the largest in the northwest. Especial mention should be made of a volume of "Milton's Paradise Lost," which was bound in crushed levant, beautifully and artistically inlaid and finished, giving evidence that their facilities for executing edition, cloth and leather work, is unrivalled in the west. In fact, never before in the history of this western country, has the art of bookbinding, in all its varied branches, been so successfully demonstrated, as it has upon this occasion by the above-named firm. The establishment of these exhibitors comprise one entire floor of the Lakeside building, containing 12,500 square feet of space, and having every requisite for promoting the interests of their large and increasing business.

6.—THE COMMERCIAL ADVERTISER. Among the various enterprises associated with the Exposition, the Commercial Advertiser occupies a prominent and honorable place. The initial number of this valuable commercial weekly appeared just as the preliminary work of the Exposition began, and from that time until Nov. 8, it improved every opportunity for advancing the interests of the grand project whose complete success this volume records. With the business foresight worthy the energy of the proprietors of the Commercial Advertiser, they saw at a glance that the success of the Exposition was identical with the best interests of Chicago and the northwest. Acting on this idea, the Commercial Advertiser, while carefully recording the progress of the work, at the same time kept its importance before the business men of the west, and contributed largely to its final success. At the opening of the show, by order of the Executive Committee, the Commercial Advertiser was made the *official organ and Daily Programme* of the Exposition; and, during its continuance was printed daily in the building, with complete engravings, showing both the exterior and interior arrangement of the

grand structure. In its columns may be found a complete record of the progress of the Exposition.

The Commercial Advertiser, as a weekly mercantile journal, supplies a long-felt want in business circles. While printing accurate and complete market reports, it also gives with each issue an able, trustworthy and complete financial and commercial resume of the week's business, and especially serves as a medium of information between the city merchant and manufacturer and their country customers. A special feature of its columns will be the reporting of new manufacturing enterprises, and business changes throughout the west. The Commercial Advertiser is in every respect a worthy representative of the business thrift and energy peculiar to the Garden City.

Although primarily a mercantile journal, the Commercial Advertiser strives after a high ideal, as a recognized authority in questions of a literary and social nature. It believes that the current features of general literature should be agreeably mingled with the more serious problems of business and finance.

A special feature of the Commercial Advertiser is its correspondence from the financial centers of the country, and interesting letters from the enterprising and rapidly growing towns of the west, thus noting the various changes in the east, while recording the continued prosperity and rapid growth of western cities and towns.

Merchants and manufacturers, desirous of more widely introducing their business to the trade and commerce of the west, can scarcely do better than to avail themselves of the columns of the Commercial Advertiser.

7.—CULVER, PAGE, HOYNE & Co., 118 and 120 State street, Chicago. Stationery, blank books, etc. The display made by this leading Chicago house in the stationery line consisted of every requisite in that line of goods in great variety. Among the attractions of their display was a National paging machine (in operation), tax calculator, copyists' assistant, Walton's abstract books, etc. A fine stock of Japanese goods, directly imported by this house from Yokohama, Japan, was much admired. The space occupied by these exhibitors was filled to repletion, which could have readily been largely increased without effort, as the establishment of this firm is doubtless the largest and most complete in the northwest.

8.—CLEVELAND PAPER COMPANY, 109 Madison street, Chicago. A large assortment of various kinds of paper manufactured by this

Company, showing its different stages of manufacture, from "pulp" to the finished article. The goods exhibited are too well known to the trade and public generally to need extended description. This Company's largest mill is situated at Cleveland, Ohio, and the fine book, writing and printing paper shown were made in that city, but find market for their sale in Chicago. The sales of this Company are near two million dollars per annum.

9.—JAMES DALE, 56 and 58 Fifth avenue, Chicago. Specimens of book binding. Those exhibited consisted of an imperial general ledger, one royal general journal, a medium ticklor, and two demy tellers' journals, made for the Union National bank, of Chicago, all of which are deserving of special mention, and entitled to a more extended description than can be given. These goods were highly commended, by those conversant with the art of book-binding, as being specimens of thorough workmanship.

10.—JANSEN, McCLURG & Co., 117 and 119 State street, Chicago. Books and stationery. Among the fine imported books, standard literature, medical and scientific works, school books, stationery, etc., exhibited by this house in great variety, may be noticed two volumes of "Baronial Halls," elegantly bound in morocco, and valued at \$150; also a superbly bound copy of Schiller's works. The display of this firm, although confined to small space, was one possessed of very many attractions, and was highly creditable to them as the leading book-sellers of the northwest, and whose establishment is conceded by the public press to be "the most elegant book store in the United States."

11.—W. B. KEEN, COOKE & Co., 113 and 115 State street, Chicago. Books and standard publications. The display made by this old and well known house of book-sellers was exceedingly attractive, notwithstanding the space occupied was comparatively small. The goods shown consisted of bibles, Webster's unabridged dictionaries, and many standard works of eminent authors, artistically arranged. A noticeable feature of the display were some very fine specimens of wedding and visiting cards, monograms, etc. This house has an established reputation for the quality and selection of their goods, and those exhibited were fully in keeping with the reputation they so deservedly enjoy.

12.—FRANKLIN LEEKIE, 137 Western avenue, Chicago. Specimens of sign and ornamental painting and scenic work, very finely executed.

13.—J. R. LAWRENCE & Co., 172 S. Clark street, Chicago. Paper carpeting and oil cloth. This article is a thick, hard, solid and compact paper, chemically prepared and painted in various designs to represent oil-cloth and carpet. It is cheap, costing about one-quarter the price of oil-cloth and carpeting, and by varnishing becomes durable and lasting for years. It has been successfully used and pronounced a decided success. It can be cleaned the same as a painted floor. This firm also exhibited a variety of aluminous and ornamental paper used as a substitute for lath and plaster. In this progressive age nothing now seems impossible to inventive genius, and hence paper is not only used for building houses, but also to carpet the floors of the same when done. These exhibitors also demonstrate further the great value of paper, They are now engaged in the manufacture of *paper flour barrels*. These barrels not only cost much less than those of wood, but are far more ornamental, and are water-proof. The hoops are also made of the same material. The articles when completed will stand a pressure of 2,200 lbs to the barrel. This enterprising firm also manufactures cigar boxes and all kinds of packages for shipping purposes out of paper, which it is claimed are fully as serviceable as wood, and the cost less. What other valuable uses paper will yet be put to, the future alone can tell.

14.—J. W. MIDDLETON, 55 State street, Chicago. Blank books and binding. The collection comprising this display was in every way first-class, and especially a set of books manufactured to order for the First National Bank of Chicago, consisting of two super-royal general ledgers, two super-royal journals, and several supplementary books, all bound in full-jeweled Russia. A set of county records, bound in Russia bands and fronts, was also noticeable, as well as a variety of blank books in demy and medium sizes, bound in full Russia. All the above being made of first quality linen ledger paper and composed of the best material throughout, and are but fair representations of workmanship which characterizes the well-known establishment of this exhibitor.

15.—OGLESBY, BARNITZ & Co., 154 and 156 Clark Street, Chicago, and Middletown, Ohio. Chromo, Lithographic Plate, Note, Letter and Bag Paper. The specimens of paper exhibited embraced all the staple varieties for Printers, Book-binders and Book-sellers use, and were manufactured by the exhibitors at Middletown, O. The specialty exhibited by this firm was samples of writing paper of the

celebrated *Excello Mills*, this paper being extensively used for its superior finish, etc. An account of its manufacture is appended which cannot fail to be of interest to all.

Writing Papers are made exclusively from linen and cotton rags. The proportion of linen in a general way determines the quality of the paper. The rags are first sorted and classified with great care, and then run through a revolving cylinder called a "duster," the loose dirt being thus removed. The rags are then boiled in a solution of lime, or alkali in some form, by which process all foreign matter is dissolved or separated from the fiber. The stock is then ground and washed into pulp, or what is technically called "half stuff," in which state it is subjected to a solution of chloride of lime, when it becomes perfectly white, and then it is ground fine. After being properly prepared, the ground pulp is mixed with water, and by the well known "paper machine," made into paper. As the paper first leaves the machine it is called "water leaf." The "water leaf" is made to pass through a solution of alum and gelatine in definite proportions. This is called "the sizing process," and upon this depends almost altogether the writing and ink bearing qualities of the paper; also the "finish." The paper leaves the sizing process wet, that is, saturated with the sizing solution, in a "green" or undried condition. The "drying process" in writing papers has ever been of the utmost importance to the quality. It requires to be dried very slowly, that all parts of the sheet may be dried alike. A great many devices have been tried to simplify and hasten this process, without injuring the quality. The very best results in this respect are probably attained by the *Harding Paper Co.*, of *Middletown, Ohio*, who use a patented apparatus of their own, by which a current of air of the proper temperature is brought in contact with the paper in such a manner as to dry it with the best possible effect. To be dried, the paper is hung on poles arranged for the purpose in large rooms. When properly dried it is taken down and stacked up in piles ready for the "callendars." These are made of iron, and paper rollers, through which the sheet is made to pass under heavy pressure. This brings up the surface, and makes the gloss so necessary on writing papers. The paper is then sorted and arranged for different purposes, some being ruled into note, letter, cap, etc., and some being put up "flat" for printers' use and for blank books, all being branded according to the grade, quality and kind. The better the stock used, and the greater the skill with which it is managed

and manipulated, the better will be the paper, and perhaps there is no manufacturing art where skill and experience becomes more important and valuable than in the manufacture of the higher grades of writing paper. Until within a few years no attempt to make first-class writing papers has been made in the west. The Harding Paper Co., of Middletown, Ohio, were the first to make this branch of western paper-making a success. Their goods are now well and favorably known throughout the country, and rank among the very best goods made.

16.—OTTO PELTZER, Board of Public Works, Chicago. Atlas of the city of Chicago. This is one of the most extraordinary publications that has ever been noticed, and it may be safely said that nothing of a similar character has ever been attempted anywhere. It is no less than a complete restoration of the map records, being a typographical compilation of the recorded sub-divisions and additions of the city of Chicago, (the original records of which were all destroyed by the great fire), giving the size and location of every lot, street, and alley, published in the form of a large Atlas, with innumerable notes of explanation of the greatest importance to surveyors, attorneys, real estate dealers, and, in fact, to every lot owner in the city. The book itself is of immense proportions, being two and a half by three and a half feet in size, about six inches thick, containing over three hundred lithographed pages of maps, the whole work weighing over one hundred and sixty pounds; certainly the largest book ever published and bound. The exhibitor, who was the author of this great work, has devoted the last twenty years to the city and County records as Draughtsman in the Recorder's office, and as the Superintendent of the Map and Record Department of the Board of Public Works, during which time he has collected all this information. It is to him the public is indebted for this valuable work, which is not only a credit to the author, but to the city of Chicago likewise. The placing of the magnificent bound copy in the Exposition was not done as a matter of business by the author, but was simply a matter of just and laudable pride on his part. The subscription price of this immense volume was *four hundred* dollars per copy.

17.—L. N. ROSENTHAL 102 Van Buren street, Chicago. Fancy card-boards. A large show-case containing a variety of fancy card-boards, both plain and tinted, a specialty of the exhibitor. The

samples shown were a fair representation of the line of goods constituting the exclusive business of this house.

18.—RAND, McNALLY & Co., 79 and 81 Madison street, Chicago. Railroad ticket cases and specimens of printing. A noticeable display by this firm of samples of printing in colors, principally railroad work, which is their specialty.

19.—ROCK RIVER PAPER COMPANY, 140 Lake street, Chicago, H. F. Evans, Treasurer and Manager. This Company exhibited a large and exceedingly fine variety of different kinds of paper of their own manufacture, consisting of print, book, wrapping, and building papers; but the most attractive feature of the display was their celebrated patent building paper, and paper house, which was constructed entirely of this material. These goods are of this Company's own invention, and have become deservedly popular. They patented and commenced the manufacture of their different kinds of paper, as exhibited, in 1868, running one mill and making two tons per day. The demand since that time has so increased that this Company are now compelled to run *three* mills and turn out from *twelve* to *fifteen* tons per day, which finds a ready market throughout the entire United States, as well as the Canadas and Mexico. Of the many kinds of paper manufactured by this Company, and comprising their display, may be named the following: Prepared plastering, as a substitute for lath and plaster, is made of straw and saturated with a water-proof substance which leaves a hard, smooth surface, and may be finished in any manner that plastering or wood may be. This paper is also economical, costing but half as much as lath and plaster. Saturated sheathing, plain paper board, moth-proof carpet lining, etc., were among the extensive display of paper shown by this Company. It is a remarkable feature in this progressive age to see the many useful needs now supplied by paper, even to dwellings, which, although paper, still have all the durability of wood or other building material, and the Rock River Paper Company are entitled to great credit for bringing to perfection this liberal art, and likewise for the instructive display made of their wares.

20.—REYNOLDS & REYNOLDS, Dayton, Ohio. Exhibited a very useful article in the shape of a patent book cover. The patent of this article rests in the joints of the covers, which are so constructed as to allow the removal of the leaves after being written upon, and the insertion of new leaves to replace those used. For use of report-

ers these covers will be found particularly adapted, as well as to business men generally.

21.—SANFORD MANUFACTURING COMPANY, 223 Fulton street, Chicago. Writing Fluids, Inks, Mucilage, Sealing Wax, etc. Contained in a fine black walnut case, was exhibited a large assortment of the above goods, manufactured by this Company, which are said to be fully equal, if not superior to any in market.

22.—SHELDON & Co., (By S. S. VENTRES, Agent,) 677 Broadway, New York, and 113 and 115 State street, Chicago. Exhibited a fine black walnut book case, containing a large and choice assortment of school and college text-books published by them.

23.—G. F. THOMAS & Co., 155 Fifth avenue, Chicago. Specimens of Decalcomanie. A very interesting display was made by this firm in the art of Decalcomanie or transferring of pictures of every character to any substance, be it what it may. The subject of this art is doubtless familiar to all, yet the process of the manufacture of Decalcomanie pictures is of much interest, and a brief description is here appended :

After making the design, an outline drawing is taken. This drawing is then transferred to as many stones as there are to be colors in the ornament or picture; each color or shade requiring a separate stone. Before the stone receives the outline, it must be polished to a glassy smoothness, with pumice stone. The best work requires from twelve to twenty stones, costing about \$80 each. The only stone that can be used successfully is found in and around Bavaria, in Germany. Crayon is now covered over such portions of the stone as are to receive a certain color,—the brown shading of a scroll it may be, or the blue sky of a landscape — which, when the stone has been placed under acid, are the only portions of its surface that will receive or transfer to paper, any color whatever. The next stone is prepared in the same way, and so on until the stones are ready. The first stone is then placed upon the bed of the press, which is the last in a Chromo - Lithograph, being transposed that the ornament may show perfect when transferred.

The color having been spread over it with a roller, as in type printing, the sheets of prepared paper, upon which the picture is to be printed, are placed upon it, one by one, and an impression taken. When the whole edition has received the first color, the second stone takes the place of the first, and the same sheets are run through the press again and the second color received. The second stone is

then replaced by the third, and this in turn by the fourth, and so on until the picture is finished.

The paper is prepared with a coating of gum, that can easily be dissolved by water.

The firm making this display is the only one in Chicago exclusively engaged in the manufacture of Decalcomanie.

24.—G. S. TRUESDELL & Co., 170 Washington street, Chicago. Several specimen copies of a business map of the city of Chicago, giving the owner's name, etc., of each piece of property in the business portion of the city. Such a map must be highly important to all dealers in real estate.

25.—THE NEW YORK LIFE INSURANCE COMPANY, 346 and 348 Broadway, New York. Curran & Perkins, managers, Bryan block, Chicago. Books, papers, etc., pertaining to life insurance. The display of these exhibitors does not require description, but a brief mention of this popular Company, which has been brought into prominence by their enterprising managers for the northwest, may not be out of place at this time, and the few remarks regarding this renowned Company must prove of interest to all, whether seeking life insurance or not. As a usual thing most all companies for the insurance of life make promise of very many inducements which are never consummated. As an exception to the rule may be named the Company of our exhibitors. The New York Life is one of the oldest companies in the country, being organized twenty-eight years ago, and during all that time it has never swerved from the straight path of prudence and safety. During the ten years ending with 1871, this Company has issued \$210,925,380 of insurance, returned to its members \$14,880,235, or forty per cent. of its entire income during that period, and increased its assets \$16,658,000, closing the year with a divisible surplus of \$1,488,134. It has never paid a dollar to stockholders, never having had any. All its investments are made in the name of the Company. Its assets are the sole property of its insured members, who *are* the Company, and its business has been from the start conducted in the interest of policy holders exclusively. Insurance has thus been furnished at the lowest net cost practicable, and only those share the Company's funds who contribute to them. The cash assets of this Company reaches the enormous sum of \$21,000,000, while its annual income is \$8,000,000, both of which sums are unprecedented in the records of life insurance. The great success and popularity of this Company are in measure

due to the sterling quality of the gentlemen who have for many years been its officers. Such names as Morris Franklin, President; W. H. Beers, Vice-president and Actuary; Theo. M. Banta, Cashier; and D. O'Dell, Superintendent of Agencies, are known throughout the country as men of the highest worth and ability, and in every way admirably qualified for the eminent positions of trust so long and faithfully filled by them. An article from the *New York Commercial Advertiser* is here given, showing some interesting facts and figures substantiating the position taken by this volume in behalf of the New York Life.

If a long-established reputation, able management, enormous assets, and large dividends, are signs of prosperity in any Company, the policy-holders of the New York Life Insurance Co. have certainly cause to congratulate themselves upon the condition of the institution with which their interests are allied. Established in the year 1845, and proceeding from that time onward in one unbroken career of success, this Company has just issued its twenty-eighth Annual Report, which shows a condition of present prosperity that has but few equals in the whole circle of Life Insurance. With an income of \$7,515,407.05, their total assets reach the immense aggregate sum of \$21,667,000.14, and a divisible surplus of \$1,642,424.92. During the past year, 8,910 policies have been issued, insuring \$27,096,273.61, and the disbursements by losses from death alone were \$1,408,519.87.

One important feature which distinguishes this Company from many others, and which it was the first to introduce in this country, is the Tontine investment plan. By this system, any number of persons of healthy and vigorous constitutions, who have ostensible reasons for counting on prolonged life, can combine upon the principle of the survivors' benefit. They are divided into classes of ten, fifteen, or twenty years, according to the period preferred by the insured. The annual surplus resulting from each of those classes is allowed to accumulate for the time agreed upon, at the end of which the aggregate is divided among the survivors of those who have paid up their policies, and who have besides the privilege of withdrawing their entire interest in the funds of the Company. By this process a man not only insures the pecuniary benefit arising from his death to those he leaves behind him, but is taking a chance besides of accumulating a large sum of money to accrue to him during his lifetime. His death, in any case, entitles him to the full amount for which he is insured, while in the event of his being among the few fortunate survivors of his class, he may find himself in possession of a large share of accumulated wealth, which goes on, of course, increasing with each new death. This ingenious arrangement affords so many advantages to the insurer that it is not surprising to find it among the most popular of the many strong special inducements held out by this Company.

26.—THE PRAIRIE FARMER, 118 Monroe street, Chicago. A journal devoted to Agriculture and Horticulture, and in the interests of the Patrons of Husbandry.

This sheet is the leading agricultural one of the Northwest, 8 pp.,

finely printed upon excellent quality of paper, containing departments of Floral, Live Stock, Veterinary, and Entomological, which are severally edited by persons of well known ability. This paper is published by the Prairie Farmer Company, and is a valuable acquisition to the fireside of every farmer.

27.—THE SCIENTIFIC FARMER, 151 and 153 Fifth avenue, Chicago, C. F. Blakely & Co., Publishers. A sixteen page sheet in bound form, finely illustrated, and devoted to progressive Agriculture and Horticulture. This is a new publication for public favor, and seems deserving of liberal support. Its articles are ably written, the typographical effect good, its illustrations are excellently executed, while the general make-up is commendable. This journal is entitled to the success it deservedly merits.

28.—THE LAKESIDE MONTHLY, Messrs. F. F. Browne & Co., Publishers, Lakeside Building, Chicago. The Lakeside Monthly had on exhibition, besides full sets of their magazine, beautifully bound copies of their "Lakeside Fire Memorial," containing what has passed into history as the best written account of the Burning of Chicago—the book being elegantly illustrated with photographs of buildings and street views taken immediately after the Great Fire. They also had a sale stand for the "Special Chicago Number," then just out, in which, besides other matter, seventeen of the most distinguished writers in the West, in specialized articles, presented the recompletion of Chicago with a dignity and chasteness of style, a thoroughness of treatment, and an elegance of taste, befitting the character of the magazine.

To the Lakeside Monthly is due the credit of demonstrating the intellectual culture and resources of the western mind. It is but five years old. Throughout this short but interesting career, it has been a compound of one kind of success with another kind of sacrifice. From the beginning, and still, the way has opened wide for rendering tribute for tribute—using the literary lever for some ulterior interest for brilliant but transitory profit, while the gates of literary prowess were narrow and forbidding at the great center of pork and grain. Clearly, the one way was more profitable, the other, more noble. In a word, hardly anybody but the faithful and indomitable editor, and now principal proprietor, believed a purely literary publication could possibly live in the west. Mr. Browne's success has been already confessed, and it is acknowledged that he has, by his magazine, educated the Western mind into that very appreciation which will soon

bring him the splendid reward of constancy to the high and true aims of publication. Thus, in a most emphatic sense, the Lakeside Monthly is a true pioneer, and has *made* the public that sustains it. If it should be long before Chicago becomes an Edinburgh, it will not be the fault of a magazine persisted in, against every temptation to turn aside for temporary money-making, which in but five years earned the title of the "Blackwood of the West."

29.—J. S. THOMPSON & Co., 158 & 160 S. Clark street, Chicago. Specimens of fine printing. To give a description in detail of the great number of fine specimens exhibited by this old and favorably known printing establishment and their points of excellence, would occupy a small volume. Not a specimen shown but what could be ranked as strictly first-class in all its details, from the compositor to the press. The specimens exhibited of wood-cut work were highly commendable. The most elaborate piece of printing in the display was the business card of the firm. The design was a bouquet of flowers, and was printed in colors, the flowers being so perfectly shaded and the presswork so excellently done that, instead of a piece of fine printing the impression would be that one was looking upon an oil painting with which the artist had acquitted himself in a most creditable manner. The workmanship manifest throughout the entire display was very superior, and places the firm far in advance of many of their competitors in the "liberal arts."

30.—WATERS & Co., cor. State and Sixteenth streets, Chicago. "Our Fireside Friend." This paper is the greatest family and industrial weekly of the west, with the immense circulation of 97,000 copies per week, and rapidly increasing. It is a large eight-page illustrated sheet, whose contents are original, varied, and interesting, and is strictly a moral home weekly. "Our Fireside Friend" is in its fourth volume, and has met with unprecedented success, and deservedly so, gaining its popularity by its merits. The premium chromos, "Cute" and "Coming," given to each subscriber of "Our Fireside Friend," were also exhibited, and are unusually fine specimens of oil chromos, the subjects being pleasing and interesting and the pictures well executed.

31.—J. M. WING & Co., 91 Madison street, Chicago. "The Land Owner," an illustrated newspaper, devoted to the interests of Chicago, occupied a prominent position in the Exposition building. No description as to the merits of this paper are necessary, as it is well known as an advocate of Chicago's merchants and manufacturers.

Its articles are ably written, while its illustrations are from the pencil of the popular artist, R. W. Wallis, Esq. It is a sixteen page sheet, printed upon fine quality of paper, published monthly at one dollar per year.

32.—YOUNG MEN'S CHRISTIAN ASSOCIATION, Chicago. This honored and valuable Association, which may be found in every community throughout the length and breadth of the land, and whose Christian work is familiar to all, were also allotted a space in the Exposition building for the sale of bibles, tracts, and religious works, the proceeds of which went into the treasury of the Association, to be used in the continuance of their good cause.

33.—A. ZEESE & Co., 114 Monroe street, Chicago. Specimens of electrotyping. The specimens exhibited of this mechanical art were in large variety, consisting of electrotype plates of all styles of book type, one set of plates attracting much attention, being set in "Brilliant" type, the smallest made. An assortment of machine-shaved leads, for printers' use, were noticeable from their thinness of manufacture, it taking *ninety-two* leads to make one inch in thickness. This house was the first to introduce electrotyping in Chicago, being established in 1857, and their display reflected great credit upon their ability, all the goods shown being of their usual make, taken from stock.

SECTION 6.

Musical Instruments.

1.—JULIUS BAUER & Co., corner of State and Monroe streets (Palmer House), Chicago. Pianos, Organs and Musical Instruments. The pianos exhibited by this firm, in addition to those of their own manufacture, and bearing their name, were the William Knabe & Co., of Baltimore, Md., and known as the "Gold Medal Pianos," for which the exhibitors have the exclusive agency of the northwest. The Knabe instruments exhibited consisted of an elegant full concert grand piano, $7\frac{1}{3}$ octaves, rosewood case, one square parlor grand, and one square piano. These instruments have been before the public for over thirty years, and have attained an eminence upon their many points of excellence. Their tone combines great power and sweetness, as well as purity of intonation and evenness through the entire scale. In workmanship they are very fine, and made of

the best seasoned material. Every Knabe piano is fully warranted for five years, and to all the instruments exhibited of this make was attached the "patent improved Agraffe treble." The J. Bauer & Co.'s improved Agraffe pianos, exhibited and manufactured by this firm, consisted of several superbly finished square pianos, the clear, musical tone of which was much admired. These pianos contain all the essential qualities required in a first-class instrument as regards material, workmanship, durability and richness of tone. An assortment of the popular Needham organs, together with musical instruments of all kinds, completed the commendable display made by these exhibitors.

2.—THEO. J. ELMORE & Co., 78 State street, Chicago. Pianos and Musical Instruments. The pianos exhibited by this firm were of the celebrated Decker Bros. manufacture, and consisted of a grand square, and one of their new upright pianos. The Decker Bros.' instruments have become justly celebrated for their surpassing excellence. They are enriched with a singularly full, far-reaching body of tone of the purest quality, governed by an action so accurately balanced as to materially lessen the fatigue of playing, while at the same time it enforces with unequaled precision and fluency the performer's demand for variety of expression. The music produced from these instruments is massive, bell-like in the bass, rich, warm and full in the tenor, and fresh, bright, clear, almost sparkling and mellow, though penetrating, throughout the treble. The Decker piano seems worthy of the sweeping indorsements that have been accorded it by the press, and is a noble instrument of the first class, with every necessary quality to sustain its claims. The exhibitors may feel justly proud of having made up their display from such praiseworthy material. A fine line of small imported musical instruments completed the exhibition of this firm.

3.—W. W. KIMBALL, State and Adams streets, Chicago. Pianos, Melodians and Organs. The display made by this exhibitor attracted much attention, and won admiration from all sides. The exhibition comprised the world-renowned Hallet, Davis & Co.'s pianos, and the justly famed Smith's American Organs. Better instruments than either are difficult to name. Of the merits of the Hallet, Davis & Co.'s piano but little need be said in addition to the high praise already accorded it by such great musicians and composers as Franz Liszt, Franz Abt, Johann Strauss, and other bright lights of the musical world whose names are immortal and whose professional

opinions stand for the highest modern authority on music. The pianos exhibited consisted of five in all, one grand, three square, and one upright, and all of superior finish and workmanship. Seventy-five *first* premiums have been awarded the Hallet, Davis & Co.'s instruments, and over 20,000 are now in use, their success being won by solid merit. Of the famed American organ, a full line of the various styles completed the display of this exhibitor, conspicuous among them being a superb parlor instrument costing \$2,000 to manufacture. The purity and sweetness of tone in all the Smith instruments exhibited was excellent, the quality of some closely resembling the pipe organ.

4.—F. C. LIGHTE & Co., 164 and 166 State Street, Chicago. Pianos and Organs. The pianos exhibited by this firm were of their own manufacture, and bore the name of "F. C. Lighte & Co." They were of splendid exterior and careful interior finish. They combine with a rich and powerful tone, the utmost strength and power, and their tone and touch are very superior. The New England organs, exhibited by this firm, and for which they are general agents, are certainly deserving of much commendation for their evenness and sweetness of tone, purity of quality, and ready response to the touch. The display made by these exhibitors occupied a prominent space in the musical department, and was tastily arranged.

5.—LYON & HEALY, 162 State Street, Chicago. Pianos, Organs, and Musical Merchandise. Besides a large and varied display of organs and musical merchandise, this firm exhibited several grand, upright and square styles of Steinway & Sons' unapproachable pianos. It is unnecessary to refer at length to the world-wide reputation these instruments have attained. Since the year 1853 there has been manufactured the unprecedented number of 26,000 of the "Steinway" pianos, each one of which are reported to have given the most perfect satisfaction to the purchaser. The great superiority of these instruments over all others known is a generally conceded fact. The pianos of Steinway & Sons are endowed with the splendid sonority, and that seizing largeness and volume of tone hitherto unknown, which fills the greatest space. Brilliant in treble, singing in the middle, and formidable in the bass, this sonority acts with irresistible power on the organs of hearing. In regard to expression, delicate shading, variety of accentuation, the Steinway instruments have over those of their competitors an advantage which cannot be contested. The pianist feels under his hands an action pliant and

easy, which permits him at will to be powerful or light, vehement and graceful. These pianos are at the same time the instruments of the virtuoso, who wishes to astonish by the *éclat* of his execution, and of the artist who applies his talent to the music of thought and sentiment bequeathed by the illustrious masters; in one word, they are at the same time the pianos for the concert room and the parlor, possessing an exceptional sonority.

6.—MASON & HAMLIN ORGAN Co., 80 and 82 Adams street, Chicago. Boston and New York. Cabinet Organs. These old and standard instruments require no description to illustrate their powers. By the uniform awards to them of highest premiums at Industrial Expositions, including a medal at the Paris Exposition, and the emphatic testimony of musicians generally, the manufacturers are justified in warranting their organs "the best instrument which it is practicable in the present state of the art to construct."

7.—A. REED & SONS, Temple of Music, Dearborn and VanBuren streets, Chicago. Pianos. The display made by this firm was decidedly worthy of note. Upon the space assigned them they erected a little Temple of Music, a pretty specimen of minor architecture in the gothic style, for the exhibition of the renowned Chickering pianos. Two specimens of these pianos—the concert grand and cabinet grand—are entitled to elaborate description, being claimed by the exhibitors to be the finest instruments ever made.

The case of the concert grand was made of many different kinds of the finest woods, three or four of which are imported. The background, artistically speaking, was of amboyne and rosewood. The former, light and variegated in color, making a most pleasing contrast with the darker rosewood; while the panels and trimmings of French walnut—tulip and amaranth—exhibited a degree of light and shade highly pleasing to the most fastidious. There was an abundant supply of gold-leaf and solid rosewood carvings, in addition to which were heavy gold bronze mouldings, running around both the top and base of the piano. Upon each side there was a fine bronze medallion, representing a band of cherubs. The top, or cover, of the instrument, has two bands of inlaid work, while the edge was trimmed with the much-admired amboyne. The name Chickering was engraved and inlaid with gold-leaf upon the name-board. The case was supported by three legs, most artistically designed and finely carved, while upon each was a bronze medallion of a lion's head. The cost of this instrument to manufacture was \$3,500.

The companion of the concert grand, the cabinet grand, was of an entirely different shape. It was, perhaps, more elegant in appearance, though not as grand; its form rendering it more susceptible of adornment. The same kinds of woods were used as in the other piano. Upon each end of the case was a five-fluted pilaster, supported by the base of the piano, and inlaid with gold-leaf. The entire front of this instrument, which covered a space of twenty-five square feet, was fitted up in the most gorgeous style. Upon the front board was a beautiful bronze medallion, with six infant musicians. The leader could be observed with his little baton, while his band seemed to be entirely absorbed with their instruments. Upon each of the two pedestals was a bronze bust, encircled with a carved wreath, inlaid with gold-leaf. The case was also trimmed with gold bronze mouldings and solid rosewood carvings. The price of this beautiful instrument being \$2,500. Upon the excellent qualities of the "Chickering" no comments are required, as the whole world bears testimony to their excellence and durability. The entire exhibition made by Reed & Sons was extremely notable, and for which they are deserving of great credit.

8.—ST. LOUIS PIANO MANUFACTURING Co., 307 and 309 Chouteau avenue, St. Louis, Mo. Bell Treble Pianos. The two pianos exhibited (grand and square) are remarkably fine instruments. These pianos possess in an eminent degree all those superlative qualities, the presence of which have given the instruments of some few well-known makers a world-wide reputation. Their most noticeable features are, the peculiar purity and sweetness of tone, the clear, bell-like singing quality of its music, and particularly an exquisite evenness and softness of touch, so dearly prized by all pianists. This Company's pianos have been awarded thirty-two first premiums in six years, for superiority of tone and workmanship, by the most competent and impartial judges.

9.—STORY & CAMP, 211 State street, Chicago. Pianos and Organs. This firm exhibited an elegant Arion grand piano, and a variety of the popular Estey cottage organs. While the Arion piano is not as renowned as some others claiming public favor, yet it fully challenges competition for style, workmanship, durability and harmonious music-giving qualities, and the opportunity given to contrast the merits of these instruments with almost every favorably known grade of pianos, fully establishes the fact beyond question that no more has been claimed for the Arion than it is justly deserving of. The

Estey organ, also exhibited by this firm, is too well and favorably known in thousands of western homes to need especial comment, and the reputation which it has attained, has been deservedly won.

The Estey organs are remarkable alike for the sweetness and power of their tone, while in point of clearness of sound they have no superior. But their great especial feature is their new patented improvement known as the *Vox Humana Tremolo*. This is a simple fan-like arrangement, which, when put in motion, imparts to the music a tremolo admitting of all gradations of swell and tone, having in fact *almost the expression of the human voice*, and closely imitating it — being in short the best tremolo ever attached to a musical instrument.

Twenty years ago, reed music met with comparatively little favor; but under the watchful care of Jacob Estey it has attained a wonderful state of perfection.

The display made by these exhibitors was creditable alike to themselves and those they represented.

SECTION 7.

Apparatus and Instruments of Medical art, Surgery, etc.

I.—BARTLETT, BUTMAN & PARKER, 60 State street, Chicago. Common Sense Trusses. The peculiar construction of this truss is of interest to all so afflicted as to require the use of such an article. This truss has been adopted by the Surgeon-General of the United States Army, and is supplied *free of charge* to any afflicted honorably discharged soldier of the U. S. Army upon application to the examining surgeon of his county, by whom it is procured without cost of any kind to the applicant. The construction of this truss is peculiar and admirably adapted for the purpose intended, and is, as it is properly termed, purely upon a "common sense" principle.

The pad is attached to the neck of the instrument by a ball and socket joint, which is completely regulated by two set screws. This joint allows the pad to adjust itself easily and perfectly to any condition of the complaint, while the mode of attachment of the neck of the truss to the spring is very ingenious and perfect, and materially adds to the effectiveness of the article.

The trusses of this firm on exhibition, contained many late and valuable improvements made by them, and were highly finished.

2.—BLISS & TORREY, 171 and 173 Randolph street, Chicago. Druggists' Sundries, Deformity Apparatus, Surgical Instruments, etc. To this firm was allotted a space of *five hundred* square feet, and their immense display was so varied and attractive that everybody seemed to find something of interest at the exhibition offered by this firm. Their galvanic battery received a large share of attention, it being the largest and finest instrument of the kind ever manufactured in America, with power sufficient, if used, to produce almost instant death. The ladies were naturally attracted by the rich display of imported toilet goods, including ivory brushes and combs, tortoise shell combs, Bohemian glass bottles, exquisitely engraved, perfumeries and cosmetiques of all kinds, rare and expensive soaps, toilet sets of various patterns, together with a great variety of other goods in the same line. The druggist also found an attraction by the central pyramid devoted to chemical apparatus, painted show jars, and other requisites necessary to fitting out a complete store in the drug line, while the physician naturally gravitated to the show cases, where was displayed the surgical instruments, and found much to interest him in the various shapes of polished steel quietly reposing in their velvet cases, while the anatomical casts showing the heart, lungs, etc., also found especial favor in his eyes. An extensive assortment of deformity apparatus displayed could not be appreciated by any but professionals or those interested. This line of goods comprised those of the exhibitor's own manufacture, and consisted of instruments for every conceivable deformity, including artificial limbs in great variety. The elegant store of this firm, located as above, is a perfect museum of wonder, and is undoubtedly one of the most complete establishments of the kind in the United States, and the *only* one in the west.

3.—DR. B. BRIARD, 188 South Halsted street, Chicago. Medical Instruments and Apparatus, Medicines, Perfumery, and Toilet Goods. This display was rendered very attractive by its artistic arrangements, notwithstanding it was drugs, etc. A noticeable feature was a case of ancient and modern coins and paper money, and curiosities collected by the Doctor himself, and which were very valuable for their antiquity. In the center of this display was an elegant aquarium of elaborate manufacture. The exhibitor is an eminent French physician, for many years connected with the Academy of Medicine, at Paris, but at present is the President of the Chicago Medicial Institute, of which he was the founder. During the time

he has occupied his present position the Doctor has introduced many famed remedies, which have sustained their reputation during the stern ordeal of public experiments.

4.—J. E. GARDNER, 119 Clark street, Chicago. Artificial Limbs. The single specimen exhibited seemed perfect, and one possessing superior points of excellence. The great merits of the limbs manufactured by this exhibitor are fully demonstrated from the fact of their having been adopted by the United States government as the most perfect limb, and the one over all others entitled to national patronage. The material used in the construction of these limbs combines strength with exceedingly light weight. The only article exhibited was a leg, the ankle joint of which was formed by a ball of polished glass playing in a socket of vulcanite, which admits of the motion being easy and natural. The muscles and tendons of the limb are formed of rubber and fine linen thread, and perform their respective duties with a life-like naturalness, and the joints are so constructed as to admit of all the easy motions peculiar to the genuine limb.

5.—J. HENSHAL, 155 Calumet avenue, Chicago. Exhibited a medical electrical apparatus.

6.—DRS. HIATT & LEROY, 125 Clark street, Chicago. Artificial Limbs and Orthopedic Apparatus. The particular points of excellence claimed for the artificial legs exhibited by this firm consist in the durability, life-like motion and simplicity of construction; the points of weakness being guarded against particularly at the ankle joint and the heel-cord and spring. The knee joint, in amputation below the knee, is so made as to admit of tightening, as the use of it may require, and the rattling, so annoying to the wearer, avoided. In thigh amputation the knee joint is so constructed as to give it firmness and allow the wearer to put his entire weight upon the limb with the utmost confidence. The springs are so evenly balanced in the flexion and extension of the joints that the life-like motion will undoubtedly place the lameness of the wearer in many instances beyond detection. Being simple in construction, it can be readily taken apart by the wearer and cleaned, thus preventing all friction and squeaking. The frame work was made of red willow, selected for its tenacity, lightness, and firmness of grain, and covered with raw-hide, shrunk on in the closest manner, the outer surface being made flesh color by water-proof enamel. Special mention should be made of their artificial arms, being some of the finest specimens of mechanical skill to supplement the loss of so important a member

that can be made,—a triumph that needs to be seen to be appreciated by those suffering from such a loss—a perfect imitation of the natural arm, and so made that the hand can be taken off at the wrist and a fork, knife, hook, or other instrument inserted for use.

7.—JOHNSON & LUND, 66 Adams street, Chicago. Exhibited a large case of Artificial Teeth and Dentist's Materials in great variety, the teeth presenting a very natural appearance for porcelain. This house manufacture all their own goods, and have received several medals of merit for excellence of workmanship, etc. This firm have also a large establishment located in Philadelphia.

8.—H. D. JUSTI, 259 West Madison street, Chicago. Dentistry, Dentist's Materials and Instruments. A very artistic and attractive display was made in this line by the above exhibitor. Particularly noticeable was the artificial porcelain teeth shown, which were as close a resemblance to nature as it could be possible to attain. The manufactory of this exhibitor is located at Philadelphia, where he commenced the manufacture of these now celebrated teeth less than ten years ago, which at that time was unknown, and for which sale could not be had at any price for a small lot sent to Europe, but well knowing the superiority of his goods, the exhibitor, nothing daunted, kept them in the market and the result is, that the goods which ten years ago would not sell in Europe, are now in great demand, the last order recently filled for that country being over \$90,000, and the sales in this country are proportionately large. This item is mentioned for the double purpose of illustrating a case of considerable energy, at the same time to demonstrate the superiority of the goods exhibited. Completing this display, was a superb dentist's chair, of the O. C. White patent, which are manufactured exclusively by the exhibitor. The chair displayed was upholstered in magenta velvet with rosewood frame and nickel plated trimmings. This chair is a marvel of utility being capable of adjustment to any position desired by the operator, and is undoubtedly perfection *par excellence* of the many chairs now claiming favor among the Dental profession.

9.—OTTO KALTEICH, 112 South Dearborn street, Chicago. Case containing Trusses, Supporters, Braces, and Orthopedic Instruments. To give a description of this display would be impossible as the variety was large and consisted of every conceivable appliance and apparatus for deformities of which this Exhibitor is the manufacturer and makes a specialty.

10.—DR. G. W. LAWRENCE, 200 West Madison street, Chicago.

A Case of Dentistry, containing a large variety of artificial teeth, showing superior finish and workmanship, several sets of which were especially noticeable from their natural and life-like appearance. Two elegant and massive medals of gold and silver awarded this exhibitor at previous fairs for superiority of his work, occupied a prominent place in this display.

11.—L. MANASSE, 23 West Madison street, Chicago. All kinds of Optical and Mathematical Instruments. The display of this exhibitor was particularly fine, and consisted of opera, field, and marine glasses, telescopes, microscopes, barometers, magic lanterns, reading glasses, sand glasses, stereoscopic views, philosophical instruments, etc. A specialty exhibited by this house was the genuine Brazilian pebble spectacles and eye glasses, in gold, silver, steel, shell, and rubber frames. The superiority of these glasses consists at all times of being cooling and easy to the eye; this is due to the material of which they are made, which is a crystalized quartz or stone, the peculiarity of which is, that it cannot be defaced or scratched by long usage. The many merits of these goods are highly endorsed by those using them. Prominent in this display was a fine astronomical telescope, worth \$500.

12.—MARSH & BOWLES, 103 Washington street, Chicago. Exhibited case of Trusses, Braces, Apparatus for Deformities, etc., which could only be appreciated by professionals, or those especially interested for themselves or their afflicted friends.

13.—TOWNER & CO., cor. Halsted and Madison streets, Chicago. While this display was by no means as extensive as the facilities of the firm would have allowed them to make, yet in point of attractiveness it compared favorably with any in their line in the building. A single set of teeth (upper and under) was exhibited, covered by a glass shade, attached to which was an electrical motive power, causing the teeth to move, representing the working of the human jaw, thereby showing the accuracy and precision with which the teeth of this firm are supposed to work when in the human head.

14.—MARSHALL H. WINEBRENER, 136 South Halsted street, Chicago. Artificial Teeth and Specialties in Dentistry. The display of this exhibitor was extremely attractive and highly commendable, as the work of the youngest member of the dental profession in Chicago. Specimens of Contour gold fillings, and a new invention of the exhibitor, consisting of an original style of gold plate, and the method of attaching the teeth to it, were particularly noteworthy. The

principal specialty exhibited was the artificial teeth upon aluminium metal plates, which process was the discovery of the eminent Wohler of Germany, in 1828, and now manufactured exclusively by this exhibitor. This metal is the lightest known, and hence very desirable for the purpose used, and specimens exhibited at the Illinois State Fair in 1872 were awarded a silver medal for the excellence they possessed.

15.—SAM'L S. WHITE, 14 and 16 Madison street, Chicago. Porcelain Teeth, Dental Instruments and Furniture. A large and fine display, consisting of artificial teeth in great variety, and specimens of dental instruments of every kind and style known to the profession. Several luxurious dental chairs of the Harris patent, formed a prominent part of this display. This house is beyond question the largest establishment in dental supplies in the United States, the manufactory and central depot being located at Philadelphia, branches of which are established in New York, Boston and Chicago; the latter branch being established in 1858 under the management of S. R. Bingham, who still remains at its head. This house has received *fifty-one* first premiums for goods displayed at various Expositions including one from each of the great world's fairs, of London, Paris and New York, the crowning laurel to which is now added the grand diploma of honor recently awarded at the Vienna Exposition.

SECTION 8.

Apparatus and Instruments for Instruction and Scientific Investigation, Optical Instruments, etc.

1.—W. H. BULLOCK, 1 South Clark street, Chicago. Microscopes, and Mathematical Instruments, comprising Quadrants, Sextants, Compasses, and a large variety of instruments used for navigation and philosophical purposes.

2.—J. G. LANGGUTH, 82 State street, Chicago. Optical, Mathematical and Philosophical Instruments. The exhibition made by this exhibitor was large and varied, and consisted of a complete assortment of spectacles of all kinds and styles, barometers, thermometers; cosmorama lenses of large size, being eight inches in diameter; a selected assortment of the finest opera glasses, telescopes, pocket lenses, microscopes and accessories; microscopic

specimens; transits, levels, compasses; Swiss, French and German drawing instruments; chemical glassware, etc., the most prominent feature of the display being the electric light, exhibited upon several occasions during the Exposition with great success.

3.—NIEKEL & STRASSBERGER, 47 LaSalle street, Chicago. Surveying Instruments. Two elegant instruments for surveyor's use were shown by these exhibitors, which were manufactured by them, consisting of a transit and level, both finely finished, and showing a marked degree of superior workmanship attained by few firms in this line.

4.—DR. JOHN PHILLIPS, 120 Fourth avenue, Chicago. Optical, Microscopic, and Mathematical Instruments. A very attractive display of the above named goods, consisting of spectacles, eye glasses, telescopes, barometers, opera glasses, etc. The optical goods shown were all of the exhibitor's own manufacture; the human eye, of which a large model was displayed, being his specialty and the study of a life-time. Although the display of this exhibitor was attractive, yet two faded testimonials, contained in a glass case, seemed to be the center of attraction, one being from the lamented late President Lincoln, and the other from Governor Yates, both of which gentlemen's letters were highly flattering to the skill of the exhibitor as an oculist of deserving merit.

5.—E. PAYSON PORTER, 159 LaSalle street, Chicago. Sholes & Gladden's Type Writer. This is a truly novel little machine, by the use of which the operator is enabled to produce copy in the form of print with twice the rapidity of the penman, and with the most perfect ease. It is adapted for merchants, lawyers, editors, authors, etc. It requires no especial skill in its manipulation, and one may readily become able to write from sixty to eighty words per minute. The motion of the hand is free, easy, and unconstrained, so that the monotonous movement of the pen is avoided and the labor of writing performed with far less fatigue to the muscles of the hand and arm. This machine is in constant use at the National Telegraph College, of which the exhibitor is proprietor, and who is also agent for the sale of this valuable machine. The operation of this machine is simple. A set of keys similar to those of a piano, upon each of which is a letter of the alphabet. The operator presses upon a key, and by the mechanical construction of this machine a letter is printed upon the paper corresponding with the key touched. This little invention is destined to lessen the arduous labors of the copyist, and is hailed with favor by the telegraph operators and press of the country.

6.—M. POLACHECK, 76 Madison street, Chicago. Telescopes, Microscopes, Mathematical, Magic, and Philosophical Instruments. The display made by this exhibitor was a valuable one, and highly attractive for its variety and the fine quality of goods shown. Especially noticeable was a full line of opera glasses of every style of case, from ordinary Japan to the valuable mother-of-pearl and gold mounted. Microscopes of every kind, ranging in value from one dollar to eight hundred. Telescopes from pocket size to the immense instrument for astronomical observations. Mathematical, surveyor's and engineer's instruments were exhibited in great variety. The optical goods displayed were of the finest kind, and comprised all the most approved lenses known to the optician. The entire display was complete in its appointments in this line of goods, and arranged with much care.

SECTION 9.

Telegraphy—Electrical Apparatus and Instruments.

1.—GEO. H. BLISS & CO., 41 Third avenue, Chicago. Telegraph Instruments, Supplies, and Electrical Apparatus. The system of telegraphy, like every other great human convenience, has received the attention of the master minds of the age. Among the various improvements made and apparatus in use in the telegraph, may be mentioned the following exhibited by the above firm, who are the introducers and manufacturers. The gas-lighting apparatus exhibited is a perfect invention, and nothing approaching it in completeness has yet been invented. By the use of this system of lighting street lamps by electricity, the entire streets of a great city can be illuminated to any required extent within ten minutes. The same system is also adapted to the lighting of great halls, places of amusement, etc. It is a wonderful illustration of human genius. Another apparatus in this display was the hotel annunciator and fire alarm, which, in addition to a ready means of communication with each room in the house, operates automatically, in such a manner as to announce promptly at the office an unsafe degree of heat in any room in the house. There was also exhibited by this firm many other apparatuses of their manufacture, but an extended description, though interesting, would fill more space than can be devoted. The

little telegraph instruments are akin to the press in power, and are certainly mightier than the sword, as they are the means used to annihilate time and space, and were we deprived of their use, and of the telegraph, the entire business of the world would be paralyzed. These exhibitors are among the largest manufacturers of telegraph apparatus in the country, and their display was very large, and the instruments shown received the highest praise from those fully able to know of what they spoke, being professionals and telegraph experts.

2.—ELECTRIC IMPROVEMENT CO., Galesburg, Ill. A Case of highly finished Telegraphic Instruments manufactured by this Company, containing many valuable improvements of their origination. To professionals this case was the source of much admiration, and by whom the instruments therein contained were pronounced perfect gems.

3.—EDWIN SPEAR, 154 Madison street, Chicago. Holmes' Burglar Alarm Telegraph and Electric Hotel Annunciator. The first mentioned article calls for a description, from the many benefits arising therefrom, and the merits it contains. One bell only is required for the entire house. The bell is located in the sleeping room, and is operated upon the same principle, and by the same power, exactly, that operates our telegraphs throughout the country. Every exposed door or window of the house is connected with this bell by telegraph wires and springs; but not a wire, or spring, or machinery of any kind, but the bell, can be seen in the house. The indicator shows which window or door the burglar has opened. It can be introduced into any house without defacing it in the least; not a board is removed; not a mark or scratch can be seen in consequence; it occasions no inconvenience whatever. The whole arrangement is controlled in your room by a switch on the bell, which attaches the entire house at night, and detaches it in the daytime. It is particularly valuable during a temporary absence of the family.

As a means of communicating to a stable or other out-building it is superior to any and all other means used. The simple touch of a small spring, arranged in your sitting-room, or any or several parts of the house, rings the bell at the stable. The doors and windows of your stable can be connected with the same bell in your room. The alarm can be set for a part of the house, and not of the whole, if desired. Windows can be left open for ventilation, and the alarm given if they are moved from their respective places. If a

window or door is carelessly or purposely left open at night, the bell gives notice. The bell can be located in any part of the house, or in another building, without regard to the distance from the premises protected. It is an ingenious little machine, and one for which the patentee is entitled to the thanks of the whole country.

4.—THE WESTERN ELECTRIC MANUFACTURING COMPANY, 220 Kinzie street, Chicago. Electric and Telegraphic Instruments, Wire, Batteries, etc., etc. One of the most attractive displays in the building was made by this Company, not only to professionals, but to the general public. The immense resources of this Company in the way of labor-saving and costly machinery was fully demonstrated in their exhibition of switch-boards, instruments, etc., of the finest workmanship and finish. An important fact is, that all the parts of the Western Electric Company's instruments are accurately duplicated by machinery without hand filing or finishing, the result being the same uniformity and accuracy which characterize their instruments throughout the country. An especially noteworthy feature of their display was a large switch-board, enclosed in a heavily carved and ornamental case of black walnut, which was manufactured by this Company for the United States naval observatory at Washington. The front is protected from dust or interference by a sash containing a single sheet of plate glass, which is pushed upward, giving access to the plugs on the front of the board. Upon the top of the case were the letters U. S. N. O., neatly blended in a monogram. The cost of this switch-board to manufacture was twelve hundred dollars, and it would appear that Uncle Sam, for *once*, received the full worth of his money. Another attractive feature of this Company's display was the little instrument manufactured for the Gold and Stock Telegraph Company, called the "Gray printer." This wonderful little instrument, occupying hardly as much space as a small clock, prints its messages at the rate of thirty to forty words per minute, on a narrow strip of paper. The noise made by the wonder is less than that of a sewing machine, while its beauty of construction makes it highly ornamental. The letters are all engraved on the rim of a delicate wheel, about the size of a quarter silver dollar. Under this runs the paper, while over is a little felt ink roller, which inks the types, or letters, as the wheel revolves. Two rows of buttons in front, on the base, are marked with the letters and such pauses as are needed—comma, period, etc. To write upon it you press down one button, which starts the letter wheel of your

own and of all other instruments connected with it, revolving rapidly. Now press down in succession the marked buttons, as slowly or as rapidly as you desire, and every instrument, wherever located, prints your message, and at whatever speed you write or print; as the paper only moves a certain distance after each letter, the message is always perfectly spaced and printed. It is not necessary that you should be present, even, when a message is being sent to you. The paper is started, controlled and printed upon by your correspondent at a distance, and when you return to your office after an absence you find your message printed and awaiting your attention. There is no clock-work, weight, or spring; the whole thing is moved by the invisible sprite—electricity, and that with a speed and accuracy that is marvelous. Thousands of these instruments are in use by manufacturers, connecting their factories and offices; by merchants, between stores and warehouses, and between offices and dwellings. The wires are stretched over the house-tops and on poles, running all distances, from two miles to forty. These instruments are manufactured by the Western Electric Manufacturing Company under the immediate supervision of Mr. Gray, the patentee, and are claimed by the manufacturers to be the most simple, complete and best printers yet made, and cite the increasing demands for these instruments in proof of their claims. The general display made by this Company was an especially fine one, and for which they are entitled to great credit.

DEPARTMENT "B."

Objects used in Dwellings and for Personal Wear.

SECTION I.

Furniture, Picture and Looking-Glass Frames, Book-Cases, Ornamental Wood-Work, etc.

1.—AMES & FROST, 255 South Halsted street, Chicago. Exhibited samples of the U. S. Spring Bed Bottom, which they manufacture. This bed when ready for use shows no peculiar features, other than an easy spring bottom of ordinary manufacture, but it can be rolled up in a small compact compass, or, as it is more properly termed, portable. This bed is highly spoken of by competent judges as possessing many points of excellence.

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2.—M. ANDERSON, 82 State street, Chicago. Show Cases. The cases exhibited by this house were models of fine workmanship, being composed of French plate glass and nickel plated frames, and were taken out of stock on hand, and not made for exhibition.

3.—A. H. ANDREWS & CO., 166-170 State street, Chicago. Office, School, and Church Furniture. One of the largest exhibitions of this line of goods ever made, was displayed by this firm, who are the most extensive manufacturers of church and school furniture west of New York. The exhibition of their goods consisted of Andrews' patent gothic "Triumph" school desks, six sizes, folding slat seat and back; superintendent's, principal's and teacher's desks, in great variety; fine office desks; elaborate office and library chairs; letter-press stands, etc.: Dill's excelsior marquetry flooring and chess tables, of inlaid choice woods; Camp's new outline school maps, Holbrook's new globes and apparatus, zoölogical charts, blackboards, etc. One particularly noticeable article was a parlor round table, inlaid with 85,000 pieces of choice woods. The entire display was highly commendable, being in great variety and admirably arranged.

4.—DANIEL BARCLAY, 141 State street, Chicago. Show Cases. Some fine specimens of show cases were shown by this exhibitor, in both metal and wood frames. One large case, with nickel plated mountings, was a fine piece of workmanship.

5.—CHAS. BRACHVOGEL, 261 Wabash avenue, Chicago. Pier and Mantel Glasses, Chromos, Engravings, etc., in Gold and Walnut Frames. One gold frame French plate pier glass of entirely new design was much admired. Several very beautiful Chromos, bouquet tables, etc., completed this neat display.

6.—J. W. BENT, 207 and 209 East Monroe street, Chicago. Exhibited Osgood's Patent Improved Extension Table, a novel invention. These tables do away entirely with the trouble of the common extension, in taking out and replacing the leaves; also in extending and closing the slides, which often consume much time and strength. The leaves always remain attached to the table, and when closed are folded neatly underneath, which does not injure their beauty or obstruct their use. So simple are they in construction that a small child could open and close them with perfect ease. This house also exhibited refrigerators and ice-boxes of their own manufacture. The merits of these goods are well-known, as it is claimed this house is the oldest manufacturer of refrigerators in the country.

7.—L. C. BOYINGTON, 753, 755 and 757 State street, Chicago.

Spring Beds and Cots. This display consisted of a variety of spring beds of the following patents; Anderson's, Monroe's, Dougherty's Baxter's and Robbins, all well and popular known beds, but perhaps the most popular of those on exhibition was the old reliable Monroe spring bed, with which the celebrated Palmer House is furnished throughout, which fact should place this bed in the foremost rank of all patent spring beds of the present day. This exhibitor also showed some fine specimens of patent spring cots; also the canvass army cot, camp-stools, etc. All these goods were manufactured by the exhibitor.

8.—EMANUEL BRUNSWICK & Co., 47 and 49 State street, Chicago. Billiard Tables. This well-known firm had on exhibition one of their celebrated billiard tables, elegantly inlaid with many kinds of fancy woods, which was a fair specimen of the usual first-class productions of these exhibitors, and reflected credit upon their skill and ability to compare with any house in the northwest.

9.—THE J. M. BRUNSWICK & BALKE COMPANY, 62 Lake street, Chicago. Billiard Tables. An interesting feature of the Exposition was the display made by this Company. The principal attraction of the exhibition was a magnificent billiard table manufactured by them. In this exquisite work of art no less than *thirty-two* different woods were employed, the various shadings of which produced an ensemble of beauty rarely to be found in any exhibition of the wood-worker's art. This table was furnished with the standard Phelan & Collender cushion, which is undoubtedly *the* best article of the kind ever made. Another very beautiful table was shown of the style so favorably known to the trade as the "Novelty." It was of rosewood and maple, perfect in all its proportions and of finished workmanship. This style of billiard table has become immensely popular, which fact is fully demonstrated by the unprecedented number manufactured and sold by the Company up to the present time, no less than *Nine Hundred and Eighty* of these tables having been disposed of since their first introduction here six months ago. The table on exhibition was furnished with the patent steel ribbon cushion, a specialty of this house, and for which they have the exclusive right in the west. This cushion is greatly admired by experts at the game, owing to its superior elasticity and durability. The exhibition made by this celebrated firm was one of which they may justly feel proud, it fully illustrating the workmanship of the company, for which their goods have become so deservedly popular.

10.—JAMES CROGHAN, 720 West Madison street, Chicago. Croghan's Patent Combined Chair, Sofa, Bed and Table. Among the many novelties in the furniture line, this article may be considered certainly the most ingenious, as well as economical, that has yet been placed before the public for approval. This article merits a more extended description than can be here afforded it. Each combination forms the article perfectly, making an ornamental table for dining or other purposes, an easy chair, a luxurious sofa, and most comfortable bed. Certainly for economy this article cannot be excelled, and deserves public attention.

11.—W. H. CLARK, 294 State street, Chicago. Heath's Patent Reclining Chair and Invalid Bed. This chair appears to be a valuable invention for the sick room. It is so arranged that any person can act as nurse, and with very slight effort can raise the patient from a horizontal to a sitting posture, can raise or lower the feet or change the patient to any position they desire, as the exigencies of the case may demand.

12.—CHICAGO IRON BEDSTEAD MANUFACTURING CO., Van Buren and Desplaines streets, Chicago. Iron Bedsteads of various styles and Children's Cribs. This Company manufacture many different kinds of their goods, and their patent dovetailed wrought iron bedstead is pronounced superior to any other manufactured, and all their goods are warranted to give satisfaction. Their patent folding bedstead is not only a useful but decidedly novel invention.

13.—CHICAGO CURTAIN FIXTURE CO., 145 South Clinton street, Chicago. Magic Curtain Fixtures. In the use of a shade it is very often desirable to have light and ventilation from the upper portion of the window while the lower part remains shaded. For this reason the shade should be let down from the top as readily as the sash. The magic fixtures operate the shade equally well in either direction by means of two endless cords, one rolling it down from the top, the other raising it from the bottom. Air, light, and sunshine are thus admitted, excluded, and regulated at any portion of the window, securing light and ventilation with privacy whenever desired. The invention is a useful one, and an article that has long been much needed.

14.—Z. COBB & SONS, 293 West Adams street, Chicago. Cobb's Patent Elliptic Steel Springs. Specimens of these springs were exhibited applied to several peices of upholstered furniture. These springs are manufactured from the finest quality of steel, flattened,

and wire tempered, and resemble buggy springs in appearance. They have been adopted by the Pullman Palace Car Co., and also by many leading railroad companies, all of whom are unanimous in their endorsement of the superiority of these springs. They are adapted to furniture of all kinds where springs are required, and for car seats are without a rival. They seem to be preferable to any now in use, and the invention will doubtless be as profitable to the inventor as it is beneficial to the public.

15.—GEORGE W. GROSSCUP, 702 Chestnut street, Philadelphia, Pa. Combined Chair and Lounge. A patented article capable of being converted into either piece of furniture named. Its construction is simple, and in appearance very neat.

16.—THOMAS CLANCEY, 314 Twenty-second street, Chicago. A model of a full-rigged ship. Although of miniature size, the vessel was perfect in all parts, the maker having a thorough knowledge of the subject he was representing.

17.—DECORATIVE WOOD CARPET COMPANY, Warren, Ill., A. J. Griffin & Co., Agents, 163 LaSalle street, Chicago. Wood carpet and parquet floors. This material is manufactured from oak, walnut, cedar, and other contrasting colors of wood, and when laid upon the floor resembles the rich mosaic inlaid work so common in Germany, France, and Italy, and without which no house is complete there. The wood is cut into slabs of uniform width, one-quarter of an inch in thickness, which are firmly cemented to canvas. It is laid down in ornamental designs, to suit the taste or caprice, and becomes at once an elegant and indispensable carpeting. It is equally as elaborate as the celebrated French floors, which the visitor to Paris so much admires. It has a beautiful surface finish, susceptible of high polish, and is easily kept clean and in perfect order. As a wainscoting it will last as long as the house stands, and only decays with the edifice itself. The wainscoting shown was very elegant in design and produced a fine effect.

18.—DIXON & Co., 134 Lake street, Chicago. Assortment of Show-Cases in nickel plated and wood frames. One elegant show-case was a marvel of workmanship. It was some fifteen feet in length, nickel plated frame, and but one plate of glass covered the top, and but one the front and ends. This firm are among the foremost in the manufacture of these goods, and their work has the reputation of being second to none made in Chicago. These exhibitors

also supplied some of their popular cases for many other exhibitors, which were displayed in all parts of the building.

19.—THOMAS DRIVER, 90 W. Harrison street, Chicago. Specimens of Sash, Blinds, and Doors, showing good workmanship.

20.—EMPIRE PARLOR BEDSTEAD CO., 383 West Madison street, Chicago. In a space neatly carpeted were exhibited a number of the parlor bedsteads, showing the various combinations they possessed. This bedstead is an elegant piece of furniture, convertible at pleasure into a perfect bed, and occupies only one-fourth the space of a common bedstead, represents a book case, dressing case, wardrobe, sideboard, etageré, high desk, and high and low desk combined, as one may desire. This piece of furniture was justly pronounced the greatest of all inventions in the furniture line.

21.—F. FISHBECK & CO., 809 W. Lake street, Chicago. Patent Lounge. This article can be converted into a luxurious spring bed in a moment's time, and with very little trouble. It is simple and highly ornamental, and of the many articles of like character presented for public favor, the lounge shown by this firm seemed superior in many respects to all others.

22.—J. HYDE FISHER, 50 State street, Chicago. The Fisher Refrigerator. An elegant large specimen of the celebrated "Fisher" was exhibited, the materials of construction being butternut, with black walnut trimmings. This refrigerator is self-ventilating, and notable for its preserving qualities. The one exhibited was filled with meats, fruits, etc., which were placed within its preserving confines upon the opening of the Exposition, and were not removed until its close, and were then as perfect as when they were placed there. A more convincing proof of the "Fisher's" superior qualities over all other refrigerators need not be desired.

23.—W. E. FROST & CO., 144 16th street, Chicago. Specimens of Doors, etc. This firm exhibited some excellent workmanship in the doors shown, which were made for the new Tremont House.

24.—GOODWILLIE & GOODWILLIE, 35 Ohio street, Chicago. Walnut Ovals, Pier and Square Frames, Gilt Linings and Mouldings. The goods of this firm were displayed encircled by the largest walnut oval ever turned in the west, and were in various sizes, to one of diminutive proportions. The display was especially fine and reflected just credit upon the exhibitors by whom they were manufactured.

25.—A. L. HALE & BRO., 10 to 16 North Canal street, Chicago. Fine Furniture. In this display were shown marvelously wrought

chamber suites, sideboards, chairs, sofas, etc., of the latest designs, of which particular mention should be made of a superb library suite, upholstered in black Turkish morocco, an elegant parlor suite upholstered in silk terry. Also a massive lodge chair, upholstered in fine blue velvet, all of which were manufactured by this firm (as is *all* of their fine work) and taken from their stock in warerooms for the Exhibition, and not made for the occasion. Chamber suites of elegant new designs, reception chairs, bouquet tables, elaborately carved and inlaid, completed this notable display. This firm are champions of good work and good taste, and their immense business is done purely upon the solid merits of their wares. The exhibition made by them will not soon be forgotten by its many admirers, and reflected much credit upon this deservedly popular firm.

26.—W. F. HUNTINGTON & Co., 272 State street, Chicago. Spring Beds and Cots. This bed is simple in construction, very durable, and guaranteed to be the best bed made for the money. One fact is certainly in favor of this bed, and that is some fifteen or twenty of Chicago's popular hotels are furnished with it, and all speak highly of its qualities.

27.—HART & Co., 177 Center avenue, Chicago. Clothes-Dryer and Clothes-Bars, containing useful improvements.

28.—EDGAR A. HILL, Sheboygan, Wis. Children's Carriages. A fine assortment of these articles were exhibited manufactured by the exhibitor.

29.—CHAS. F. ISLANDER, 476 West Indiana street, Chicago. The display made by this exhibitor although consisting of but two articles—a Writing Desk and Parlor Table—deserve particular notice and praise. The desk was a perfect gem, and intended for a lady's use. It was composed of French walnut, finely carved, and black-lined to imitate ebony trimmings, the little drawers and apartments inside being composed of silver wood. The table part being covered by a fine quality of crimson cloth, presented a decided contrast to the delicate colored wood composing the interior. The cost of this elegant article was \$400. The parlor table exhibited was a marvel of workmanship, the top being solid ebony inlaid with fancy woods and mother-of-pearl, and represented a basket of flowers of several hues, which was excellently well done, and would have readily passed for the work of the painter, so correct were the shadings, etc., portrayed. The pedestal of the table was elaborately carved, representing cupids, etc. The cost was \$350. Mr. Islander

may well feel gratified with the results of his labor upon these articles which are deserving of more than passing mention.

30.—DAVID W. JENKINSON, 293 State street, Chicago. Pier and Mantel Mirrors. Two elegant mirrors were exhibited of very large size, finely framed in heavy gold frames. Although this display was lacking in variety, yet of the quality this could not be said, being as magnificent specimens in this line as was shown by any exhibitor in the building.

31.—GEO. KELLER, 111 Madison street, Chicago. This display consisted of wood mouldings of every description, and mirrors and picture frames in great variety. In the arrangement much good taste was evinced, and the exhibition was neat and attractive.

32.—JOHN KRAUS, 219 Blue Island avenue, Chicago. A Black Walnut Chamber suite, consisting of bedstead, dressing case and two chairs. To describe this magnificent suite as it deserves would occupy too much space, and then do but faint justice to it. To say it was elegant, elaborate, or most beautiful, would but faintly express its qualities. It was of black walnut, richly paneled with French walnut and superbly carved, and was a marvel of workmanship and one of which the exhibitor may justly feel proud, as it fully compared with any suite of furniture in the building. The carving on the four pieces was made to correspond. The top of the bureau was of the finest Tennessee marble, and the mirror heavy French plate. The cost of the suite to manufacture was \$1,500.

33.—D. KELLEY & Co., Muskegon, Mich. Exhibited a model of Kelley's Patent Weather-Proof Window Blind. This invention, not only being highly useful, is at the same time simple. The slats of the blind are so constructed that when closed each slat fits over the other in such a manner as to effectually exclude the weather in winter and the dust in summer. This blind is undoubtedly destined to come in general use, and great credit is due the inventor for so useful and necessary an invention.

34.—JOSEPH KEITZ, State street, Chicago. This exhibitor made a commendable display of Picture and Mirror frames, Mantle and Pier glasses, in great variety.

35.—LAUSIEDEL, WICKI & Co., 562 West Sixteenth street, Chicago. Ornamental Sideboard. This piece of furniture was a masterpiece of workmanship; elaborately carved and inlaid, with Tennessee marble top. Suspended over the top was the motto: "Ever new is Fantasy." Perhaps no single piece of furniture in the building

attracted as much attention. The cost to manufacture this elegant article was \$2,000.

36.—MICHIGAN SCHOOL FURNITURE CO., Northville, Mich. Geo. R. Salisbury, 343 West Madison street, Chicago, who represents the above Company at all points west of the Missouri river, exhibited school furniture of this Company's manufacture. Of the school desks exhibited, many points of excellence commend themselves in these desks as superior to any others exhibited.

37.—JOHN MONZEL, 266 State street, Chicago. Fine Furniture. Particularly noticeable in this display was a parlor suite of seven pieces, which cost one thousand dollars to manufacture. It was upholstered in green English silk damask (imported at twenty dollars per yard in gold), with puffing of yellow satin, and a heading of cord, 110 yards of which was used for this purpose. The frames were of black walnut, inlaid with French walnut, and finely enameled with black, gilt and green. This suite attracted much attention, not only for its beauty and richness, but for its plain and subdued style, there being nothing gaudy or common in its appearance. Another attractive feature in this display was an elaborately carved sideboard of solid black walnut, with Tennessee marble top. This article was hand-made, and a fine piece of workmanship, much skill being shown in the carving of the center piece representing a shepherd attacked by a tiger and his dog coming to the rescue. This was done by Mr. Monzel himself, and shows him not only to be a dealer in fine work, but a workman of the same as well. Another piece of fine furniture in this display was a massive walnut hat rack, made by Mr. Monzel, which cost \$850. The mirror in center of same was 32x78. The rack was of entirely new design, and finely carved. Several ladies' chairs, upholstered in fine quality of satin of delicate hues, completed the display, which was highly creditable to the exhibitor, and was but a fair representation of the goods manufactured at his establishment.

38.—MUELLER & GLÖCKLER, 63 Clybourn avenue, Chicago. A large display of Wall Pockets, Clocks, Shelves, Picture Frames, and Brackets. The goods exhibited by this firm were manufactured by them, and made of black walnut. Some of the wall pockets and brackets were particularly noticeable from their being elaborately carved, and was the largest exhibition of this line of goods made by any exhibitor in the building.

39.—DR. O. L. MASON, East Saginaw, Mich. Lamb's Parlor Settee. This settee or lounge is the invention of a blind man, and

is easily changed into a spring bed, and when so changed it is the same height from the floor as when used as a settee. It has a drop head so that the whole length is used for a bed. This is a comfortable spring bed when opened, and an elegant parlor settee when closed, and is a particularly desirable article of furniture suited to the double purpose of settee and bed, and is undoubtedly the best yet invented.

40.—FRANK MAYER & Co., 302-314 South Clinton street, Chicago. Bedsteads and Patent Cradle. This firm exhibited some fine specimens of walnut bedsteads and cradles, the latter being furnished with a patent appliance by which it was rocked, consisting of a treadle attached to the side of the cradle, which was hung in a frame, rendering the task of "rocking the cradle" a less laborious one than formerly.

41.—MCDONOUGH, PRICE & Co., 416 and 418 West Randolph street, Chicago. Lounges, Folding Sofas and Spring Beds. An attractive display was presented by this firm, composed of the above goods, noticeable among which was a parlor suite of seven pieces, upholstered in silk terry, the sofa of the suite being the celebrated patent folding article, which can, in a moment's time, be converted into a luxurious spring bed.

42.—NORTHWESTERN SHOW CASE MANUFACTURING COMPANY, 59 and 61 South Canal street, Chicago. Show Cases of various styles and material, apparently well and substantially made and finely finished.

43.—JAMES NESBETT & W. H. JONES, 154 East Madison street, Chicago. Patent Window Frame. This invention possesses many advantages, among which are, that the sash can be taken out without the removal of the stops or parting beads, and is so simple that a child can operate it. It is recommended by all architects and practical builders as supplying a want long felt. Can be applied to windows in houses already occupied without marring or defacing the wood-work, and with no inconvenience to the family.

44.—NATIONAL SCHOOL FURNITURE COMPANY, 113 and 115 State street, Chicago. School and Church Furniture, and School Requisites. This Company made a fine display of school desks, maps, charts, globes, church furniture, etc. A specialty of this Company's manufacture was Peard's patent folding desk and seat combined. This desk contains some ingenious and important improvements, prominent of which is a seat hinge, which allows a continuous curved seat

and back, and a patent brace which precludes the possibility of the desk becoming at all shaky. The desk has been adopted by the Boards of Education in many of the principal cities, and gives universal satisfaction. All the goods exhibited by this Company appeared to have been manufactured with especial aim to comfort, durability and elegance.

45.—OCCIDENTAL MANUFACTURING COMPANY, Gano street, Chicago. Perfection Baby Jumper. This article is an ingenious invention, highly indorsed by the medical fraternity, and consists of a light pyramid frame, and a light suspended circular seat. The frame stands strong and firm, about five feet high and three feet square at the base, but folds into smaller compass when desirable to move it. The seat is suspended from the top of the frame by a set of elastic and adjustable straps, so that the baby's toes just touch the floor in jumping. The seat itself is exceedingly ingenious, and must be seen in use to be fully appreciated. It supports a baby as comfortably and securely as when sitting in the mother's lap, at the same time that it allows full freedom to the movement of head and chest, and to the play of arms and legs, by which the baby amuses and satisfies itself.

46.—PATENT PAPER SAFETY SEAT CO., 56 Clark street, Chicago. This Company exhibited specimens of their Patent Safety Seat Paper, an admirable invention for water closets, which consists of a sheet of patent medicated paper covering the seat, insuring protection against disease, etc. This paper is disposed of in packages of convenient size, and to travelers will prove an invaluable invention.

47.—C. S. PRINDLE, 166 and 170 State street, Chicago. Cabinet Billiard Tables. These tables are designed for home amusement, and occupy but little space. The tops are in every way like the ordinary billiard table, except in size and being portable. The cabinet table can be placed upon any stand or suitable support and leveled to perfect accuracy, by means of patent adjusters, which is very easily and quickly accomplished. The idea entire is of the exhibitor's conception, and covered by recent patents. For a parlor billiard table nothing has ever been introduced so novel and complete, and furnishing all the enjoyment of a regular game of billiards. The invention is commendable, and destined to meet with great favor among admirers of the game of billiards who desire the requisites of the same at their own fireside.

48.—PAYZANT & CO., Room 2, 177 Madison street, Chicago.

George Payzant's Patent Automatic Table Leaf Supporter and Three-Leaf Sewing Machine Table. The table leaf supporter exhibited is a valuable invention and is adapted to sewing machine tables and all kinds of family tables with leaves, and for many other purposes to which it can be applied. The table leaf supporter is a unique contrivance, formed of iron braces, one attached to the leaf, so as to swing, and the other fixed to the table. By raising the leaf the swinging brace falls by its own weight into position and holds the leaf up firmly, with no danger of becoming misplaced. This supporter can be easily adjusted, either to a sewing machine or a large family dining table, two sizes being furnished, as well as one of different style, for sewing machines, where the supporter has to be attached to a drawer or case of drawers. The patent three-leaf sewing machine table is one of the many valuable patents of the day, and for the use which it is intended cannot be excelled. It can be folded down to occupy little space, and is held in place by the leaf supporters. It is a useful attachment to the ordinary sewing machine, well worth the price, and calculated to add materially to the value of sewing machines, being handy for cutting and fitting work, and keeping the material from dragging on the floor. It is formed with a main table and three leaves; one leaf in the rear, one at the left end, and one that fills the corner. This table has been introduced with great success, and an immense business done in a short time through its merits.

49.—REFRIGERATING COMPANY OF CHICAGO, 101 South Water street, Chicago. A Model of a Refrigerator, patented by E. D. Brainard, of Albany, N. Y., from whom this Company have purchased the right of his improvements for refrigerating and dessicating purposes, for the State of Illinois; and have organized to put them in successful operation in that State. These improvements consist in the use of inclined metallic surfaces as ceilings, combined with drip gutters to receive and carry away the water of condensation as well as that of the melting ice. These ceilings are used over both the ice and refrigerating chambers, so as to produce a dry atmosphere in each chamber. The operation is as follows: The ceiling over the refrigerating room is placed directly beneath the ice, and is thereby made cold as ice, or nearly so. The atmosphere in contact with this ceiling becoming cold, imparts its moisture to the under surface of the ceiling by way of condensation, and the air thus made cold and dry falls to the floor. The water adhering to the in-

clined surface of the ceiling drips into the gutters underneath, and is at once carried from the chamber. This process is continued whenever, from any cause, the atmosphere in the cooling chamber becomes heated or warmed, and ascends at once to the ceiling; there it parts with its heat and moisture, and descends into the chamber, cold and dry. The chamber thus becomes a preserving room in an eminent degree. These improvements were first introduced in 1868. Since that time they have been extensively adopted by brewers butchers, packers, fruiterers, hotel keepers, etc., and also by families for domestic purposes. This Company have a large room, to which have been applied these improvements, at their office, which can be examined by parties interested in any branch of business requiring a low temperature and dry atmosphere.

50.—SCHRAM BROS. & Co., 70 and 72 West Washington street, Chicago. Mouldings and Picture Frames. All kinds of walnut, rosewood, and gilt picture frames were shown, together with mouldings in great variety. The display was rendered very attractive by its artistic arrangement. The exhibitors are manufacturers, and all goods shown were made by them.

51.—W. SENG & Co., 26 and 28 East Chicago avenue, Chicago. Seng's Patent Extension Bed Lounge and Adjustable Summer Rocking Chair. The latter article deserves special notice, from its decidedly novel construction. This chair rocks on a framework which is immovable upon the floor. The bottom of the chair rests upon a bellows, from which is attached an air tube, the same running up the back of the chair and over the head of the occupant, who, when engaged in rocking, is gently fanned without exertion, as the rocking inflates the bellows and from which the air escapes through the tube and is used for the purpose already stated. To a close observer the chair only presents the appearance of an ordinary luxurious upholstered parlor rocker, all the novelties being entirely out of sight.

52.—STEPH. LENYARD & Co., 443 West Van Buren street, Chicago. Stair Posts of Hard-wood, composed of two colors and elaborately carved. The display was made up of several sizes of posts, which were fine specimens of hard-wood work, and well made.

53.—SAMMONS, CLARK & Co., 197 and 199 South Clinton street, Chicago. One of the largest displays of Wood Mouldings was made by this firm, consisting of walnut and gilt mouldings, for picture frames and cornices, also mouldings in the white or unfinished state. They also exhibited a full line of square, oval, arch-top, and rustic

picture frames, mirrors, chromos, engravings, etc., many of the latter goods being of their own importation.

54.—SHERWOOD SCHOOL FURNITURE Co., 103 - 109 South Canal street, Chicago. School and Church Furniture of the latest and most approved styles. The variety of goods shown by this Company was not as large as they were capable of doing, as they are one of the oldest houses in this line in the northwest, having been established nearly a quarter of a century ago, and the reputation of their goods is universal. It is to be hoped that in future Expositions a display may be made by this Company commensurate with their capabilities.

55.—W. W. STRONG FURNITURE COMPANY, 266 Wabash avenue, Chicago. Fine Parlor, Library, and Chamber Furniture, Mirrors, Drapery, etc. The display of this Company was very attractive, and consisted of several suites of furniture of entirely new designs (original with this firm) very elaborately constructed, and marvels of beauty and elegance. Conspicuous was a parlor set of seven pieces, upholstered in pale blue satin, gold mounted frames, manufactured to order by this Company for the bridal chamber of a prominent Chicago hotel. A suite of chamber furniture, consisting of three pieces, also attracted much attention. It was made of solid walnut, inlaid, and French walnut panels. The design was something entirely new. The outside foot of the bed formed a sofa, upholstered in Bismarck satin, and from the head was a canopy finely draped in silk corresponding in shade. The suite was *par excellence*, and cost to manufacture \$2,500. This Company have the reputation of dealing exclusively in *fine* furniture, and if their exhibition is a fair representation of their goods the prefix is justly deserved.

56.—JOHN F. SHULTZ, Chicago. Revolving Self-Waiting Dining Table. This invention is one that places tables in the front rank of perfected articles. It dispenses with attendants and the trouble of handling dishes. When used for dining, the central part is raised one-quarter of an inch by suitable apparatus, it will then easily *revolve at the touch of one's finger*, bringing any dish within easy reach. The outer rim is stationary, but can be removed in a moment, when after dining it is desirable the table should take up less space.

57.—SCHAFF BROTHERS, 255 and 257 Clybourne avenue, Chicago. Cylinder Desks. These desks are of an entirely new and improved style, and manufactured of black walnut, elegantly trimmed with

amboyne, ebony, and birds-eye maple. They are marvels of workmanship, and aside from their many points of superiority would commend themselves for their beauty alone. They are so constructed that no dust can ever enter them, each joint being perfect. The mechanism about them is simple, yet it is thorough. They are securely fastened by Schaff's patent automatic lock, but one lock being required to secure each apartment in the desk. The display, although consisting of but two specimens, was as attractive an exhibition as could be found in the building. This firm is entitled to great credit for the proficiency attained in the manufacture of their goods.

58.—STEPHANI, MONHEIMER & HART, 191 and 193 Randolph street, Chicago. Billiard Table, Cue Rack, etc. The table manufactured and exhibited by this firm was of rosewood, elaborately inlaid with ten different colors of costly imported woods, and was ornamented on four corners each with an eagle carved artistically of rosewood, with the America coat of arms in gilt. The cue rack, also, was carved of rosewood, ornamented with gilt, and filled with a handsome assortment of French cues of the exhibitors' own importation. Both the carved and inlaid work on the billiard table, as well as cue rack was admitted by competent judges to be the finest and most costly pieces of workmanship ever produced in this city. The actual cost of this display was one thousand dollars.

59.—THE BRADLEY WINDOW COMPANY, 817 Broadway, New York. Bradley's Patent Window. The mechanism of this article is simple, costing but little, and readily applied to any window, and allows the same to open outwardly from the top, bottom, or at either sides, admitting the fresh air with no exposure to draught. It is specially adapted to cars, and is destined to add greatly to the comfort of railway travelers in future by a thorough ventilation of the coaches, without the admission of dust, cinders, rain, snow, or other extraneous matter. This window is a valuable invention and meets requirements long felt by the community.

60.—THE STEIN PATENT BURIAL CASKET CO., Rochester, N. Y. Ornamental Burial Caskets. This display consists of six caskets, which are so elegant and chaste in design and finish that it would be difficult to conceive how they could be improved on. One of them is covered with black silk velvet, and upholstered with white satin and Venetian lace. This casket is fitted with a cover which opens on hinges and is secured with a lock. Another is of the same form

but covered with purple velvet and having a full glass top. A third is covered with rich black cloth and finished in the highest style. The remaining ones are for children, but made in the same elegant manner. All of the above are mounted with new, elegant and original designs in silver. The wood of which these caskets are formed have been subjected to a chemical process which forbids their decay for ages, and it is claimed for them that they will *never* fall apart. This casket is undoubtedly the finest and best piece of funeral furniture ever conceived.

61.—M. TERHUNE, 46 State street, Chicago. Two Show Cases. These cases were of large size, the frames being of solid ebony, joined together with nickle plated metallic corners. These corners are an invention of the exhibitor, and manufactured solely by him. Besides making the cases indescribably beautiful, these corners also make them infinitely stronger than even the full metal case. The cases exhibited were of the "pentagonal" and "square front" styles, with French plate glass, and were finely finished and lined with velvet. To fully describe their elegance would be impossible. They were show-cases that could not be improved upon, and were perfect in all their appointments.

62 — THE WOVEN WIRE MATTRESS CO., of Hartford, Conn., and 286 State street, Chicago. Mattresses, Complete Beds and Hotel Cots of Woven Wire. Beds composed of this material are becoming very popular, and are used to a great extent. They are, undoubtedly, a perfect bed in every particular, as they possess all the requisites of such, combining elasticity and softness with a perfect regard for hygienic cures, together with durability and simplicity of construction. By ingenious machinery, of this Company's own invention, wire, of the requisite size, is twisted into small coils, which are intricately interlocked, by a complicated process known as "double weaving." On an average, about eight thousand feet of wire are used in making each bed. The coils are almost half an inch in diameter, and in a bed of ordinary size some four hundred of these are used. So perfectly are these small coils interlocked that the pressure upon any one of them is diffused over all of them, and thus their elasticity can never be injured, even by the most violent usage. To test this, one of these woven wire mattresses was subjected, for thirty days, to a weight of a thousand pounds, and, at the end of that time, when the weight was removed, the fabric came back to its place again, as level and perfect as if

the weight had been but a single pound instead of a thousand. This fabric of woven wire is stretched upon a strong frame, and, by an ingenious arrangement of screws, which are so simply combined that they can be operated by any one, the "tension" of the mattress can be brought to any required point, thus giving an easier or a harder bed, as desired, making the fabric more or less elastic and springy, by the use of this continuous fabric, the mattress being in one piece, as it were, and supported all around by the frame. The necessity for using slats is avoided, and a perfectly noiseless bed is secured. The fabric is also so made that it can be rolled up, like a piece of cloth, and shipped in small bulk to any part of the country; its attachment to the frame when necessary, and its disengagement, being a simple matter of a few moments. The Company have numerous testimonials from all parts of the country, from hospitals, hotels, steamboats, public institutions and private individuals, where their beds have been used, that they give universal satisfaction, and are claimed by the Company to be the *best beds in use*.

63.—C. H. WHIPPLE, 306 State street, Chicago. A revertible and folding mattress, which is capable of being changed in a moment's time from a hard to as soft a bed as hair. It can be used with or without springs, which makes this bed a general favorite, and adaptable to the tastes of everybody.

64.—WILSON ADJUSTABLE CHAIR CO., No. 56 Clark street, Chicago. Three of their Patent Adjustable chairs, upholstered in striped terry and reps. This chair is capable of changing to six different positions, and forms a chair for the parlor, for the invalid, and for the sick, and is revertible to a lounge, a bed, and child's swinging crib. The frame-work of this wonderful chair is constructed of iron, and is very strong and cannot get out of order, and is, withal, not only a highly useful but a very beautiful article of furniture, and combines beauty, strength, simplicity and comfort.

65.—WHITTLESEY & PETERS, 129 La Salle street, Chicago. Peters' Improved Woven Wire Mattresses, Cots and Beds. This firm made an excellent display of the above unrivaled and popular goods, and a commendable feature was that a representative of these exhibitors was at all times present during the entire Exposition, to answer questions and display the many merits which their goods possessed. The peculiar merits of a mattress of woven coils of wire are as follows: A greater conformity to the body is attained than by any other device; an evenly elastic surface is secured, that does not lose

its shape by constant use. This elastic web requires only very light covering, which is easily handled and can be kept more thoroughly aired than the thick mattresses always necessary with other spring beds. To this important feature may be added the fact that no noise is made by moving upon it, either when new or after long use. This style of bed originated in Germany, and has been greatly improved by Mr. Peters since his arrival in this country, and especially during his connection with Mr. Whittlesey. In this improved woven wire mattress the fabric is composed of doubly interwoven coils of superior bright spring wire, running the entire length of the bed. Each coil consists of two wires, interlocking with two other wires at every connection. This is stretched to the required tension upon a frame of seasoned hard maple, the corners of which are secured by plates of malleable iron, firmly bolted through the frame to the braces inside. Thus is secured a surface for the bedding of even elasticity and exceeding durability. To test the elasticity, over two thousand pounds were placed on one of these mattresses, of the usual tension, and left there several weeks. When it was removed the fabric resumed its perfect level, not being injured in the least by so severe a strain. These mattresses are made both in the ordinary and adjustable style. In the latter, the tension of the fabric can be changed at will, to softer or harder, as desired. This establishment also exhibited woven wire cots, with folding legs, and woven wire mattresses, with iron bedstead, complete (the head and foot of either wrought or cast iron). Very neat and durable articles for public or private institutions.

66.—WILSON, PEIRCE & Co., 182 Clark street, Chicago. Adjustable Weather Guards and Folding Chairs. The folding chair is a most perfect article, and capable of many combinations. It forms an easy chair, a child's crib and carriage, a lounge, a full length bed and an invalid's chair, thus combining *five* distinct articles of furniture in one. It folds compactly and occupies but two feet square when folded, weighing only *forty* pounds. It is constructed with a light frame made of the best smooth wrought iron, neatly and securely riveted at every joint—the rivets forming the hinges on which the working parts move in making the various changes. Within this iron frame are fitted neat walnut frames, filled with cane, the one thoroughly bracing the other, forming a strong, light, and elastic frame, combining all the various articles of furniture described, and capable of being adjusted into every position required for ease, com-

fort and convenience. The adjustable weather guard exhibited by this firm and manufactured by them, was the Joseph Johnston's patent, and for which they have the exclusive right of the United States. This invention is something entirely new, and the old style of weather strips seem entirely superseded by the introduction of the adjustable weather guards which effectively exclude cold, dust, snow and rain, and stop the rattle of the sash. This valuable invention is applicable to windows and doors alike. The adjustable threshold is acknowledged by all to be the *only* invention yet produced that will positively exclude water, cold, dust, etc., from coming under the doors. The parts are made of hard wood, and are united by a strip of heavy, pure rubber. The rubber is let into the wood pieces, and is securely fastened there, thus forming a rubber arch in the center. When the threshold is in its place, the rubber arch presses gently on the bottom of the door when closed, across the entire width, entirely excluding rain, etc. Its durability has been tested, and it will outwear any ordinary wooden threshold. It is impossible for it to get out of order, is easily swept over, and is, in short, the most durable, simple and effectual weather protector that has yet been invented. These guards are also perfection for the complete stoppage of drafts or dust from all other parts of the door; and consist of a piece of rubber folded in the same manner as the last, but sewed nearer the bend, leaving two projecting strips of rubber. When applied to the door, it not only stops all openings, but it likewise stops the noise produced by the slamming of doors, as it forms a soft cushion for the door to close against. In the application of the guards to windows, the system is simple and thorough, and fulfills with great satisfaction all that is claimed for it. In examining windows it will be found that a long, narrow strip of wood fits into the frame on either side and on the top, which separates the sash, and is out of sight on the lower sash, but visible on the upper sash. This is called the PARTING STOP. This invention consists in *an improvement in the window frame*, which is effected by the manufacture of a stop with a groove, in which is inserted a strip of stout rubber, which projects from its surface at an angle. A part is made of black walnut, maple, or other hard wood, as ordered, while the balance is rubber. The stop exhibited was such as is used on the sides of the frame. When the old stop is removed, and this put in its place, the change effected is wonderful. All drafts are at once stopped. No dust can enter. The rubber presses firmly against the sash, but not so as to interfere

in the least with its free motion. It is not seen at all on the lower sash, thereby gaining an immense advantage over every weather strip yet invented. It is a part and parcel of the frame itself, and not an extra thing attached to it. It will last as long as the sash or frame lasts, seeing that rubber never loses its elasticity. It does not interfere with the putting in of window screens. The invention of the adjustable weather guard is a most valuable one, and entitled to much consideration from the public, who are ever desirous of adopting *the* best article in market, and from a careful examination of the adjustable guard it must be frankly admitted that they are vastly superior over all others in use.

67.—JAMES D. WILDER, 273 West Randolph street, Chicago. The display of this exhibitor consisted of Liquid Slating, Indestructible Black-Board, School Tablets, and other articles of school furnishing.

68.—A. ZELLER, 24 and 26 West Washington street, Chicago. Billiard Table. This exhibitor displayed one of his unrivaled tables which was a marvel of workmanship, being constructed of many kinds of fancy woods and elaborately inlaid. All the tables manufactured by this house are made with the same first-class quality of marble or slate beds, cushions, cloth, etc.; the extra charge on higher priced tables being made for ornamentation. The exhibitor has had over fifteen years' practical experience as an inventor, patentee and manufacturer, and all his goods are noted for their superior cushions, which, for elasticity, durability and correctness of angles, are claimed to have no equal.

SECTION 2.

Glassware, China, Porcelain, Lamps, Gas Fixtures, etc.

1.—BURLEY & TYRRELL, 274, 276 and 278 Wabash avenue, Chicago. China, Glassware, etc. The goods exhibited by this old established house were of the finest quality, and compared favorably with the reputation of the firm, which was formed some *forty years ago*. The display comprised bronzes, statuary, imported clocks, china and glassware; the most attractive feature being an elegant French china dinner set of 250 pieces, and valued at one thousand dollars.

2.—IRA P. BOWEN & CO., 262 and 264 Wabash avenue, Chicago.

Crockery, China, Glassware, etc. Another highly attractive display of goods in this line was made by the well known house of these exhibitors, and consisted of plain and fancy goods in china and glass and other wares, lamp goods, silver plate ware, kerosene chandeliers, decorated china sets of matchless beauty and in bewildering variety, varying from \$55 to \$500; white china sets of 150 pieces, specialties in table sets, cologne sets, vases, smoking sets, toilet bottles, jardeniers, fancy lamps, etc.

3.—ABRAM FRENCH & CO., 101 and 103 Wabash avenue, Chicago. Fine China and Glassware. Artistically arranged upon walnut shelving were samples of fine china ware, also specimens of crockery, glassware, Bohemian fancy goods, and Parian statuary. In an elegant show case was exhibited silver plated goods, fine cutlery, and table ware. A beautiful stand of bronzes completed the display of this well-known house.

4.—ILLINOIS GLASS COMPANY, Alton, Ill. Glassware. This Company made a display of the wares manufactured by them, consisting of all kinds of glassware in great variety.

5.—A. N. KELLOGG, 77 Jackson street, Chicago. Rotary Table Waiter. Its design is, chiefly, to promote the convenience of the guest, and to lessen the need of expensive, not to speak of clumsy and embarrassing personal service. It consists essentially of an upright standard, with two revolving tiers of six small metal plates (or platelets) each; those of the lower tier being intended for the reception of tea-plates, with bread, butter, cakes, crackers, cold meat, and other minor dishes of the table, while the upper tier is fitted for table vessels, such as cream, syrup, and spoon cups, sugar bowl, and the usual articles of the castor. The tiers rotate independently, at a mere touch of the hand. The waiter is twenty-one inches in extreme diameter, and in height to the top, or rim of the bouquet-holder which surmounts it, is a little less than seventeen inches. The general appearance of the waiter is that of a large, elaborate and handsome two-story castor. The whole structure and its metal furniture was plated with the very best double silver plate, in the most durable manner.

6.—E. C. LAWRENCE & Co., 105 State street, Chicago. Fine China, Crockery, Glassware, etc. The specimens of goods shown by this house were of the finest kind, and consisted of real Sèvres china, antique majolica, original wedgwood ware, engraved and cut glass, etc. Among the rich mantle ornaments displayed were two

Imported vases of different patterns, superbly decorated, and valued at one hundred dollars each.

7.—MCCLELLAND & SAGE, 167 and 169 Randolph street, Chicago. Plate and Window Glass, Bottles, etc. The exhibition made by this firm comprised window glass and bottles in great variety. Among the specimens of glass shown were plate glass, English, French and American window glass, French mirror plates, German looking-glass plates, floor, sky-light, colored, cut, enameled, ground and embossed glass. In bottles, every kind was displayed, from the small ounce vial to that of ten gallons' capacity. The house of these exhibitors is the only *exclusive* window glass and bottle establishment in Chicago.

8.—H. P. MERRILL & Co., 70 State street, Chicago. English Crockery and China, Table Ware, and Pittsburg Glassware. A fine display of the above wares was made by these exhibitors of their own importation from the celebrated manufactories of Ellsmore & Foster, Powell & Bishop, and Anthony Shaw, Staffordshire, England. These English houses manufacture some of the best goods imported to this country, and the samples exhibited fully sustained their previous high reputation. The glassware shown was of good quality, and from well known Pittsburgh manufacturers.

9.—PHILLIP MILLIGAN, Chicago. Fancy Glass-Blowing, and all kinds of Fancy Articles made of Glass. A very interesting display was made by this exhibitor, showing the process of manufacturing fancy articles of glass. Prominent in this representation was a steam engine in motion, being constructed entirely of glass.

10.—SCOTT & OVINGTON BROTHERS, 122 State street, Chicago. Crockery, China, Glassware, etc. Among the many beautiful representations in the above line made by various exhibitors, perhaps there was no display so large or elegant in the building as that of this firm. The great variety of goods shown and their costliness attracted much admiration. The arrangement of this display was faultless, and contained many imported gems of art, among which was a decorated dinner set consisting of 246 pieces, and valued at \$500. Parian statuary of the latest designs, cut glass, and crystal wall prisms, etc. One exquisite painting, done in porcelain and representing "The Finding of Moses," was worthy of extended description, being executed in a masterly manner. The house of these exhibitors, having an established branch in Paris, is possessed of unbounded facilities in the way of directly importing fine goods, and many of the articles on exhibition were of their impor-

tation. Still another house may be counted in the boundless resources of these exhibitors, they having a large establishment in Brooklyn, N. Y. With these facts known, the surprise many manifested at the extent of the display made by this firm will not again be expressed. Too much credit cannot be given to this extensive firm for the elegant display made and the fine quality of goods composing it.

11.—L. T. STARRING, 226 West Lake street, Chicago. A Decorated China Tea Set, done by the exhibitor, who is the only artist in this line in the city of Chicago. The decorating was done in a superior manner, and would bear critical comparison with like imported goods.

12.—WOLCOTT, SMITH & Co., 47 and 49 Dearborn street, Chicago. Glass, Paints, Oils, Mirrors, etc. This old established and popular firm made a commendable display of their wares. A show-case of brushes in variety, and their celebrated paint in cans, was shown, while specimens of all kinds of glass dealt in by this house formed an attractive feature of the exhibition. A fine specimen of hammered glass, rough plate, of extra thickness, was shown, which was made by the Star Glass Company, at New Albany, who are represented solely by the exhibitors. A large tube of sheet window glass, before flattening, which was made by the Phoenix Glass Company, attracted much attention. The large plate mirror exhibited, which was silvered by this firm, (W., S. & Co.,) would compare favorably with an imported article. The two windows of the building forming part of the back-ground of the space occupied by the exhibitors were put in by them, and were of one sheet each of fine plate glass, over which were hung lambrequins of glass, made to represent lace. This was one of the finest displays in the glass line in the building, and one of which the exhibitors may be deservedly proud.

13.—H. N. WHEELER & Co., 22 Lake street, Chicago. Lamps, Chandeliers, etc. This firm, which deals exclusively in lamps and glassware, made a profuse display of their line of goods; particularly attractive among which was a relic of the great fire, being an ordinary kerosene glass lamp blackened by the smoke but still intact. This article was the only one saved by the firm out of an immense stock of \$100,000. The "survivor" was carefully preserved beneath a glass shade, and will doubtless long be cherished by the exhibitors as a reminder of the fateful past.

14.—WHITE MANUFACTURING Co., 172 South Clark street, Chicago.

The American Safety Lamp. This lamp was shown in a variety of designs, all of which were neat and well finished. It is perfectly simple in its construction, and non-explosive. There is a cooling chamber encircling the wick tube, through which the cold air, to supply the combustion, must pass, keeping the lamp and wick-tube always cool. In this lamp there are no little tubes to clog up and prevent the lamp from working, and as the cup (air-chamber) catches all surplus oil from the wick, the lamp is always perfectly dry. It gives a clear, steady light, and as bright as gas. This Company also manufactures a street lamp, which was also exhibited, that will burn benzine or fluid, and will not blow out on a windy night. By a patent telescope attachment, the light is protected, and all smoke is carried off through the top of the lantern. This lamp is highly endorsed for its non-explosive qualities, and any lamp that will not explode certainly must commend itself to the favor of the public.

SECTION 3.

House Furnishing Goods and Notions, including Willow Ware, Brooms, Brushes, etc., etc.

1.—HUGH BRADSHAW, 209 West Lake street, Chicago. A Wood Cistern. Although this article has but little about it to describe, yet mention of its superior make should not be omitted.

2.—CLARK & HILL, 100 Randolph street, Chicago. Brushes. This display consisted of brushes of all kinds and styles, of the exhibitors' own manufacture. The arrangement of their goods was fine, and attracted much attention from all, whether specially interested in brushes or not. The wares of this house have an established reputation. An ingenious article in the brush line was the patent shoe brush and scraper, also exhibited by this firm, who are the manufacturers. This is a very simple and convenient device, consisting of a knife or scraper inserted in the handle, and a very useful addition to the shoe brush, as it is frequently necessary to use a knife or similar article to loosen the dirt in cleaning the boot or shoe before polishing. The utility of this improvement is readily perceived by any person requiring the use of a shoe brush.

3.—MERWIN CHURCH, 301 and 303 State street, Chicago. Stoves, Ranges, and Housekeeping Goods. A large display was made by

this exhibitor of stoves and housekeeping outfits. In heating stoves, were shown several sizes of the "Shining Light," manufactured by the Chicago Stove Works. It is self-feeding and base-burning, and said to be a superior article in every way. A new style of parlor stove was also exhibited, called the "Triumph," which is very complete in all its appointments. In cook stoves, was displayed the celebrated "Sample Cook," manufactured by the Barstow Stove Co. This stove is well known to be one that possesses many excellent qualities, and is all that is claimed for it, *i. e.* a first class stove, and one which carried off the medal of merit at Vienna. The "Union Range" and "Pattern Cook" also occupied a place in the assortment. A laundry stove for heating sad irons was also shown, and appeared to be an article of decided merit. In housekeeping goods displayed, it would be impossible to describe all that was shown, while to enumerate the articles which were *not* included in the great variety of housekeeping goods constituting this part of the exhibition, would be an easy task, for nothing seemed wanting to furnish a complete housekeeping outfit. The establishment of this exhibitor is styled the "Housekeeper's Resort," and it seems properly termed, from the immense variety of goods in this line exhibited.

4.—GERTS, LUMBARD & Co., 167 Madison street, Chicago. Brushes. This firm exhibited a full assortment of brushes of every kind, in great variety of styles. Being established in 1850, it will be seen that this house has an experience in the business of twenty-three years, and, as "practice makes perfect," their goods displayed were undoubtedly as good as can be made, and they looked fully equal to all that might be expected of them.

5.—GREEN & SPEAR, 257 West Madison street, Chicago. Bedding and Feathers, Spring Beds, etc., also Crosby's Patent Parlor Sofa and Bed, which is instantly transformable, and adapted to the parlor, drawing-room, dining-room, or office, and forms an ornamental and highly finished sofa or a luxurious bed, at pleasure. A very serviceable article of bedding, exhibited by this firm, was Lane's patent curled wool mattress, a substitute for hair and equally as good, at much less cost.

6.—J. H. HARPER, El Paso, Ill. Exhibited a Patent Fly Trap, very ingenious in construction.

7.—L. H. MARVIN, Beaver Dam, Wis. A large variety of Splint Baskets.

8.—GEORGE J. SCHMIDT & Co., 246 State street, Chicago. Chil-

dren's Carriages and Willow Ware. This house, which deals exclusively in the goods constituting their display, were enabled to make an extensive exhibition, and in great variety.

9.—UDELL LADDER AND WOODEN WARE COMPANY, 663 and 665 State street, Chicago. Patent Ladders. Among the many styles of ladders made by this Company, particular mention may be made of the patent extension ladder which was on exhibition. It was a model of simplicity, convenience and strength. Pulleys, ropes, and other delicate devices are dispensed with altogether by the use of self-operating hooks of malleable iron on the bottom of the upper section, and a wrought iron bar across the top of the lower. As the bottom section may be first raised, then the second, and after that the third (if made with three sections), one man of ordinary strength is able to elevate a fifty-foot ladder. It has a special claim upon the climbing public for its safety, as of the thousands in use (many of them for years,) not the first accident resulting from their use has been reported to the inventor. It is made of clear Norway pine from the western coast of Michigan, and with hickory rungs. Every ladder is severely tested before it leaves the factory. No defective timber is ever used, and the ladders are so painted that no cross-grain or defect of any nature can be concealed. Its qualities recommend it particularly to the use of painters, lightning-rod men and tinner. The principal manufactory of this Company is located at Indianapolis, Ind., while branches are located in nearly all the principal cities.

10.—P. P. VALENTINE & Co., 133 South Clark street, Chicago. Judd's Metal Moulding, Rubber Weather Strips, for doors, windows, street and railroad cars. A very ingenious little appliance, which is composed of zinc and rubber, so firmly united by folding, without the use of glue, nails, or cement, that the rubber cannot pull out. It is double acting, that is, the rubber touches on two sides, and is a finished moulding without additional ornament. The peculiar construction and shape of these strips render them thoroughly efficient and easily applied to all purposes for which an elastic strip is required, while they are neat, light, and durable. These strips can be applied anywhere, for any purpose, and are said to be unequalled for arches, circles, or acute angles, and will keep out cold, wind, rain, snow, or dust. They have been adopted by the Pullman Palace Car Co., by whom they are highly endorsed.

11.—WAY'S LEVER WRINGER CO., 250 State street, Chicago. Clothes Wringers. This wringer is very simple, substantial, and pos-

esses many perceptible points of excellence, among which is purity and superiority of rolls, solid white rubber, fastened firmly to the shaft. No set screws, no cogs, nor springs to get out of order. Pressure applied by the foot by means of a lever. This is the only wringer made on this principle, and the only one wherein the rolls cannot be damaged by the pressure. Rollers adjust themselves when the goods are of an uneven thickness, which cannot be obtained from set screws or springs. Rolls cannot be strained off the shaft, nor placed out of repair by fair usage. Great strength, durability, and simplicity characterize the entire machine. The wringer is supported on a neat laundry bench, independently of the tub; is not fastened to the tub, but the tub rests on the bench; thus combining in the one machine a good wash bench and a superior wringer.

12.—WOODS, SHERWOOD & Co., Lowell, Mass. Wire Household Goods and Toilet Articles. A fine display was made by this well-known eastern establishment, of their popular wares. In an elegant show case were exhibited household and toilet articles in great variety, manufactured by the exhibitors, of wire. These goods are highly ornamental, the wire being nickel plated and more durable than the ordinary white metal goods, which the wire articles displayed are designed to entirely supercede at no late day.

The exhibition was very attractive, and the goods of superior workmanship and elaborate design.

13.—J. F. & J. E. WHITE, 103 South Water street, Chicago. Wooden and Willow Ware, and House-Furnishing Utensils. This firm made a fine display of the above wares; in addition to which, particularly noticeable were some really elegant children's carriages, and a large show case of useful fancy baskets, directly imported by this firm. Among the specialties of this house on exhibition was the celebrated Blanchard churn, of which volumes have already been written in commendation. It is endorsed by every one who ever used it, and is undoubtedly just what is claimed for it, viz.: the best churn made. It is simple, durable, easy of management, and cleanly. It churns, gathers, works and salts the butter by means of the dasher, without removing the butter from the churn. The Messrs. White have the *exclusive* right of manufacture and sale for the "Blanchard." This firm also exhibited the Novelty wringer. Of the merits of this article much has been said, and it seems to have all the good points requisite to a practical machine. This display, taken altogether, con-

tained many useful articles, all of which seemed to possess more or less merit.

SECTION 4.

Clocks, Watches, Chronometers, Cutlery, Plastic Work, Ornaments, etc.

1.—AMERICAN WATCH COMPANY, Waltham, Mass.; Robbins & Appleton, agents, 5 Tribune building, Chicago. Watches. The handsome show-cases of the American Watch Company, with their contents of beautifully polished gold and silver watches, received their full share of attention and admiration from the vast throngs of sight-seers in the Exposition. This Company exhibited samples of thirty different watches, in gold and silver cases, varying in value from \$20 to \$300, and including both key and stem winding, ladies' and gents' watches, of all kinds and styles of finish. The watch-making industry, as developed by this Company at their extensive establishment at Waltham, is something enormous among the great manufacturing interests of the world. Commencing twenty years ago, in what was regarded almost universally as the *experiment* of making watches by machinery, the Company has gone on and flourished, until a vast establishment, filled with machinery superintended by one thousand hands, and producing some ninety thousand complete watches a year—more than the product of England, and three times that of any similar establishment in the world—is the proud result of their labors. This is the only establishment in the country where the complete watch is produced, case and all; and the American Company's watches are not surpassed as *reliable time keepers* by any manufactured—the Company having expended much time and study in perfecting and rendering accurate every detail of the works. In fact, this watch is as near *perfection* as the idealist could well desire; and its immense popularity may be shown by the fact that during one year 75,000 of them have been sold. This fact alone is sufficient to establish the supremacy of the Waltham watch, as it shows conclusively that the verdict of popular approval has been given in its favor.

2.—AURORA SILVER PLATE MANUFACTURING COMPANY, 272 and 274 State street, Chicago; N. S. Otis, Agent. Fine Silver Plated Ware. This Company had an exceedingly fine display of their goods, which were contained in several attractive show cases, and consisted of silver plate tea sets, knives and forks, spoons, ice dishes and

pitchers. Especially noticeable was an Arctic ice set. The wares of this Company are equal to any made in the country, and have earned for themselves an enviable and justly deserved reputation for their many superior qualities. The manufactory of the Company is located in the town of Aurora, a short distance from Chicago, and is the largest establishment of the kind west of New York city. They make a specialty of hotel outfits, and many of the goods contained in the cases on exhibition were designed for such use. The display was in every way highly commendable to the Company, and for which they and their representative are entitled to much credit.

3.—AMERICAN CLOCK COMPANY, 172 State street, Chicago. Clocks and Cutlery. Upon a wide and high frame were exhibited a hundred different specimens, styles and sizes of clocks, including those of various manufactures, which was an interesting and highly attractive exhibition. In cutlery, this Company made a very excellent display of fine goods in great variety. The able manner in which this Company was represented reflects credit upon them, and likewise upon W. F. Tompkins, the manager, under whose supervision the exhibition was made.

4.—E. D. BARTON, 220 East Kinzie street, Chicago. Clocks. Various kinds of office and other clocks were exhibited by this house, which made a creditable display of their wares.

5.—FREEMAN CAMPBELL, 76 Madison street, Chicago. Hair Goods. A large glass case, containing many specimens of human hair goods was shown by this exhibitor, comprising switches, wigs, toupees, curls, frizzettes, chignons, combs and hair ornaments. Among the beautiful specimens of hair switches shown was one of blonde color, seventy-two inches in length. A life-size wax figure, richly appareled, the elegant hair of which was dressed after the most approved style, formed a prominent feature of the display, which was commendable and arranged with care.

6.—ESTELL & JENKINS, 111 Madison street, Chicago. Aiken, Lambert & Co's Celebrated Gold Pens, and Estell's Programme Clock. This firm who are extensive wholesale jewelers, only exhibited the above articles, which are specialties of their house. The pens from the celebrated makers whose name they bear, are of a superior quality, and said to be among the best manufactured in the country, while the clock is one of many merits and designed for schools.

7.—M. GLASSBROOK, 88 State street, and Branch store 203 West Madison street, Chicago. Human Hair Goods. A very attractive

display was made by this artist in hair and whose establishments in this line of goods are excelled by no house west of New York for completeness of stock. In an elegant case was displayed many very fine switches, braids, curls, etc., which run through all the gamut of colors. A very noticeable feature of the display was a revolving wax figure of life-size, wearing a mantle made of hair of every color and shade, which was a most artistic piece of work, and for which the artist is deserving of great credit. The exhibition made by this house was one of the most attractive features of the Exposition, and evinced excellent taste in its arrangement.

8.—GILES BROTHERS, 266 and 268 Wabash avenue, Chicago. Diamonds, Jewelry, Clocks, Watches, etc. The show cases of this firm were handsome in the extreme, and contained elegant and rare specimens of their own manufacture and importation. To describe this display and do justice to its beauty would be impossible, as all their goods were of the finest kind and most elaborate in detail. The most prominent feature of their superb exhibition was an elegant emblematical design in silver, and called "Hiawatha: a poem in silver."

"In his birch canoe exulting,
All alone went Hiawatha,
Through the clear transparent water
He could see the fishes swimming
Far down in the depths below him.
At the stern sat Hiawatha,
With his fishing-line of cedar.
On the bow, with tail erected,
Sat the squirrel, Adjidaumo.
Paddles none had Hiawatha,
Paddles none had he, nor needed,
For his thoughts as paddles served him,
And his wishes served to guide him.
*Swift or slow at will he glided,
Veered to right or left at pleasure.*"

The last two lines of the above extract from Longfellow's beautiful poem of "Hiawatha," are inscribed in raised letters on the base of this wonderful and beautiful work of art. The exquisitely elaborate and chaste device represents a silvered lake about four feet in length, on which floats a silver canoe three feet in length and six inches high. "At the stern sat Hiawatha" with bow and arrow in one hand and fishing-line in the other, while the squirrel, "Adji-

daumo," is perched upon the bow. Upon the bank of this miniature lake are seen weeds, grasses, frogs and turtles; and in the water grows the "yellow water-lily." The conception is a fine one, and is most beautifully and successfully worked out. The entire piece is of solid silver, artistically formed and carved, and is valued at \$5,000. Also a sterling silver dinner set, valued at \$500, while deserving of special mention was a case containing some fifty sets of exquisite coral necklaces, bracelets, and ear-rings, from the celebrated establishment of Squadrilli, in Naples, bought personally by Mr. Giles, while recently in Europe. In diamonds, other precious stones, and imported bronzes, the collection was unsurpassed in the country. Many other heavy and costly ornaments in gold and silver, manufactured by the firm, were also exhibited, and made the exhibition of this firm one that was unrivaled in the Exposition. The justly celebrated Elgin and United States watches were also shown by this house, who have the agency for their sale as manufacturers' agents. The entire cost of this display, as obtained direct from the firm, exceeded \$50,000.

9.—GRAEF & FIELDS, 29 West Randolph street, Chicago. Specimens of Silver Plated Ware. A fine display of this firm's workmanship was displayed, the articles being exhibited in an attractive glass show case, and comprising a variety of saddlery and carriage hardware, excellently plated in gold, silver and nickle. The representation made marks the firm as masters of their trade.

10.—HENRY J. HITTORF, 6 Clark street, Chicago. A Clock. This was not an ordinary time piece, but one of peculiar construction, being patented by the exhibitor, and was termed a centrifugal regulating clock, but its superiority over the regular denoter of time, was not observable.

11.—N. MATSON & Co., State and Monroe streets, Chicago. Watches, Jewelry, Silverware, etc. This firm displayed excellent taste in the arrangement of their goods. They did not endeavor to crowd their space, which could readily have been filled to repletion without effort, so great is the resources of this house, but they exhibited only real gems in their line, and everything was arranged to please the eye. The sterling silverware shown was as sterling as the reputation of the firm, and consisted of several exquisitely wrought table pieces, very unique and tasty in design, and costing from \$750 to \$4,000 each. Jewelry was shown in great variety, prominent among which may be named an onyx, pearl and diamond set, valued

at \$2,500. A large assortment of minor articles, such as knives, forks, spoons, etc., made up the collection of this leading jewelry firm of the northwest. The business establishment of the exhibitors is undoubtedly the most complete and magnificently fitted store in the country in their line of business.

12.—B. F. NORRIS & CO., 141 State street, Chicago. Clocks, Jewelry, Silverware, Bronzes, etc. These exhibitors, who are importers, wholesale dealers, and manufacturers, made a most attractive display of their wares, consisting of imported clocks, elaborate specimens of silverware, bronzes and Parian statuary, jewelry in great variety, etc. In novelties, they exhibited several curiosities and wonders of mechanical invention, larks and blue-birds with curious attachments, which enabled them to open their bills and warble and sing with clear voices the natural notes of the wilderness. This firm are special U. S. agents for the celebrated Elgin watches, specimens of which were also shown. A large case of watchmaker's fine tools was displayed, among which was Norris's patent blow-pipe, an article highly valued for its excellence, by manufacturers, and which is now being extensively used. The display was, in all respects, creditable and arranged with care.

13.—RODDIN & HAMILTON, 99 State street, Chicago. Watches, Diamonds, Jewelry, etc. In the many displays in this line the fact was apparent that in jewelry houses Chicago is certainly to be complimented upon having those which are second to none in the country. So much elegance is seldom brought together for exhibition as was shown by the leading jewelry firms at the Exposition, prominent among which was the house of these exhibitors, whose display was a marvel of beauty. Solid silverware in rich profusion, jewelry of exquisite designs, diamonds that were gems, Waltham watches, which are unrivaled for their accuracy, and many imported fancy articles of elaborate workmanship, in gold and silver, comprised the particularly fine exhibition which places the exhibitors in the foremost rank of their business for excellence and beauty.

14.—HENRY SEARS & CO., 62 State street, Chicago. Fine Cutlery and Fire-arms. This was one of the richest displays in the Exposition, and one in every way commendable to this old established house. Pocket cutlery of all kinds, razors, polished scissors, shears, etc., were shown in great variety. The specialty of this house is fine pocket cutlery, manufactured by them at Waterbury, Conn., under the style of the H. Sears Manufacturing Co. The steel used in this

line of goods is exclusively Wardlow's, which is made expressly for the Company. The goods of this firm have become so justly celebrated for their excellence that any article bearing the imprint of "H. Sears Manufg. Co.," or "H. Sears & Son," is at once purchased without question, as it is a well known fact that the firm fully warrant all such goods, their superiority having been demonstrated for many years. In their exhibition were shown several fine specimens of breech and muzzle-loading shot guns, imported directly by the firm. The display made reflected much credit upon the exhibitors, and although an especially fine one, yet it only represented the usual goods manufactured and sold by the firm.

15.—WALTER TRELEAVEN, 144 West Lake street, Chicago. Gold Pens. An extensive assortment of gold pens, and gold, silver, rubber, ivory and pearl pen holders, and pencil cases, was displayed by this exhibitor, who deals exclusively in the goods shown, and whose exhibition was neat and attractive.

16.—A. B. VAN COTT & Co, 124 State street, Chicago. Watches, Jewelry, etc. The display of fine jewelry, silver ware and fancy articles made by this old and reliable firm, included many elegant specimens of taste and invention in that finest of all the mechanical arts. Among the magnificent collection shown by this house, was a great variety of massive and solid silver table wares, noticeable among which was a solid tea set, valued at \$800; diamond ornaments, jewelry, Jurgenson stem-winding watches, mechanical birds, imported bronzes, Geneva clocks, etc., all forming one of the finest displays in the building, and in every way in keeping with the standing of the firm by whom they were exhibited, which was organized *fifty years ago*. This firm was originally established in New York, but since 1844 located in Chicago, and have always been justly celebrated for the taste and elegance of their wares. The exhibition made is one deserving of much praise for its costly magnificence, and maintained the established reputation of the exhibitors.

17.—WENDELL & HYMAN, 235 Wabash avenue, Chicago. Silverware, Watches, Jewelry, etc. A choice and varied assortment, embracing everything that was elegant and desirable in jewelry was exhibited by this well known firm, of their own manufacture. An unusually rich display of plate, heavy work in silver, diamonds, fine imported clocks, pearl opera glasses, etc., were shown by this house. The exhibitors also displayed an elegant ebony and ivory cane, owned, and carried by Abraham Lincoln the night of the assassina-

tion. It was presented to Dr. Mack, by Mrs. Lincoln, who, at his death, left it to Mr. G. Pennoyer, of Chicago, and by whose courtesy Wendell & Hyman were permitted to add it to their many attractions. Another interesting feature of this display was a pewter dish from which George Washington partook many a frugal repast during the revolution. The contrast of this simple pewter compared with the elegant and extravagant solid silver ware of to-day was most striking. This popular firm are entitled to great credit for the magnificent display made by them, and which was repeatedly changed during the Exposition, to present new attractions which they are constantly in receipt of.

The establishment of this firm is classed as one of the most reliable houses in Chicago.

18.—WESTERN CUTLERY COMPANY, Ottawa, Ill. Butcher Knives, Cutlery, etc. A commendable exhibition was made by this Company of their products. The cutlery displayed was highly finished, and would bear favorable comparison with the goods of a more celebrated make. The articles shown consisted of carving knives and table ware in general.

SECTION 5.

Toilet and Fancy Articles—Perfumery, Extracts, Soaps, etc.

1.—FLORENCE MANUFACTURING Co., Florence, Mass. Toilet and Fancy Articles. A fine assortment of goods manufactured by this Company was exhibited, consisting of hair and cloth brushes, hand mirrors and other toilet articles in a great variety of elegant designs peculiar to their manufacture. The excellence of the materials used in the construction of these goods, together with their great beauty and durability particularly recommends them to favor.

2.—GRAHAM BROS. & Co., 42 and 44 South Clinton street, Chicago. Toilet Soaps, Perfumeries, etc. A large walnut case was filled with the many goods manufactured by this firm, consisting of fine toilet soaps, perfumeries, hair oils, cosmetics, pomades, etc. A noticeable attraction of this display was a bust of the lamented Lincoln finely executed in cocoa soap, and another of Byron done in glycerine soap. Both were life-size, and marvels of the artist's skill, on whom they reflected much credit, alike with the exhibitors. The goods of this firm always command a ready sale for their supe-

rior qualities and excellence. The establishment of these exhibitors is the oldest of the kind in the great west.

3.—W. J. M. GORDON, Cincinnati, Ohio. Medicinal Chemicals, Glycerine, Pills and Medical Stores. A large and complete assortment of chemical preparations manufactured by the exhibitor, prominent among which was glycerine, a specialty of this house. This article was chemically pure, and free from odor or color. The exhibitor is the oldest and most extensive manufacturer of glycerine in the country, which article, made by him, is adapted to every purpose for which it can be used. All the goods of this house have an established reputation, and are particularly mentionable for their pureness.

4.—GILLETT, McCULLOCH & Co., 34 and 36 South Water street, Chicago. Extracts, etc. In an elegant walnut case were neatly arranged the wares of this well known firm, consisting of perfumes, extracts, chemicals, hair oils, bay rums, etc., all of which were manufactured by the exhibitors, whose wares are well and favorably known throughout the west and south. The specialties of this firm are their unrivaled baking powder and washing crystal. The display made was particularly fine and noticeable.

5.—MRS. JOHN S. HENDRICKSON, 489 Wabash avenue, Chicago. Fancy Goods. This display was somewhat varied in its character and consisted of fancy goods of every description.

6.—HUYCK & KNOX, 47 and 49 West Lake street, Chicago. Extracts, etc. This firm, who are manufacturing chemists, made a creditable display of perfumes and extracts of their own manufacture, which have the reputation of being articles of merit and of unsullied purity.

7.—A. B. KEITH, 5 Wabash avenue, Chicago. Samples of Cosmoline. The article displayed by this exhibitor is manufactured from purified and concentrated petroleum, by E. F. Houghton & Co., Philadelphia. It is used for its healing and curative properties, and prepared in the form of a paste, which in the liquid would be 85° Fahrenheit. The exhibition of this article was made for the purpose of introducing it to the public, and demonstrating what is claimed for it. Crude petroleum was known to the Indians many years before it was known to the white man, and was by them called Seneca Oil. It was obtained from what are now called flowing wells, by the Indians spreading a blanket over the oil spring, which absorbed the oil as it came to the surface. The blanket was then

wrung out and the oil gathered in pails, and afterwards bottled and sold by the tribe from which it derived its name, and found large sale in those times as the great Indian cure for sprains, cuts, burns, and a host of complaints. Cosmoline is a similar article, only improved upon by the progressive American people, and undoubtedly now brought to a state of perfection.

8.—LAZELL, MARSH & GARDENER, New York. Drugs, Extracts, and Perfumery. This well-known New York house made a highly commendable display of select, powdered, and crude drugs, fluid extracts and perfumery, tastily arranged in a handsome black walnut case. The goods of this house are well and favorably known throughout the country and are standard in their quality.

9.—J. LEHMAN, 181 South Clark street, Chicago. Pocket-books. This exhibitor made a fine display of all kinds of pocket-books, from the sheep-skin wallet to the elegant mounted Russia leather book for ladies' use. All the goods shown were manufactured by the exhibitor, and were specimens of his ordinary make for the trade. The display was attractive, and the articles shown finely made.

10.—LEVY BROTHERS & Co., 185 and 187 Madison street, Chicago. Imported Goods. A fine display of imported fancy goods, hair-work, jewelry, etc., was made by this firm, the arrangements of which evinced excellent taste.

11.—G. MALLINCKRODT & Co., St. Louis, Mo. Chemicals. A display of fine chemicals in bottles, manufactured by the exhibitors.

12.—BELL MANN & Co., 163 Wabash avenue, Chicago. Perfumery and Toilet Goods. Specimens of the many extracts, perfumes, etc., manufactured by this popular firm were displayed, prominent among which were their celebrated specialties, consisting of Mann's Hair Luxuriant, and the Pullman Palace Car Bouquet. The "Pullman" perfume has an exquisite and delicious odor, which is distilled from choice flowers cultivated in the south of France and Italy, and imported direct from the distillers by the exhibitors, who are the sole manufacturers. The perfume in question is perhaps the best one ever produced, and is highly endorsed for its excellency over the finest imported perfumes.

13.—MERKER BROTHERS, 143 State street, Chicago. Fancy Goods, etc. A large and attractive display was made by this firm, consisting of a fine line of fancy goods of their own importation, also pocket-books, bill books, bankers' cases, card cases, cigar cases, jewelers' trays, and fine leather goods in general, of their own manu-

facture. This exhibition was the largest in the line it represented, and commendable to the firm.

14.—PIONEER MANUFACTURING Co., 51 and 53 Canal street, Chicago. Toilet and Shaving Soaps. These soaps were highly perfumed, and are termed "reliable," from their standard qualities. The display consisted of a large plate glass case containing the many varieties manufactured by this Company, and a pyramid of fine soaps in blocks from two feet square to as many inches.

15.—JUSTIN RYAN, 89 Miller street, Chicago. Specimens of Detergent soaps in cases.

16.—STEELE & PRICE, 201 and 203 South Water street, Chicago. Dr. Price's Cream Baking Powder and Flavoring Extracts. The display made by this old established house was highly attractive and imposing. Dr. Price is well known as an expert in the study of culinary chemistry, and most of the manufactures of Steele & Price are the result of his researches among the mysteries of this branch of science. Cookery, quite as much as poetry, music or painting, deserves to be classed among the fine arts, and the artist who perfects a new flavor, of surpassing excellence, or a fleecy paste of melting delicacy, is as worthy of praise and fame as he who writes an epic, composes an opera, or makes the canvas live with an historical picture. Of the Cream Baking Powder exhibited by this firm much has already been said in commendation. It appears to have earned its reputation from its undoubted excellence, and has been highly endorsed by the leading chemists of this country, as well as the United States government, by whom it is used for the various military posts. The display of flavoring extracts by these exhibitors is said to be the largest variety ever exhibited by any manufacturer in the world, and consisted of *fifty-two* distinct extracts, which are distilled from every delicious fruit and aromatic known, by a new process, by which the characteristic taste and freshness of the real fruit is preserved, and the flavorings and extracts produced by this process are said to excel any in use.

17.—E. H. SARGENT, 785 Wabash avenue, Chicago. Surgical Instruments and Electrical Apparatus. The display made by this exhibitor, although comprising an exceedingly fine and costly variety of surgical instruments, attracted very little attention, perhaps, outside of professional examiners, by whom they were pronounced perfect, and the possession of either of the complete amputating or operating cases exhibited would be, to any surgeon,

as valuable an acquisition as could possibly be had, being of the latest and most approved style of instruments known to the profession.

18.—MRS. E. H. STEIN, 124 West Madison street, Chicago. Fancy Goods and Notions. The display consisted of a variety of goods, all of which could be purchased for one dollar each, and the fact that these articles could be *made* for the price they were sold for was a matter of wonderment, the profit of the seller not even being taken into consideration.

19.—HENRY THAYER & Co., Cambridgeport, Mass. Drugs, etc. An imposing display was made by this well known eastern house of their goods, consisting of drugs, extracts, sugar-coated pills, etc. The exhibition was neatly arranged, the articles being manufactured by the exhibitors, who are chemists of an established reputation.

20.—A. C. VANDERBURG & Co., Tribune Building, Chicago. This well known firm made a large display of perfumes, cosmetics, fancy and toilet goods, of the "Crown" brand. This line of goods are made in England, and imported by the above firm. The "Crown" goods are a specialty of the exhibitors, and are claimed to be vastly superior to the many others imported. At the Vienna Exposition the "Crown" goods were awarded the first medal for "best perfumes in the world."

SECTION 6.

Textile Fabrics, Woolen, Cotton, Silks, Mixed and Other Mill and Hand-Made Fabrics, Piece Goods, etc.

1.—BELDING BROS. & Co., 198 Madison street, Chicago. Sewing Silk and Machine Twist. This well and favorably known firm made one of the finest displays in the Exposition, which was both ornamental and instructive. The exhibition consisted of several elegant and unique walnut cases containing specimens of their unequalled machine twist and sewing silk of every hue and color; also a case of raw silk in different stages of manufacture, from which one could get a correct idea of the manufacture of silk from the worm to the finished article. The goods of this firm have become justly celebrated for their many particular points of excellence, among which may be mentioned, that every spool is *warranted* full length, the strength of their silk unsurpassed, and the quality superior to any manufac-

tured. These exhibitors are the largest manufacturers in the country of sewing silk, machine twist, etc., having extensive mills located at Rockville, Conn., while their large business houses are to be found in New York, Boston, Philadelphia, Cincinnati, St. Louis and Chicago, to supply the demand for the excellent goods manufactured by them. Wherever the silks of this firm have been exhibited, they have invariably been awarded the first premium for their superior excellence, two of the last medals received being exhibited, which were taken at the Cincinnati Exposition and Ohio Mechanics' Institute. This display was one that reflected the highest credit upon the exhibitors, in every way deserving of receiving a suitable award had any such been given, in which case another first premium would undoubtedly have been added to those already obtained by the firm.

2.—BURKITT, SUTTON & STANLEY, 117 Franklin street, Chicago. Fancy Knit Goods. A large case filled with an assortment of hand-knit goods, embroideries, chenille work, etc. This was an elegant display, and prominent in which was a beautiful afghan, hand-knit, and valued at \$125.

3.—ELMER, BALL & WHITE, 30 West Washington street, Chicago. Smith's Patent Perforated Buckskin Under Garments. A case of these celebrated goods was exhibited by this firm, which have been so thoroughly tested during the past four years, and are so highly appreciated by those who have worn them, it is hardly necessary to speak of their good qualities. The importance of clothing the body lightly, and at the same time obtain the requisite amount of warmth, must be evident to the mind of every one. It is claimed that the body may be clothed lighter, more comfortable, and kept in a more even degree of warmth by these garments than by any other known, and being perforated, do not retain the moisture of the body. The invention is one of merit, and deserving the attention of every one subject to our variable climate.

4.—JOHN HOWE & SONS, Carrollton, Ky. Jeans. Specimens of Kentucky Jeans, in pieces manufactured by the exhibitor.

5.—A. W. ROLLINS & Co., 151 and 153 Michigan avenue, Chicago. Woolen and Cotton Goods of every description, Shawls, Blankets, Yarn, Cloths, etc. This firm displayed in great variety samples of the above goods, and are entitled to credit for so large a representation. The business of the exhibitors is divided into three distinct departments, viz.: 1st. Woolen manufacturers' supplies. 2d. Manufacturers' agents for cotton and woolen goods. 3d. Manufacturers'

ndings, dye woods, dye stuffs, etc. Each of these departments are under the immediate charge and supervision of a representative man, who makes it his specialty. Among the specimens of the many productions exhibited, were those from the Renfrew Manufacturing Co., Eagle Cotton Mills, and Penn Mills, of Pittsburg, Pa., consisting of warps, cotton sheeting, and carpet chains; Gould, Pierce & Co., Cincinnati, O., cotton twine, colored carpet chains, bank string, and seine twine; Hawes & Foster's wadding; sheeting from the Roswell Manufacturing Co., of Roswell, Ga.; goods from the Rock Island Cotton Mills; T. and H. socks, mittens, flannels, repellents, cassimeres, etc. The exhibiting firm represent all the manufacturers whose goods they displayed, having been appointed their agents. All the articles shown are of standard make, and reflected credit upon manufacturers and agents alike, being the largest and most attractive display of woolen and cotton goods in the Exposition.

6.— J. G. STOLPH, PROPRIETOR AURORA WOOLEN MILLS, Aurora, Ill. Woolen Goods. Specimens of the excellent goods manufactured at the above mills were exhibited, consisting of cassimeres and hosing.

7.— GIBSON & TYLER, Minneapolis, Minn. Enos Brown & Co., 19 and 21 Randolph street, Agents. Blankets. A large case of blankets was displayed by these exhibitors, which for workmanship, quality and superior finish, stand unrivaled. The many specimens of these goods as shown, embraced the "Imperial Rose," the finest made by the firm, the "Pullman Palace Car" blanket, (all the elegant gray striped goods used by this celebrated car company are made by the exhibitors, and rank among their best articles of manufacture,) the "three point" or Indian blanket, and several other specimens of minor grades. The "three point" is manufactured extensively for the United States, having been adopted by the Government for use among the Indians. The "Imperial Rose" has been used exclusively in the furnishing of the Great Palmer House, being manufactured to order. Thus it will be seen that not only do the U. S. Government use largely of the wares of this firm, but the great corporations of the country likewise. Some years ago it was deemed impossible to produce in this country a blanket of the elegant quality as those shown, England getting all the trade which is now bestowed upon home manufactures, and deservedly so, too.

An interesting fact is illustrated in the goods exhibited that they are *exclusively* home production, the sheep having been raised and

fed in Minnesota by home capital, the fleece made into wool and from the wool the productions exhibited, which not only rival *all* blankets manufactured in this country, but, by comparison, are fully equal to the best of English make.

8.—TUELL, RIPLEY & DEMING, Terra Haute, Ind. Flannels. Specimens of fancy flannels, manufactured at the Wabash Mills, and exhibited by the above firm, who are proprietors.

SECTION 7.

Embroideries and Fancy Work in Silk, Cotton, Wool, Hair, Wax, Feathers, Leather, Etc.

1.—J. COX & CO., 172 Madison street, Chicago. Artificial Flowers. This house made a pleasing display of fine imported artificial flowers of their own importation, in which they deal exclusively.

2.—G. F. FOSTER, SON & MCFARREN, 4 Market street, Chicago. Ship Chandlery Goods, Cordage, Twines, Water Proof Horse Covers, Flags, Tents, Oars, Regalia, Steel and Iron Ware, Vessel Masts and Models. Conspicuous among this firm's goods was a finely painted white silk banner, upon which was depicted the sturdy artisan blowing the challenge from his horn to the giant monopoly. This banner was but an imperfect specimen of the fine work in this line done by the above firm, who also are manufacturers of tents, awnings, silk and bunting flags, and to this house the Exposition Building was indebted for its profuse decoration of flags of all nations. This firm was founded in 1837.

3.—MISS H. GUEST, 256 West Madison street, Chicago. Hair Work. A case of specimens of this artist's work in human hair and jewelry, made of same material, very artistically done. A fine display of the exhibitor's ability as a first-class artist in hair.

4.—GOULD, PEARCE & Co., Cincinnati, Ohio. Carpets, etc. Specimens of carpets, twines, etc., were exhibited by this firm of their own manufacture.

5.—INDUSTRIAL CLASS OF CHICAGO, Mrs. John S. Hendrickson in charge. Below will be found the names of contributors to the class and the articles so contributed, which are given without comment, none being needed, *all* the articles shown being finely done, and in every way creditable to those by whom they were made :

Mrs. S. Clark and Miss Crain, 986 Indiana avenue, Chicago, wax work. Mrs. Kirkland, 1030 Wabash avenue, Chicago, devotional chair. Mrs. J. Grant, 155 South Clark street, Chicago, devotional chair. Mrs. M. Egeris, 178 North May street, Chicago, knitted table spread and tidies. Mrs. A. L. Forkel, 300 Larrabee street, Chicago, knitted work. Mrs. Martin, Lemont, Ill., worsted wreath and bouquets. Mrs. M. Borgan, 284 West Erie street, Chicago, wax and paper flowers, crystalized work. Hannah Danielson, Garibaldi and Thirtieth streets, Chicago, embroidered tidy. Mrs. William Stokes, 310 Michigan avenue, Chicago, point lace. Mrs. McDaniels, Wilmette, Ill., pieced silk quilt. Catharine Donaren, 124 Wright street, Chicago, log cabin silk quilt. Miss Lena Funk, Lake View, Ill., fancy needle work and embroidery. Louisa Hofeldt, 120 Barber street, Chicago, crochet work and embroidery. Mrs. Anderson, 344 Michigan avenue, Chicago, fine needle work. Miss A. Lemoine, 302 Second street, Chicago, crochet and needle work. Miss M. Kamble, 488 South Union street, Chicago, crochet and fancy work. Mrs. De Bert, 155 Cottage Grove avenue, Chicago, sofa pillow. Mrs. Chr. Carstensen, 525 North Wells street, bead embroidery. Mrs. M. Steinback, 271 Blue Island avenue, Chicago, fancy embroidery. Christine Berg, 337 West Indiana street, Chicago, crochet bed spread. Mrs. Frantzen, 214 Mohawk street, Chicago, fancy crochet work. Mrs. Gressendorf, 85 House street, Chicago, crochet and linen tidies. Mrs. Langman, 167 Blue Island avenue, Chicago, worsted embroidered picture of Lorley. Mrs. Joseph Alcock, Chicago, hair wreath. Mrs. Thorne, 368 North Market street, Chicago, hair flowers. Martha Wiernar, 855 South Halsted street, Chicago, wax and feather wreath. Emily Larensen, 225 Kinzie street, Chicago, child's carriage robe. Mrs. Brucklacher, 133 North Clark street, Chicago, silk netting work. Emma Breitling, 257 Center street, Chicago, lace applique work. Emma Shorr, 168 Blue Island avenue, Chicago, sofa pillow. Mrs. H. Long, point lace.

6.—G. MENDELSON, 34 Washington street, Chicago. Zephyr Worsteds, Embroideries, etc. In this display was exhibited some elegant goods, comprising ribbons, laces, trimmings, white goods, notions, fancy goods, and a line of very beautiful foreign novelties of the exhibitor's own importation. The exhibition was commendable, both for the fine class of goods shown and their perfect arrangement.

7.—A. S. WADHAMS & Co., 192 Clark street, Chicago. A Case of Masonic Goods, whose beauty and elegance were beyond description.

These goods consisted of three Masonic scarfs of the 32° and 33°, which were elaborately and appropriately embroidered; also one 32° apron, a perfect gem, together with Masonic goods of lesser note, but all showing a superior quality of such line of goods. Deserving special mention, were two Odd Fellow's collars. These collars were manufactured at the establishment of this firm (as were all the other goods exhibited), and were made to order for the Grand Representative and the Past Grand and Past Chief Patriarch of the Grand Lodge of Odd Fellows of the United States. The Grand Representative's was made of purple velvet, superbly embroidered with gold, and trimmed with gold bullion fringe, while that of the Past Grand was made of crimson velvet, and elegantly embroidered with silver, and fringed with silver bullion. Both were lined with the finest quality of satin, and cost one hundred dollars each, and are, perhaps, the handsomest goods of this kind ever made. If prizes had been offered, this case of goods should have deservedly received the first or highest prize of the class in which it was exhibited.

SECTION 8.

Garments for both sexes and all ages, including Coiffures, Wigs and Hair Work, Straw Goods, Hosiery, Boots and Shoes, Hats, Caps, Bonnets, Gloves, Fans, Umbrellas, Parasols, Canes, Dolls and Toys, Trunks, India Rubber Goods, Carpets, Furniture, Tissues, Leather, Cordage, Traveler's Equipments, etc.

1.—AMERICAN MOLDED COLLAR CO., South Boston, Mass. Gray's Patent Molded Collars and Cuffs. A large display of these celebrated goods was made, arranged in very attractive shape.

2.—BROWNSON BROTHERS & Co., 192 and 194 Madison street, Chicago. Neck Wear, Shirts and Collars. The display made by this firm was exceedingly fine, and consisted of neck wear in great variety of styles and material. They also exhibited a splendid line of elegant scarfs of their own importation. A prominent feature of this display was a case of Burlock's celebrated diamond shirts, sold exclusively in the west by this house, also a large line of Gray's popular molded collars, for which this firm are sole western agents. The elegant line of neck wear exhibited was particularly noticeable, and is a specialty of this house, by whom they were manufactured. It is to be regretted that the space allotted to this firm did not admit of so large a display as they could have otherwise made,

their stock being more extensive than that of any other house in their line in Chicago. Two immense floors are occupied by this firm in their business, which are literally packed by the immense stock carried at all seasons of the year, and although doing an extensive trade, yet it is a remarkable fact their stock is kept constantly replenished with new and fresh goods. In enterprise, perhaps no firm in Chicago are possessed of more, and to illustrate this fact may be recorded an instance of the great fire, by which the establishment of this firm was entirely consumed on the memorable October 9th, yet on October 12th, in but *three* days time, the firm again commenced business in temporary quarters, to meet the demands of their many patrons. To this firm much credit is due for the fine and attractive display made by them, and for the quality of goods exhibited.

3.—D. P. BARRETT & Co., 184 and 186 Monroe street, Chicago. Paper Boxes, Passe-Partouts, etc. An elegant display was made by this firm of their wares, consisting, in addition to those above named, of paper frames, display cards for photographer's use, etc. The goods exhibited were the exclusive manufactures of this house, and were of the finest quality, and reflected credit upon the exhibitors.

4.—BENNETT & Co., 18 Merrimack street, Haverhill, Mass. Felt and Leather Soled German Shoes. These articles are somewhat novel in their construction, being soled of felt. All sizes were exhibited in both shoes and slippers.

5.—JOHN BORGERSON, 30 Temple street, Chicago. A display of Ladies' Sewing Work Boxes, Tobacco Boxes, Needle Cases, etc., manufactured by the exhibitor.

6.—BROWN, PRIOR & FISKE, 163 Wabash avenue, Chicago. Gents' Furnishing Goods. A superb display in this line was made by these exhibitors, who are established in magnificent quarters in Ely's iron block, corner Wabash avenue and Monroe street, occupying what is conceded to be the most richly furnished and most thoroughly appointed store of the kind in the country, well known as dealers in the celebrated "Sam Brown shirts," and in all the lines of the very finest articles of gents' underwear and furnishing to be found in foreign or American markets. As samples of their selections displayed at the Exposition may be mentioned, besides a good display of the "Sam Brown shirts," embroidered night shirts, very elegant specimens of Cartwright & Warner's underwear, of the highest grades, of which the firm carry the largest stock in the northwest; silk suspenders, gents' kid gloves, of special manufacture; ladies initial

handkerchiefs, Vienna Exposition robes, chinchilla fur, imported neck wear, etc., etc. The trade mark of the firm, a very dainty and exquisite piece of embroidery on white satin, framed and suspended in the apartment, was an object of universal admiration. The firm name at the top, the trade mark, "*an avant*," below, followed by the simple suffix, "haberdashers," were done in silk letters so fine as to be generally mistaken for a very costly specimen of fancy painting. The entire display constituted a feature in every way worthy of the great Exposition and the popular firm by whom it was made.

7.—BULLOCK BROS., 50 and 52 Madison street, Chicago. Fine Shoes and Slippers. An elegant case of ladies' and misses' shoes and slippers was exhibited by this firm. The specimens shown were exquisite, and of most superior workmanship.

8.—C. A. CRELL, 78 and 80 State street, Chicago. Paper Collars and Cuffs. In this display was over 52,000 paper collars, cuffs and bosoms, embracing forty different styles. This house are extensive dealers solely in the above line of goods, which are manufactured principally by the celebrated Keystone and Bemis Collar companies.

9.—COYLE & DICKENSON, 209 West Madison street, Chicago. Shirts. This firm, who are the manufacturers of the celebrated "Chicago" shirt, made a creditable display, consisting of several handsome show cases containing samples of fine shirts of above style, which is their specialty.

10.—D. HOWARD DONAVAN, 72 Adams street, Chicago. Patent Chairs and Chair Seats. This display consisted of several patented articles in that useful household commodity, chairs, and in the seats of same. The Gardiner patent chair-seat is an article of great utility and durability. The patent consists in glueing three pieces of veneer together, the grain of same crossing in opposite directions, thus making a strong and durable chair-bottom, and a far more serviceable one than cane, and which is fully as ornamental. This patent seems a highly valuable one, and one that is destined to supercede cane seats altogether. A motto illustrating this fact was suspended above the exhibition, and which seems to be highly appropriate, and was to the effect that, "Cain killed Abel, but this is able to kill Cane." This article can be used to replace cane on chairs at about the same cost, and, although introduced but a short time, its success is more than guaranteed. This exhibitor also showed specimens of Colligan's patent folding chair, and Gardiner's

patent brace chairs and rockers, for which he is also General Western Agent. The display was one showing the many useful improvements in furniture, and was one of decided merit.

11.—DOWNS & SIAS, Lakeside building, Chicago. Gents' Clothing and Fine Woolens. The goods comprising this display are the specialties of this house and taken from regular stock. They consist of imported cloths and cassimeres, tricots, cheviots, suitings, coatings, etc., all of the finest kind, in great variety.

12.—DAMON, TEMPLE & Co., 111 and 113 Wabash avenue, Chicago. Gents' Neck Wear. This house are manufacturers and extensive jobbers in the above goods, of which a full line was shown of the latest styles, together with linen and paper collars and cuffs, jewelry, etc.

13.—DOGGETT, BASSETT & HILLS, 29 and 31 Lake street, Chicago. Custom-made Boots and Shoes. The goods exhibited were of this firm's own manufacture, and comprised many of their celebrated brands, such as the "Lake Superior Mining," "Minnesota," etc., all of which are well known to the trade as articles of superior workmanship, and are hand-sewed. Hence the name of "custom-made" has been given to the boots and shoes of these exhibitors, who make and job as fine goods to the trade, by the case, as could be made to order by the single pair.

14.—ELY & Co., Ely's Block, corner Wabash avenue and Monroe street, Chicago. This justly celebrated firm of importing tailors, who are renowned for the excellent fit of their garments and the superior material of which they make them, displayed some extra choice goods for men's wear, of their own importation, consisting of cloths, cassimeres, beavers, etc. The name of Ely and the finest of garments are always classed as one and inseparable.

15.—H. ESSERS, 398 Wabash avenue, Chicago. Boots and Shoes. A small case containing some very fine specimens of ladies' and gents' boots and shoes, which were well made and of good material.

16.—J. H. & I. J. Frank, Third avenue and Monroe street, Chicago. Collars and Gents' Neck Wear. A large display of neck wear and Ward's celebrated paper collars and cuffs.

17.—C. H. FARGO & Co., Madison and Market streets, Chicago. Boots and Shoes. A large display was made by this old established house, consisting of buffalo-lined boots and shoes, ladies', misses', and children's calf shoes of their own manufacture. The goods shown were of standard brands, and compared favorably with the reputa-

tion of the house, which is one of the oldest in the boot and shoe trade in Chicago.

18.—D. B. FISK & Co., Wabash avenue and Washington street, Chicago. Millinery Goods. In this line of goods the house of these exhibitors stands pre-eminently forth, without a rival, being so far in advance of all competitors as to seemingly be the *only* establishment of the kind in Chicago. The firm is a pioneer one, having been established near a quarter of a century ago, and its business now is counted by millions. The display made by this firm was one of the most attractive features of the Exposition, and consisted of rich millinery goods, flowers, feathers, trimmed goods, millinery and fancy articles of foreign and home production, the whole contained in a magnificent glass case, ten feet high by eighteen feet long, the front being one single plate of French glass, and presented an appearance of beauty that must be seen to be fully appreciated. The entire display was grand and imposing, and reflected great credit upon the firm.

19.—J. W. GRISWOLD & Co., 54 and 56 Madison street, Chicago. Ladies' Underwear, Suits, Cloaks, etc. This well known house made an attractive display of the above goods, which they deal in exclusively. Among the many articles shown were some exceedingly fine samples of ladies' underwear, cloaks, and suits, in variety of styles, all of which made a creditable showing of the resources of this firm.

20.—GAGE, MALLORY & Co., 192 and 194 Madison street, Chicago. Hats, Caps, and Furs. While this house is one of the most extensive in the wholesale line of the northwest, and doing an immense jobbing business in hats, caps, straw goods, and furs, yet the display of this firm consisted principally of furs, of which a large assortment was shown of all the leading styles, prominent among which were some excellent goods in seal skin and mink.

21.—J. E. GREEN, 131 Twenty-second street, Chicago. Boots, Shoes, and Slippers. A superb display of goods in the above line was made by this exhibitor, contained in an unique oval glass case. The exhibition comprised ladies' wear in great variety, and was one reflecting great credit upon the exhibitor for the display made, every article of which was taken from stock.

22.—N. E. GERRY & Co., 123 South Clark street, Chicago. Over-Gaiters and Leggins. A very neat and attractive display was made by this firm, who make the manufacture of over-gaiters, etc., a specialty. Contained in a handsome show case were some really

superb specimens of gentlemen's over-gaiters and leggins, ladies' gaiterettes, children's leggins, etc., all of their own manufacture and designs, representing the general style of goods made by this firm for the trade.

23.—GREENSFELDER, ROSENTHAL & Co., 34 and 36 Wabash avenue, Chicago. Boots and Shoes. A number of cases of the celebrated Whitney boots were displayed by this firm.

24.—GOODYEAR RUBBER COMPANY, 105 and 107 Madison street, Chicago. Belting, Hose, Rubber Clothing, Boots, Shoes, Carriage and Horse Clothing, Druggists' and Stationers' Goods, etc. Among the many attractions of the Exposition none were more inviting than the display made by the above house, of which Mr. Geo. Clapp is agent. This house is a branch of 361 and 363 Broadway, New York. The Goodyear Rubber Company, of which Mr. F. M. Shepard is President and J. A. Minott, Secretary, are the oldest and most extensive dealers in rubber goods in America. The Goodyear Rubber Company have the largest stock of rubber goods in the United States. All their goods are quoted at New York prices, giving the people of the West a chance to purchase at the same rates as in New York. This firm has a great advantage in the matter of freights, and as their goods are as cheap as any that can be bought in the United States, this being the largest house of the kind in America, it is useless for smaller houses to compete in prices. Their abundant capital enables them to buy goods for cash, thus giving them a palpable advantage. They keep constantly on hand rubber hose, belting, and everything known in rubber goods, including rubber jewelry, comprising everything in that line from ladies' ear-rings to gentlemen's sleeve-buttons. The display made by them were samples taken from their stock at their salesroom, and were not gotten up for the occasion.

25.—GLANTZ & HOFFMAN, 124 Fifth avenue, Chicago. Manufactured Furs. In this display were exhibited furs in great variety. Seal skin, mink, and other styles of ladies' and gents' fancy furs of excellent quality. The assortment shown was complete in its appointment, and one of decided merit.

26.—E. H. HOFFMAN, 171 Madison street, Chicago, exhibited a case of fine meerschaum goods and smokers' articles.

27.—J. N. HARVEY, 96 and 98 Lake street, Chicago. Youths', Boys', and Children's Clothing. This exhibitor, who deals exclusive-

ly in the above line of goods, made an extensive showing of many leading styles of suits for children, among which were observed the "Alpine," and "Rob Roy," made of navy blue cloth and tastefully trimmed with white braid, the "Farragut," and "Windsor" suits, something new, and finely trimmed, together with many other neat and attractive suits of various materials, all of which class of goods are made a specialty of this house, The exhibition was one of attraction, and formed an interesting feature of the Exposition.

28.—HASKELL BROTHERS, Tribune Building, Chicago. Trunks, Valises, Traveling Bags, etc. A large variety of trunks and bags of every description. Several extra fine trunks designed for ladies were particularly noticeable, being elegantly made, and the interior admirably arranged, having a particular place for innumerable articles, which in ordinarily constructed trunks are usually packed anywhere. A fine sole leather gentleman's trunk was also commendable for its construction and finish.

29.—E. F. HOLLISTER & Co., 117-123 State street, Chicago. Carpets, Furniture, Curtains, etc. The space occupied by this firm was the largest in the building, and hence they took especial pains to make the exhibition of their goods attractive, in which they admirably succeeded, which was doubtless due in a great measure to their extensive facilities to accomplish this, and they used them to the best advantage, the display being changed from time to time and fresh attractions presented, demonstrating their almost unbounded resources. In carpets the display was particularly fine. They exhibited some exquisite designs in French moquettes, and in velvets some chaste private patterns of their own importation, also in body Brussels several entirely new designs with borders to match. In upholstery goods among those shown were some beautiful designs in Lambrequins and hangings, both in satin and chintz, which for elegance and harmony of shade commended themselves to all. In furniture this firm made an elegant display. A superb parlor suite in drab satin shown, worth \$1,500, also a finely carved and ornamented chamber suite were particularly attractive. Their display also consisted of reception, easy and smoking chairs, swings, *tête-à-têtes*, etc., all of superior design and elegance. The entire exhibit of this firm cost \$20,000, and all goods shown were taken from their stock in store, and *not* manufactured for exhibition.

30.—G. L. HUYCK & Co., 99 Madison street, Chicago. An elegant display of Furnishing Goods was made by this firm, but the

crowning features consisted of an overcoat and dressing gown, both of which were marvels of artistic workmanship, and being made by hand (as are all the goods of this firm), made them worthy to have taken the first prize at the Vienna Exposition. The dressing gown was exquisite, while the overcoat reflected the greatest credit upon the exhibitors. The large glass case containing linen cuffs and collars, should not be forgotten, as they formed a by no means small attraction in this display. These goods were of the latest styles, and manufactured by the celebrated house of Fellows & Curtis, Troy, N. Y. The Diplomatic, Cadet, Rajah, and Aldine collars were among the latest styles in the extensive variety exhibited. The house of Curtis & Fellows is one of the oldest in the collar and cuff line, in the United States, and their goods are sold by only first class dealers. A full line of those exhibited are kept by the exhibitors, whose stock, like their display, ranked first class.

31.—HIRSH & Co., 133 State street, Chicago. A Case containing Silk Umbrellas of extra fine quality, and Parasols, all manufactured by this firm, who deal exclusively in all kinds of the above line of goods.

32.—HALLOCK & WHEELER, 169 Randolph street, Chicago. Among the many great attractions in the Exposition the "*Siphonia Elastica*," or India-rubber tree, exhibited by this firm, received a large share of attention. Its large, oval, thick, and glossy leaves contributed to make it a fine specimen of the most beautiful tree in the world. It is a product of South America, and is found, indeed, in the greatest perfection and inexhaustible quantity upon that equatorial ring which modern science has traced around the globe. The best quality of gum, under the name of "caoutchouc," is produced from the white, milky juices of this remarkable tree. India-rubber was first known as "elastic gum," but took its present name at a time when no other use was made of it than rubbing out pencil marks. Although known about one hundred and fifty years ago, it was not until 1820 that its employment began to extend beyond the use mentioned. Mechanics, scientific chemists, and others experimented and labored, but without any successful results, to make it useful in the arts and manufactures. To the late Charles Goodyear, whose name is world-renowned, belongs the honor of having accomplished one of the greatest inventions of the age—the mode of "vulcanizing" India-rubber.

The vulcanized rubber belting, steam packing, fire engine and other hose, on exhibition by Messrs. Hallock & Wheeler, was from the well

known Boston Belting Company's manufactory, the oldest and one of the most extensive manufactories in the above line of goods in the country, the high quality of whose products have a world-wide reputation. The above firm have the exclusive agency in Chicago for these goods, and "Torrey's patent carbolic hose," also on exhibition. This hose is extensively used by the fire departments in the Eastern and Western States. Rubber horse covers, boots, overshoes, rubber clothing of various kinds, rubber carpets, mats, nursery sheets, plain and enameled cloth, gloves and mittens; etc., etc., all from their usual stock in store, were among the articles exhibited; also some very fine specimens of *papier mache* cuspadores, spittoons, and pails. The very superior oak leather belting was from the well known manufactory of P. Jewell & Sons, Conn. The whole forming an unequalled display, and one worthy of the highest commendation.

33.—HALL & BRO., 18 Halsted street, Chicago. Horse and Wagon Covers and Water Proof Clothing. This firm made a fine showing of the above goods, which are their specialty.

34.—E. M. & A. A. HUGHES, 341 West Madison street, Chicago. Infants' and Children's Clothing. A large glass case was exhibited containing some elegantly made goods in the above line, which were marvels of workmanship.

35.—C. M. HENDERSON & Co., 220 and 222 Madison street, Chicago. Boots and Shoes. The most industrial feature of this great Industrial Exposition was given it by the largest boot and shoe house in the west, and one of the largest in the world. It was what is technically called a team, consisting of about twenty men under one head, making in the Exposition Hall about one hundred pairs of boots daily. These men were uniformed in red shirts, occupied about 1,500 square feet of floor room, enclosed in a heavy railing, and constantly surrounded by a crowd of visitors. It was a miniature representation of the manufacturing department of the house of C. M. Henderson & Co., the oldest exclusive jobbing boot and shoe house in Chicago; a house that was established here twenty-three years ago, and doing a trade of several millions annually. Their contribution to the interest of this first Inter-State Exposition manifests the enterprise and leading character of the house. They showed the great multitudes of visitors how their custom-made work, which has gained honorable reputation with the trade, is manufactured. The quality of the materials used, and the substantial manner in which it is put together, and their capacity for supplying a large trade, were

all here demonstrated to the eye by a few moments attentive observation. It was an individual illustration of Chicago enterprise, and the individual members of the firm are Charles M. Henderson, Wilbur S. Henderson and Edmund Burke. They have twice passed through fire, and had an immense amount of stock destroyed, but the only signs now visible of these fires is a warming up to new and greater enterprise.

36.—S. HOLDERNESS & Co., 103 Madison street, Chicago. A display of Rubber Stereotypes for marking purposes.

37.—HOTCHKIN, PALMER & Co., 137 and 139 State street, Chicago Trimmed Bonnets, etc. A particularly fine and attractive display was made by this firm of trimmed hats, ladies' velvet and cloth cloaks; also misses' and infants' cloaks, all of their own manufacture. A case of the celebrated "Bazaar" glove fitting patterns were also exhibited. The display was one of merit, and handsomely arranged.

38.—E. AUGUST JACOBS & Co., 54 and 56 North Wells street, Chicago. Cords, Tassels, etc. An excellent representation of this firm's manufactures was exhibited, comprising all kinds of upholsters' trimmings, cords, tassels, drops, fringes, gimps, loops, bands, etc. The display was one of prominence, and for superior workmanship and designs would bear close comparison with any goods of the kind in the country. A particularly noticeable feature of the display was an elegant octagon walnut case containing every kind of tassels manufactured, the case being surmounted by a Phoenix, carved from solid walnut. The goods made by this firm are styled the Phoenix, such being the trade mark of the house, and most appropriately adopted, as goods of such standard quality must necessarily "rise" above all competition.

39.—KILSHEIMER & SONDHEIMEN, 113 Main street, Cincinnati, Ohio. Gents' Fine Boots and Shoes. A case of exceedingly fine goods of the above line were shown by this firm, which spoke in the highest terms of these exhibitors as being manufacturers unsurpassed for excellence and great beauty of workmanship. A style of gaiter among the display, called the "Excelsior," which from casual observation seems admirably named, excelling others in many particular points. The display, while being small, was one which was characterized by its first class appearance, and one which the firm may at all times be justly proud of.

40.—MUNSON & Co., 14 and 16 West Randolph street, Chicago. Leather Belting. This firm exhibited a variety of their popular

standard leather belting, which is so well known and extensively used throughout the country, that comment upon its many excellent qualities is unnecessary.

41.—MCAULEY, YOE & Co., 111 and 113 Wabash avenue, Chicago. Boots. Several cases of mining boots were displayed by this firm.

42.—MRS. M. MORSE, 490 Wabash avenue, Chicago. Excelsior Self-fitting Dress Chart. This is a new and valuable invention for the benefit of the ladies. By the use of the Excelsior chart, a perfect fitting dress may be obtained for any form, by measurement. The system cuts tight, as well as loose fit garments for ladies and children. The chart is elegantly designed, and simple in construction, and seems a perfect system of cutting, etc.

43.—C. MACKENZIE, 103 Madison street, Chicago. Hats, Caps, etc. In an elegant walnut and inlaid case some ten feet high, was displayed a variety of gentlemen's head wear, consisting of silk dress hats, cassimere and felt hats, also ladies' and misses' fine furs, gloves, walking sticks, imported umbrellas, etc., the whole forming an attractive exhibition, and one which the popular exhibitor is entitled to credit, both for the fine quality of the goods displayed and the excellent taste evinced in their arrangement.

44.—McCORMICK & CLARK, 130 Clark street, Chicago. Fine Shoes, etc. The goods comprising the display made by this firm were manufactured to order, expressly for the Exposition, and were gems in the line of foot ware. As a specimen of what the articles consisted of, mention should be made of a pair of ladies' white satin boots, elaborately stitched, and lined with quilted silk, the cost being \$40. The display of this firm was very attractive; but the goods were not serviceable. Yet this house *do* make those of a more substantial character, and the workmanship will compare with the best on exhibition.

45.—NOVELTY MANUFACTURING Co., 495-499 North Wells street, Chicago. Baby Carriages, etc. A large variety of hobby horses, boys' sleighs, velocipedes, children's carriages, etc., were exhibited by this Company, of their own manufacture.

46.—A. J. NUTTING, 188 and 190 State street, Chicago. Clothing. A fine display of ready-made clothing was exhibited by this well known house, consisting of garments for men and boys, and furnishing goods. The clothing of this house is said to be equally as fine and well made as ordered goods.

47.—JULIUS NEWMAN, 90 State street, Chicago. Corsets and

Hoop Skirts. The exhibitor, who is a manufacturer of the above goods, made a large and imposing display of his wares.

48.—ORDWAY & NEWLAND, 209 West Madison street, Chicago. Clothing. An attractive representation of gentlemen's fine clothing manufactured by the exhibitors.

49.—PARKER & TILTON, Hatters, 83 Clark street, Chicago, made one of the finest displays in the building, which reflected great credit upon this deservedly popular firm. Upon a platform raised some eight inches from the floor, and carpeted by velvet tapestry, was placed an elegant walnut case twelve feet in height, and surmounted by their trade mark, the Claw and Crown, the whole towering upwards some sixteen feet. At one corner of the platform stood an elaborately carved walnut card receiver, while upon the opposite side stood a delicate upholstered reception chair, the whole presenting an appearance of careless elegance, and costing over \$1,500. The goods contained in the case were of the finest kind, consisting of silk and felt hats of their own manufacture, as well as those of their importation from the celebrated English houses of Christy & Co., Lincoln, Bennett & Co., Henry Melton, and Tress & Co. They also exhibited specimens of Martin's umbrellas and walking sticks, directly imported by them. One of the most attractive features of the case were several of their unapproachable silk gossamer body dress hats, which are a specialty of this firm, weighing but three ounces, and being the lightest weight dress hat manufactured. The store of this firm fully compares with their display at the Exposition, and has been justly pronounced the most elegantly fitted establishment, in their line of business, on the continent. Taken altogether, the display made by this firm reflected great credit to themselves and the Exposition alike, and attracted much attention from the visitors, as it properly should.

50.—PINGREE & SMITH, 15 and 17 Woodbridge street, Detroit, Mich. Samples of Fine Shoes. This display consisted of a fine collection of ladies', misses', and children's shoes and slippers, taken from stock of the exhibitors, without desire on their part to be fancy but to make an exhibition of such goods as they manufacture for the trade, which were "practical fine shoes made to wear," and not for show alone. A great mistake is made by many in their display of goods by catering to the eye too much and not to solid worth and quality. Such goods it is true come in for a share of attention, and are pronounced beautiful, exquisite, etc., yet they demonstrate the

fact of having been "gotten up for the occasion," and are not a fair representation of the ordinary industrial pursuits which an exposition is intended to draw out. The goods exhibited by Pingree & Smith would bear favorable comparison with any manufactured in the country, and certainly west of New York. The exhibitors' manufacturing capacity is *nine hundred* pairs of fine shoes *per day*, and their business extends from Massachusetts to Colorado. Many of Chicago's heaviest wholesale shoe houses acknowledge the excellence of these exhibitor's goods and deal extensively in their wares. Among their patrons may be named C. H. Fargo & Co., C. M. Henderson & Co., Doggett, Bassett & Hills, and others. The goods exhibited were particularly noticeable for their shape and desirable style, the designs of which were original with the makers. The glass show case containing this magnificent display is also worthy of mention, being of an unique design, oval sides and top, nickel plated and was entirely different from any other show case in the building.

51.—SPENCER H. PECK, 195 and 197 Wabash avenue, Chicago. Carpets, Curtain Goods, etc. This house made a very fine and elaborate display in carpets and curtains, showing several elegant patterns in body Brussels and Axminster carpets in new colorings. One, a sage green ground, with beautiful scroll patterns of delicate vine, mingled with autumn leaves, small roses, violets, etc.; also a black ground, with wreaths and vines of Nile green, sprigs with delicate buds and small roses in bright and cheerful coloring, the whole forming an elegant parlor carpet. There was also a beautiful display of Axminster rugs in light and delicate ground, and exquisite colorings in the different designs. The curtain department of this house, under the management of Mr. George W. Haskins, makes a magnificent display in boudoir and chamber drapings, and calls for more than a passing notice. The section draping gives some new and interesting ideas in this class of work. The colors introduced were an underskirt of black silk velvet, cut with straight side, and embroidered on outer edge with one-half inch silk gimp, in shape of scroll S's. Falling over this was an overskirt of a beautiful shade of fawn drab of English silk terry, laid in three folds about four inches in width, and dropping down half the distance of the underskirt, where it was caught up with loops, showing from under the graduated skirt. The edge of this overskirt was finished with Poncean satin, four inches wide, laid in clusters of puffs, edged on either side with half inch gimp to match, drops being used instead of fringe for fin-

ishing. The center figure was a well executed design of scroll work, and following the design in shape was black velvet. Three festoons of Poncean satin, finished with solid six-inch black silk fringe, with Poncean drops at intervals of six inches, were held in position by a black walnut spear, to correspond with massive cornice composed of black walnut and ebony inlaid with gold. Florence applique lace curtains, with lace shade to match, completed this window, which was truly *par excellence*. The chamber window was of blue silk terry, long curtains, capped with short lambrequins, four-inch French satin border of exquisite design, gilt cornice of Grecian design elegant wrought lace curtains and space to match. This house made one of the finest and most costly displays in the Exposition.

52.—R. M. PEARE & CO., 203 Fifth avenue, Chicago. Rubber and Leather Goods, etc. A variety of goods was displayed by this exhibitor, prominent among which were specimens of rubber and leather belting, hose packing and tubing, Gasket's shaft rubber, lace, leather, etc., which was of good quality and workmanship. The display was not as large as the resources of the firm would have admitted, this house being one of the standard establishments of Chicago.

53.—PHELPS, DODGE & PALMER, Wabash avenue, Chicago. Boots and Shoes. A full line of this firm's various styles of goods were exhibited in original cases; also, a show case of fancy top boots.

54.—J. FREEMAN QUIGG, 253 West Madison street, Chicago. A display of baby swings, rocking horses, jumpers, patent cradles, etc., which were manufactured by the exhibitor.

55.—J. A. SMITH & CO., 161 State street, Chicago. Furs, etc. This firm made a representation of but one branch of their business, hats, caps and all kinds of head wear for gentlemen being a part not represented by their display, which consisted of some very elegant furs and lap robes.

56.—JOSHUA SMITH, 204 State street, Chicago. Trunks, Bags, Travelers' Equipments, etc. This display consisted of a fine assortment of the above goods, in great variety. The specialty of the exhibition, however, was the celebrated patent "Sensation" trunk, which is manufactured only by the exhibitor, who is the owner of the patent. This trunk is undoubtedly the king in that line of goods. A few of its many advantages which may be named is its self-acting tray-raiser; also, its great durability, resisting power, strength and economy in packing.

57.—SCHWEITZER & BEER, 154 State street, Chicago. Toys and Fancy Goods. Prominent among the attractions of varied articles was the exceedingly large representation made by this firm, who are, perhaps, the largest and most extensive dealers in the above line in Chicago or the northwest. Every variety of toys and fancy goods were shown in profusion, many of them being imported. A noticeable feature was a case of wax dolls, superbly attired in costly apparel, which was said to have been dressed by a Chicago lady for the occasion. The fact is certainly evident, that by whoever they were appareled, that person was fully acquainted with the subject before them, as well as having good taste in their selection of material, etc., from which the dresses were made.

58.—M. SELZ & Co., 219 and 221 Madison street, Chicago. Boots and Shoes. A fine display was made of the celebrated Penitentiary hand made goods, consisting of custom kip, fine kip, veal kip, calf, tap sole, and driving boots, and calf shoes of all kinds, the entire list being made from superior stock.

59.—A. D. TITSWORTH, Lakeside Building, Chicago. Ready-made Clothing. The display made by this exhibitor was in every way in keeping with the established reputation of the house, being the oldest ready-made clothing establishment in the city of Chicago, which for excellent quality of goods, and great variety of styles, is unequalled in the west. Among the many specimens of clothing exhibited may be mentioned some fine beaver sacks and sack coats, satin lined and velvet faced, Newmarket suits of English and French cassimeres; opera and evening dress suits; coats, pants, and vests in great variety of styles and goods, all of which were made in the best manner, and reflected credit upon the exhibitor demonstrating the excellence of the goods of this house to be unsurpassed even by the most celebrated firms.

60.—ROBERT THEIM, 74 Madison street, Chicago. Boots and Shoes of unequalled quality, being composed of the strictly first-class stock, for which the establishment of this exhibitor has become so justly popular, and consisted of Boyden's celebrated gentlemen's shoes, manufactured at Newark, N. J., which is a specialty of this house; also ladies', children's, and misses' shoes in great variety of styles and materials. The display was one for which the exhibitor is entitled to credit.

61.—VERGHO, RUHLING & Co., 138-142 State street, Chicago. Toys and Fancy Goods. In this display was many articles of foreign

manufacture, being imported directly by the firm. The exhibition made by this house comprised fancy goods in great variety, which was showily arranged and very attractive.

62.—VOGLER & GEUDTNER, 156 State street, Chicago. Trunks and Traveling Bags. This house, which is exclusively wholesale, made a fair display of goods in the above line, of their own manufacture.

63.—WALKER, OAKLEY & Co., 239 Lake street, Chicago. Leather. Specimens of leather from the well known tanneries of this firm in Holland, Mich., were exhibited, and from appearance was an excellent article, all the goods of this firm being justly celebrated for their superior points of excellence and durability which are imparted during its manufacture.

64.—WILDE, BLUETT & Co., State and Madison streets, Chicago. Men and Boys' Clothing and Furnishing Goods. In this exhibition were specimen suits of men's and boy's clothing, and a case of gentlemen's furnishing goods. They were the contribution to the objects of interest from the palatial clothing establishment of this well-known firm. A suit of good clothes, the one thing needful to genuine good feeling, has interest for every visitor at the Exposition. This display was made by one of the establishments that give character to Chicago enterprise, a place where the golden rule governs every business transaction, and the aim of its management is to give full value for the value received.

65.—WARNER, MARSTON & FELIX, 36 and 38 River street, Chicago. Wood and Willow Ware, Brushes, Cordage, Twines, etc. The above firm (which is one of the oldest in this line in Chicago, being established a quarter of a century) made a large display of wood and willow ware, and which, being taken direct from ordinary stock on hand, spoke largely in favor of this well-known house and the goods kept by them.

66.—CYRUS WAKEFIELD, Boston, Mass. Exhibited a large line of Household Furniture, etc., in Rattan Goods. They are the largest manufacturers of this class of goods in the world, and their display of useful and ornamental goods attracted much attention. Their goods consisted of mats, mattings, lounges, *tête-à-têtes*, easy and rocking chairs, garden chairs, etc. In fact almost every conceivable article of furniture was shown in this display. E. F. Hollister & Co., 121 and 123 State street, Chicago, are the agents of these goods and by whom the display was arranged for the exhibitor.

67.—D. WEBSTER & Co., 270 and 272 Wabash avenue, Chicago. Ladies' and Children's Hats, Notions, etc. This popular firm, who cater to the taste of all, rich and poor, alike, made a notable display of goods of all qualities, comprising ladies' imported bonnets, laces, notions, French flowers, ribbons, velvets, silks, etc., all of which were commendably arranged and bespoke for the exhibitors a replete stock in their line of goods.

68.—M. D. WELLS & Co., Madison and Market streets, Chicago. Boots and Shoes. This old and extensive firm made a commendable display of boots and shoes in cases, of their own manufacture. The goods of this firm are well known to be of uniform grade, and manufactured from the best stock, and have an immense sale throughout the west and southwest.

69.—H. W. WETHERELL, 45 and 47 Jackson street, Chicago. Millinery Goods, Trimmed Bonnets, etc. This house was established in 1855, and is one of the oldest in the millinery line in Chicago, and the display made fully sustained their reputation, being one of the most elaborate and novel in the Exposition. Among the prominent features of their exhibition may be named some very fine French plumes, laces, ribbons, velvets, and notion goods, many of which were imported direct by the exhibitor. A further evidence of the superior quality and style of the goods emanating from this popular house was that, during the Exposition, they were absolutely compelled to dispose of several trimmed bonnets, forming part of their display, to strangers who did not reside in Chicago, and who, after having looked the great building with its immense contents carefully over, fixed upon the goods of this exhibitor as those nearest their taste and opinion of what perfection should be. The display was one in every way creditable to the house, and for which the exhibitor is entitled to much credit.

70.—A. A. WISWALL, 76 State street, Chicago. Boots and Shoes. One of the most elegant displays of fine boots and shoes in the Exposition was doubtless contained in the case of this exhibitor, whose specialty is fine goods for ladies' and gents' wear. His ladies' goods are manufactured by Hamilton, Pratt & Co., of New York, and were those exhibited. These goods are very popular, the widths being so finely graded that a perfect fit can always be obtained. The gents' goods shown were of a variety of styles, prominent among which was the "Prince Bismark," and "Alexis Tie."

71.—WILSON BROTHERS, State and Washington streets, Chicago.

Shirts and Mens' Furnishing Goods. One of the most elaborate displays in this line of goods was made by the above firm. A magnificent show case, manufactured by A. H. Andrews & Co., of Chicago, specially for the exhibitors, was composed of several kinds of fancy woods, elaborately carved, and cost \$1,000. The contents were fully equal in quality, consisting of shirts, collars, cuffs, neck wear and furnishing goods generally. In addition to the articles already mentioned, were three other cases containing the finest of imported gents' underwear, comprising Scotch wool, English merino, cashmere, and silk under garments of eight different weights. The display was most attractive, and one in every way worthy of the exhibitors.

72.—JOHN WAYTE, 531 and 533 State street, Chicago. Fine Shirts, and Specimens of Laundry Goods. This exhibitor, who combines the laundry business with that of the manufacture of fine shirts, displayed specimens of both branches of his business, which were highly commendable. The arrangement of his display was worthy of mention, and very creditable for its unique design.

73.—WEBBER & HARKIN, 109 Clark street, Chicago. The "Berlin" Shirt and Gents' Furnishing Goods. In this line of goods it would be impossible to find a more attractive display, or one that contained more actual merit, than that made by this firm. The shirts exhibited were the celebrated "Berlin," which for faultless fit, superiority of material and make are unexcelled. These goods were displayed in an elegant case, flanked on either end by square plate glass cases, one containing a superb assortment of gents' silk scarfs, ties, etc., of every hue and style; while in the other case was exhibited a gent's smoking jacket of black velvet, with blue quilted silk trimmings. Over the cases mentioned was a tasty walnut frame bearing the name of the firm and the Berlin shirt, carved in walnut, with gold relief. In several smaller cases were shown gents' underwear, in silk, wool and merino, of imported goods. The entire display evinced excellent taste in its arrangement and a disregard of expense while the goods shown were of the superior quality for which the firm have become so justly popular.

SECTION 9.

Portable Articles for Fishing, Hunting, and Encampment — Fire-Arms, Fishing Tackle, Traps, Tents, etc.

1.—F. J. ABBEY & Co., 43 South Clark street, Chicago. Guns, Fishing Tackle, and Sporting Goods. This firm made a fine display in the above line, comprising a large variety of fine cutlery, revolvers, pistols, and every description of sportsmen's goods. The principal attraction of the exhibition being one of the F. J. Abbey patent breech-loading guns. These guns are highly endorsed as being the best breech-loading sporting gun made. The one shown was a gem, being a fine laminated steel double-barrel, with patent triple grip fastener. The stock was of the best English walnut, elaborately carved. This firm may be assured of having acquitted themselves with credit by the display made of their excellent goods.

2.—BIGGS, SPENCER & Co., 335 Wabash avenue, Chicago. Cutlery and Guns. The above line of goods were well represented by the old established house of these exhibitors, and the display made was especially attractive, comprising, as it did, specimens of the finest manufactures. The Florentine carved work on one muzzle-loading gun being unique, and the engraved locks and furniture on another representing the highest class of modern engraving on metal. Breech-loaders of all the various actions evidence the great advance in sporting arms within twenty years or so, the first breech-loading shot gun (then considered a useless novelty) being exhibited by Lefauchaux, of Paris, at the London Exhibition of all Nations in 1851. A pair of laminated barrels, partly finished, showing the method of manufacture from the rough bar to the completed gun, attracted the attention of gun men. The cutlery and scissors were superb, and some of most exquisite finish, affording an opportunity for the comparison of French and English with the best American products. A curiosity was a case of scissors in the different stages of manufacture: First, the rod of fine steel; then, the roughly forged blade; the same, filed, tempered, polished, matched, and riveted; and, lastly, the perfect scissors ready for use. Cases of fine pearl and ivory table cutlery, and fine penknives, from the tiny blade half an inch long to the large clasp-knife, were in profusion at the greatest possible variety of price. Suffice to say, that the ability of any house to carry such a supply of fine wares is evidence that

Chicago is an Empire city, commanding the trade and able to compete on equal terms with any sister city in the Union.

3.—JOSEPH BUTLER & CO., 179 Madison street, Chicago. Breech-Loading Shot Guns, Fishing Tackle, etc. This old and well-known firm made a creditable display of their goods, prominent among which was a case of the celebrated breech-loading shot guns of their own manufacture. Also fishing tackle and sporting goods in great variety, shows the stock of the firm to be not only extensive, but complete in all its details. A fine case of natural history was also shown by these exhibitors, containing some elegant specimens of fancy birds, game, and animals, which were well put up.

4.—J. D. W. KELLEY & BRO., 88 Madison street, Chicago. Base Ball and Sporting Goods. An attractive display was made by this firm of the above goods in great variety, comprising fine pocket cutlery and skates, together with a large assortment of base ball, cricket and sporting goods, the latter articles being specialties of this house, by whom they are extensively dealt in. The exhibitors are the agents for Torry's patent weather strips, which have been so long before the public, samples of which were also shown.

5.—LAFLIN & RAND POWDER COMPANY; C. H. Vehmeyer, Agent, 4 State street, Chicago. Samples of Kegs, Canisters, and different grades of Gunpowder, Safety Fuses, Electric Batteries, Exploders, etc. While the display made by this Company was one of practicability, and the above brief enumeration fully explains the nature of the goods shown, yet, nevertheless, a few facts regarding this immense Company may prove of interest, and are here given. These exhibitors are one of the largest manufacturers of gunpowder, not only in the United States, but in the world. Their principal office is at No. 21 Park Row, New York, but they have branch offices in Philadelphia, Buffalo, Chicago, St. Louis, Dubuque, and other places, with agencies in nearly all our principal cities. Their organization is a consolidation into one corporation of four different companies which had previously been more or less under the same ownership. Of their ten establishments for making powder, five are located at different points in the State of New York, three in Pennsylvania, one in Maryland, and one in Wisconsin. They own several manufactories for kegs, barrels, machinery, and similar appliances. Two of the largest are located in New York, one devoted entirely to the manufacturing of machinery for the different mills, the other to the preparation of metallic kegs and canisters. Each of their powder works is necessa-

rily extensive, as the nature of the business requires it to be conducted in widely detached buildings, with, of course, separate motive power. On this account water is generally employed, and the extent of their business can be inferred from the fact that this Company keep over seventy water wheels in constant operation, although steam is employed in some places as being locally more economical. The transportation of powder is sometimes dangerous, and always expensive; hence it is largely conducted in their own vessels or railroad cars, especially adapted to the purpose. Also, when finally brought to market, public safety requires that magazines be erected for its storage at all distributing points, the expense of which, with land sufficient to secure the building from molestation and the neighborhood from danger, of itself involves a large capital. Several of their works are employed exclusively upon gunpowder for use in fire arms. The one built in 1867 at Newburg, Orange county, N. Y., and still running, has given its name to the "Orange Rifle Powder," a title which will be recognized at once by those who have leisure for "dog and gun." This is the powder which, after fifteen months competitive trial between makers of this and other countries, was adopted by the Russian government, and is now used by them. Several other European countries have also been supplied by this Company. Contrary to the general idea, the demand for powder is far greater in peace than in war. The main business of the Laflin & Rand Powder Company is in supplying great engineering operations with material especially adapted to their wants. The quality of powder required in mining bituminous coal, for instance, is very different from that which most economically removes the hard quartz work of silver mines. Moreover, the product of one is wanted in as large masses as possible, the other with the utmost comminution. The working of a marble quarry for slabs, or the same limestone for burning, furnishes another familiar example. So, too, a single railway cutting can frequently employ to advantage a different grade of powder in the side hill, in the tunnel, and in its "approach." A noted contractor recently discharged, simultaneously, by means of this Company's electrical apparatus, some forty different blasts, within supporting distance of each other, which contained three different kinds of powder, and, on measuring, found his profits to be over \$1,500 from the one explosion. The amount of money which can be saved by adapting means to ends in this matter will astonish those who have not investigated the subject. The question of explosives

is becoming a very practical one to engineers in this day of railroads. The great want is the most foot-pounds work for the fewest pennies. For years there have been more powerful substances than gunpowder, as the fulminates, nitro-glycerine, gun-cotton, and the like, but beyond the objection of danger from their generally unstable and sensitive character, is the insuperable one of *cost*, and powder will be apt to hold its place until, relatively speaking, more gas can be bought for the price of saltpetre, or a cheaper base than charcoal be found. To meet this requirement has been the object of the Laffin & Rand Powder Company. They make it their business to inform every mining superintendent, engineer or contractor who applies to them, at once, of just what he requires for the work in hand, and then to keep him supplied at his place of operations, promptly and cheaply. How well they have succeeded can be seen by the marks of their powder "graven on the rocks" of all our great engineering triumphs, from the Erie canal to the Pacific railroad.

6.—CHARLES MORRIS, 119 Randolph street, Chicago. Fire Works, etc. A display of the above goods was made by this exhibitor, of his own manufacture; also, an oil-well torpedo, a valuable invention for sinking oil-wells. The goods of this house are classed equal in excellence to those made by any other establishment in the country.

7.—LIEUT. G. H. PALMER, 16th Infantry, U. S. A., Waukesha, Wis. Army Equipments. This exhibitor displayed a full set of army equipments, which, though occupying but a small space of the great building, were, nevertheless, singled out as objects of attraction. The exhibitor undoubtedly has the thanks of many visitors, and from the rural districts particularly, for the opportunity afforded them to look upon a *genuine* set of equipments, which had, doubtless, caparisoned some steed in actual service; at least so the force of imagination led many to believe.

8.—E. REMINGTON & SONS, Illion, Herkimer County, N. Y. Fire Arms. The goods of this renowned firm requires no words of commendation, as they have a reputation extending throughout this country and Europe, and are the most superior fire-arms manufactured. The display made consisted of specimens of every style of their celebrated guns, pistols and revolvers. The specialty of this firm exhibited was the "Remington" military breech-loading rifle, which has been adopted by *nine* different governments, and is popularly known throughout the world. This rifle is unequalled for

simplicity, strength and rapidity of fire, and as perfect an arm as was ever manufactured.

9.—J. J. WHITEHOUSE, 7 State street, Chicago. Dupont's Celebrated Powder in Kegs. The manufacture of powder, in earlier days, by this firm, is invested with much romance, and now being the largest and most wealthy works of the kind in the world, a brief detailed account is here given :

The use of gunpowder dates back many centuries ago. The first uses to which it was put was in the carnage of war, and it is only for the last two or three hundred years that it has been so generally applied as an assistant to mechanical labor. Now there is more powder used in railroading, mining and other mechanical arts than there is used in war.

Eleuthere Irene Du Pont was the founder of the immense works known as the "Brandywine Powder Works," near Wilmington, Delaware. He was a native of France, and came to the United States in the latter part of 1799. He landed in Newport, Rhode Island, in the commencement of the year 1800. Having been a pupil of the celebrated French chemist, Cavoisier, who had charge of the "Bureaue de Poudres et Saltpetres," under the French government, and noticing the poor quality of the gunpowder made in this country, he resolved to engage in its manufacture. After some time spent in selecting a location, Mr. Du Pont commenced manufacturing gunpowder at a point on the Brandywine Creek, about four miles above the town of Wilmington, in the State of Delaware. Here he prosecuted the business with such success that at the time of his death, which occurred in Philadelphia, in 1834, this establishment was the most extensive one of its kind in the United States, as it now is one of the largest and finest in the world.

The original works, on the Brandywine, commenced operations in 1802, and have a capacity for producing five thousand pounds of sporting powder per day. But the business increasing, from the reputation of the powder made by Mr. Du Pont, he was obliged to erect other buildings. In 1812 was commenced the Middle or Hagley works, which comprise two complete sets of works, in one enclosure, under a fall of twenty-two feet, so arranged that both can work on the same description of powder; or, if required, one set can manufacture one kind and the other set another kind of powder, the two combined having a capacity of twenty-five thousand pounds of blasting powder per day.

Since the decease of its founder, the business has been managed by his two sons and grandsons, who maintain the old firm style of E. J. Du Pont de Nemours & Co. The works of the firm have been largely increased since that time. They now comprise five complete manufactories, four of them on the Brandywine, and one in Luzerne county, Pennsylvania. In the latter, blasting powder for colliers' use is largely manufactured. In 1846, the firm commenced what is known as the *lower works*. They are under a fall of twelve feet, and have a capacity of five thousand pounds of sporting powder per day. The saltpetre refinery, with laboratory attached, is two hundred and fifty-eight feet, by ninety-six feet in area, with ample appliances for supplying all the nitre required for the manufacture of powder, and also considerable quantities for the market, for such purposes as require an article chemically pure. In proximity to the refinery are large warehouses for the storage of saltpetre. The charring houses, for the preparation of charcoal, three in number, are capable of furnishing all the coal required for the mills, the wood being stored and seasoned in extensive buildings adjacent. Attached to these works are extensive machine and millwright shops, where all repairs are made, and most of the machinery is built; also a saw-mill, planing-mill, carpenter and blacksmith shops, and capacious buildings for the manufacture of wooden and metallic kegs and barrels, and of powder canisters. Railroad tracks are laid through the powder works, and the bulk of the transportation of the powder, in its various stages of manufacture, is done on cars drawn by horses or mules, of which this Company have about eighty. The high reputation so long maintained for the Brandywine Powder is due to the care bestowed on its manufacture, and to the constant supervision of the owners. The consumption of saltpetre, the principle ingredient in the manufacture, has been in a single year, including the Luzerne county mills, *over seven millions of pounds*.

In order to be used in the manufacture of gun powder, refined saltpetre should not contain more than 1-300th of chlorides. To test this, dissolve 200 grains of saltpetre in the least possible quantity (say 1,000 grains) of tepid distilled water; pour on it 10 grains of a solution of nitrate of silver containing 20 grains of the nitrate, to 1,033 grains of water, that being the quantity required to decompose 200-3,000ths of a grain of muriate of soda: filter the liquid and divide it into two portions — to one portion add a few drops of the solution of nitrate of silver; if it remains clear, the

saltpetre does not contain more than 1-17,000 of muriate of soda — to the other portion add a small quantity of solution of muriate of soda; if it becomes clouded, the saltpetre contains less than 1-3,000th. By using the test liquor in small quantities, the exact proportion of muriate of soda may be ascertained; at the refinery of Paris it does not exceed 1-18,000th of the saltpetre, and this degree of purity is attained also at the refinery of Messrs. Du Pont. Saltpetre for the best sporting powder is refined a second time, and contains not more than 1-60,000th part of chlorides.

The machinery in operation in these works is driven by three steam engines and forty-seven water-wheels, the majority of which are "Turbines."

The manufacture embraces all descriptions of powder; mammoth, cannon, mortar, musket and rifle, for army and navy ordnance service; diamond grain, eagle, and the various grades of canister and sporting powders; shipping, blasting, mining and fuse powders. The production of these mills is principally consumed in the United States, they having agencies and magazines at all the most important points, with a principal depot for the Pacific States at San Francisco, and agencies in South America, and in the East and West Indies. Besides the powder-mills, the Company own over two thousand acres of land, that stretch for a distance of three miles on both sides of the stream; and on this property there are three woolen mills, a cotton mill, merchants' and grist mill, and a population of nearly four thousand people. The farms attached to the works are in a high state of cultivation, and the roads are all macadamized for ease of transportation. The buildings are mostly of stone, and very substantial, and the machinery is the best that can be procured. The Company have two shipping points—one on the Delaware river, with magazines, and a wharf at which large vessels can lie; the other on Christiana creek, with ample wharfage for coasters, and for landing coal, wood, etc. A passenger railway has been established between the city of Wilmington and the property of the Messrs. Du Pont. To illustrate the progress which has been made in the manufacture of powder in the United States, since the foundation of this firm in 1802, it is only necessary to recall the fact that during the Crimean war the Allies, to enable them to prosecute the siege of Sebastopol, were obliged to procure large supplies of gunpowder from the United States, fully one-half of which was furnished by the Brandywine powder mills, and that the American powder compared

favorably with the best they could procure in all Europe. The annual product of these mills is *over half a million of kegs*. Such is the reputation it has established that scarcely a foreigner of note that visits this country fails to see the works of the Brandywine powder mills.

SECTION 10.

Horse Equipments and Stable Furniture, Harness Work, Saddlery, etc.

1.—L. C. CHASE & CO., cor. State and Harrison streets, Chicago. Harness and Horse Furnishing Goods of every Description. A very attractive and highly commendable display was made by this well known house, comprising fine harness, and horse equipments of every kind. Perhaps but few business houses in the country are better or more favorably known to dealers in this line of goods, than that of L. C. Chase & Co., which was established in Boston, Mass., over a quarter of a century ago, where the head-quarters of the firm is still located. The western house, which is under the management of Mr. Ben. Lane, was located in Chicago some years ago to better meet the requirements of a large and constantly increasing demand for the goods of this firm in the west. Among the specimens of their manufacture displayed, were several elegant sets of fine track and carriage harness, with gold and silver mountings; a case of whips of extra quality, some being worth \$100, and an extensive assortment of very superior lap robes may also be mentioned, together with buckles, reins, riding gloves, turf boots, ornaments for blinders of unique design, etc., which comprised the excellent exhibition made by this firm. In justice to the exhibitors, it must be said that all the goods comprising their immense display, were taken from regular stock, and not manufactured for show, the firm deeming that by so doing, a fair representation would be given of what the goods made by them consisted of, and their regular quality. The exhibitors are entitled to great credit for the exhibition made, and its noticeable arrangement.

2.—DANIEL EIGHME, 522 Park avenue, Chicago. A Shoemaker's Clamp. This necessary article, so extensively used, was shown by the exhibitor with valuable improvements.

3.—S. L. HARRELL, 45 State street, Chicago. The display made by this exhibitor was large, and consisted of saddlery hardware,

blankets, rugs, mats, riding saddles, patent leather goods, enameled cloths, harness, tools, coach pads, horse brushes, nets, etc. The above goods were all from celebrated eastern manufacturers, for whom Mr. Harrell is wholesale agent for the west and south, having established an agency in Chicago. This agency has the exclusive sale in the west of goods manufactured by the following well-known firms, and from which the above named display was composed, viz :

Olmsted & Jones, Syracuse, N. Y. ; Frazer & Burns, Syracuse, N. Y. ; Atha & Hughes, New York ; Wm. M. Welling & Co., do ; Richard Allison, do ; E. Bartlett, do ; Wuesthoff, Wright & Kuenhold, Newark, N. J. ; H. Sauerbier & Sons, do ; Geo. Peters, do ; A. Buermann, do ; Ziegler & Otto, do ; Oscar Barnett, do ; Wilson Brothers, Milton, Penn. ; A. L. Bowman, Akron, Ohio ; and many others.

The display reflected much credit not only to the manufacturers, but to the agent also.

4.—J. HERKIMER, 607 West Lake street, Chicago. Whips, Harness and Harness Polish ; also, Herkimer Patent Rein and Whip Holder. An ingenious little article for holding the reins and whip of a carriage. By its use it is impossible for the reins to ever get under the horses' feet. It can be fastened to the dash by a small clamp. The same is also adapted for a whip socket.

5.—MURRAY & BAKER, 100 South Desplaines street, Chicago. Black Oiled Canvas, Water-proof Horse and Wagon Covers. The above firm took a novel method of calling attention to their display. They exhibited a model of their place of business, with a number of teams at or near their office door, from which was suspended the "call" card of the American Express, whose wagon had answered the summons, and was backed at the door, both horses and wagons of all the miniature teams being covered with water-proof covers, representing that made by this well known firm, who also manufacture awnings, and, to represent the fact, the windows of the miniature establishment were all protected by a fancy awning. This firm deserves credit for their novel display, by which attention was called to their wares and the usefulness of the same.

6.—WILLIAM MORELEY, 641 Hubbard street, Chicago. Exhibited a variety of Saddlers' and Shoemakers' Stitching Horses, Clamps, Jacks, etc, of his own manufacture.

7.—ORTMAYER, LEWIS & CO., 16 and 18 State street, Chicago. Exhibited a splendid display of Saddles, Whips, Lap Robes, Blankets, Horse Equipments and Turf Goods. Prominent among their goods

was a light, cloth, Somerset side-saddle, finely quilted by machine, which was a superior piece of workmanship, and valued at \$100. This firm also exhibited a full line of horse collars, housings, ankle boots, gig saddles, coach pads, etc. The display made by these exhibitors was very fine and composed of goods of their own manufacture and those taken from regular stock. This firm have been established for nearly a quarter of a century.

8.—S. R. PHILLIPS & SON, 165 Wabash avenue, Chicago. Harness, Saddles and Horse Equipments. One of the most attractive exhibitions in the Exposition Building was made by this firm. To minutely describe the many elegant articles displayed in their line would occupy greater space than can be accorded, and hence brief mention must suffice. Among the attractions was a life-size wooden horse, a most suitable emblem of the firm's business. The article in question was a superb piece of workmanship, having been given all the semblance of the real animal by the artist, and, being caparisoned by an elegant set of harness and attached to a sulky, made the representation of the living animal more striking, for which it was, doubtless, taken by many. Of the display of this firm's goods but little need be said, as their reputation for fine work is renowned, and needs no comment. The stock used by this firm in their manufactory is the celebrated Moffat leather, and is considered *the* best in market, costing treble the amount of that ordinarily used by many first-class manufacturers. Among the most noticeable articles exhibited by this house was a set of coach harness, with gold mountings, valued at \$500; also, several sets of fine single harness, ranging in price from \$100 to \$300. Also, some magnificent specimens of saddles, the finest on exhibition. Lap robes, whips and horse furnishing goods, in great variety, were profusely displayed, and the representation made by this firm was first-class in all its appointments, being of great credit to them, and sustaining their deserved reputation of a representative house, which was established in Philadelphia thirty years ago, during all of which time they have occupied a position in the front rank and among the first-class houses of the country. The branch establishment in Chicago is under the immediate management of the junior member of the firm, Mr. A. J. Phillips.

9.—SHORT & BRAYTON, 181 Madison street, Chicago. Harness and Saddlery Goods. A variety of specimens of fine track and carriage harness were shown by the exhibitors, which is their

specialty; also, several elegant lap robes, plated harness mountings, whips, horse sheets, etc., an attractive feature being a full set of Mexican harness, including the inevitable lariat, which is always found at the saddle bow of a Mexican or frontiersman. The display of this firm was particularly fine, and arranged with commendable care.

10.—ULBRICHT & ROSS, 63 West Monroe street, Chicago. Exhibited a case of Gamph's celebrated harness tools, for which they are agents, and a case of Ross' harness patterns, for which this firm have also the sole agency.

DEPARTMENT "C."

Minerals—Their Wrought, Cast, and Manufactured Products, Not Included in Department "B."

SECTION I.

Collections and Specimens of Ores and Raw Metals—Gold, Silver, Copper, Iron, Zinc, Tin, etc.

1.—AMERICAN BUREAU OF MINES, Chicago. W. C. McCarthy, Vice-President and Managing Director. A fine collection of Minerals and Ores, embracing a specimen from every known mine in the world.

2.—A. A. ARMSTRONG, Morris, Ill. Fossils and Geological Specimens. Four large cases were filled with all kinds of leaves, etc., the principal object in the collection being the fossil of a tree fifty-four feet in length, which was taken from a coal shaft thirty-five feet below the surface of the earth, the value of the collection shown, as stated by the owner, being from \$6,000 to \$8,000.

3.—ATCHINSON, TOPEKA & SANTA FE RAILROAD. Collection of Minerals.

4.—BURLINGTON & MISSOURI RAILROAD COMPANY. Collection of Minerals.

5.—COLORADO INDUSTRIAL ASSOCIATION, Denver, Col. Ore of Precious Metals.

6.—IOWA RAILROAD LAND COMPANY, Des Moines, Iowa. Collection of Minerals.

7.—KANSAS PACIFIC RAILROAD COMPANY. Collection of Minerals.

8.—E. P. MOULTON, Jefferson County, East Tennessee. Specimens of Lead Ore.

9.—NORTHERN PACIFIC RAILROAD COMPANY. Collection of Minerals.

10.—W. S. SEARLS, Waukegan, Ill. Specimens of Silver Ore. Fourteen specimens from Star district, Beaver county, Utah, taken from the mines of the exhibitor, which are owned and operated by him. The specimens shown were fair samples of the ores taken from these mines as now developed.

11.—TUTTLE & GIRTY, Cleveland, Ohio. Block of Cannel Coal.

12.—J. L. TRACEY, St. Louis, Mo. Minerals from the St. Louis Industrial Exchange.

13.—WALDRON, NIBLOCK & Co., foot of Kingsbury street, Chicago. Block of Indiana Soft Coal weighing 3,120 lbs., taken from the celebrated Coal-Bank Mines, Brazil, Ind., operated by Niblock, Zimmerman & Alexander.

SECTION 2.

Building and Paving Material — Stone (natural and artificial), Marbles, Cement, Brick, Terra Cotta, Tile, Slate, Coal, Gypsum, Salt, Petroleum, Asphaltum, Mixtures, Roofing Material, etc.

1.—BROWN BROTHERS, (Edwin Lee Brown, Successor and Proprietor,) cor. Clinton and Jackson streets, Chicago. Sidewalk and Vault Lights, Floor, Roof, and Vessels' Deck Lights. This exhibition comprised Hyatt's patent "lead bund" and "cement" prismatic vault lights, which are extensively and solely manufactured by this exhibitor, who does the largest business in this line of any house in the world. Some idea as to the extent of the business done in this line can be formed when the fact is known that during the year 1872 the cash outlay of the house of this exhibitor was *one thousand dollars per day*.

2.—CHICAGO STONE PIPE COMPANY, 172 LaSalle street, Chicago. Specimen pipe of their manufacture, of dimensions ranging from a few inches to several feet in diameter, the larger pipe being intended for culvert, sewerage, drainage, etc.; the smaller for chimney flues, chimney tops, and such water purposes and other service as requires

an economical, durable and indestructible material. The pipe is made of a hard and very strong cement, based on a superior quality of fire sand, and the judgment of a large number of practical critics, who have given it a thorough examination, is decidedly in its favor as the very best pipe ever constructed for drainage, sewerage, and the other purposes for which it is designed. An extensive manufactory for turning out the pipe is in successful operation at Hyde Park.

3.—CHICAGO ARTIFICIAL STONE COMPANY, 306-314 North Market street, Chicago. A collection of the material of this Company, comprising building stone, was exhibited, which consisted of window caps, etc. An archway, built of brick, trimmed by artificial-stone caps and facings, was displayed, which fully showed the merits of this stone for building purposes.

4.—CHICAGO COMPOSITION GRANITE COMPANY, 163 Washington street, Chicago. Collection of Artificial Building Stone. This article is a composition of English Portland cement and gravel, which is more durable than sandstone, and is not affected in the least by fire. It is capable of being moulded in any desired shape, thereby enabling the architect to build far more ornamental buildings without additional expense for ornamentation, and costs thirty-three per cent. less than any other stone used. Although of recent introduction in this country, the composition granite has been used in Europe for the past *fifty years* with great success, and has been used in Chicago long enough to demonstrate its superiority and maintain the points of excellence claimed for it. Many of the most prominent buildings which adorn new Chicago are built of composition granite. The display made at the Exposition of this article showed a great variety of designs illustrating the utility of the composition granite.

5.—CHICAGO TERRA COTTA COMPANY, office, State and Washington streets, Chicago. E. Loring, President. A variety of specimens of this ware were exhibited, comprising ornamental figures, urns, vases, etc., together with samples of the ware designed for artists' and builders' purposes. It is commonly assumed that terra cotta is nothing more than baked clay, or baked clay and sand; and, in fact, a large proportion of the terra cotta made use of is of no other character. To endure the severities of change in northern latitudes, terra-cottas should be a hard, vitreous body of a peculiar character, and to be useful as an architectural or garden ornament

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material, it must be so prepared with burnt clay, dust, calcined flints, glass, and sand, as to make it retain its shape through all the processes of making and baking, as all clays are disposed to warp under the expansion and contraction of drying and burning. The proportions in which these materials are used is the secret of the manufacturer, and the quality of the ware will differ according to this scientific knowledge. Some manufacturers wash the clay, grind the other materials, and knead the whole in a pugmill. Others dry the clay, grind all to powder, mix dry, and then knead by having men walk over the mixture as water is added, and finish by again kneading in a pugmill. This latter plan is the one adopted by the Chicago Terra Cotta Company and the largest European works, who always allow the clay to sour after mixing, which has the effect of making the terra cotta work stronger and more durable. Terra cotta clay of the consistency of dough is then pressed inside of plaster of Paris molds by hand to the desired thickness, and when somewhat hardened is taken out, the seams and rough places being smoothed by tools and brushes; then carefully and thoroughly dried. When dry it is as safely handled as stone, and is then placed in the ovens and baked. The fires are made slow at first, gradually increased for fifty-six hours, then kept to the utmost heat for about sixty hours, or until the whole contents of the oven are heated to about 3,000° Fah. Cast iron melts at 2,700°, and iron placed in a terra cotta oven becomes a cinder that can be ground in the fingers. The ovens of this Company, (circular in shape and patented,) are twelve feet in diameter inside, with walls three feet thick, and are heated by five furnaces. The fire has no direct action on the goods, therefore all the ware is equally burnt and of uniform color, for which all wares of this Company are particularly noticeable.

6.—JOHN W. CARPENTER, Aberdeen, Scotland. By W. A. Soyer & B. W. Hair, Agents for the northwest, 17 Palmer House, Chicago. Scotch Granite. The collection exhibited was from the famous quarries of J. W. Carpenter, near Aberdeen, in Scotland, and comprised a number of beautiful monuments, superbly finished. Scotch granite contains no iron ore, and, consequently, will not tarnish when exposed to atmospheric influences. American granite, on the contrary, contains a considerable percentage of iron, and when exposed to the air its brilliancy will soon become dimmed and rust will appear. This is an important fact in reference to building valuable structures. Another important advantage presented by the Scotch granite is its

superior density and its tensible force. The Scotch granite weighs 192 pounds per cubic foot, or seven pounds more than the American, and while the stone found in the best American quarries will burst when exposed to extreme heat, that from Aberdeen will sustain the most trying ordeal which fire can produce. The beautiful Scotch granite columns used in the New England church in this city, and in the First National bank, before the fire, were absolutely uninjured, and their brilliancy undimmed, while the buildings themselves were in ruins. Specimens of this granite, as found in Scotland, exhibit the most brilliant natural polish, whose lustre, as shown by scientific investigation, has withstood the storms of 1,700 years.

7.—GEORGE A. FREAR, 199 Ellis avenue, Chicago. Manhattan Artificial Marbles and Frear Artificial Stone. The display consisted of various devices of artificial stone, including a handsome bay window of same material. In Manhattan marble were shown mantles, monuments, counters, tiling, furniture tops, etc. The Manhattan is the only artificial marble manufactured, and contains the same ingredients as the natural article which is quarried out of the earth. It takes a polish that is, if anything, finer than the other, and is capable of sustaining an equal amount of strain. It can be made into all shapes, and in imitation of all the celebrated articles, the colors being blended and veined in the thickness and depth of the material as in the natural marble, not being merely surface imitation, like grainings or the colors floated on enameled slate. It can be sawed, dressed, and finished equal to the finest and most costly material. It is infinitely superior to all imitation marbles, and combines, with greater cheapness of production, the advantages of being harder, more manageable, and more easily applied. Of the Frear stone little need be said, as it has received the indorsement of architects and builders throughout the country, and, like Manhattan marble, will rank among the most valuable inventions of the age.

8.—GOWAN MARBLE COMPANY, E. L. Gowan, President, 11 North Clark street, Chicago. Mantels, Monuments, and Statuary. A fine and imposing display was made by this Company, of articles in the above line, for which they are entitled to much credit. All the specimens shown were of fine quality, and in workmanship of superior style. The statuary shown was especially commendable, being executed in an artistic and able manner.

9.—EDWIN ROBERT HALL, 165 Washington street. Chicago. A Model Building composed of Hollow Tile. A building constructed

on the principles of this invention, it is claimed, cannot possibly take fire. The tiles all being hollow, make the walls, floors, ceilings, and roof dry, and exclude heat and cold, with great strength and economy of material, and reduced weight, which is 60 per cent. less than the ordinary brick arches, which admits of great reduction in weight of iron beams, thickness of walls and foundation, while all moisture is absorbed from the exterior and carried off by the air circulating through the hollow tiles. The model house exhibited was constructed upon the above plan, broken surfaces admitting of the entire construction being seen at a glance. This appears to be a valuable invention, and one which is meeting with much favor in new Chicago, being adopted by many notable buildings recently erected.

10.—H. W. JOHNS, 76 William street, N. Y., Kirkwood & Dunklee, Agents, Canal and Harrison streets, Chicago. Asbestos Roofing. A miniature house was exhibited, covered by Johns' renowned asbestos roofing. This roofing is a substantial and reliable material which can be applied without the aid of skilled workmen, and can be safely used in the place of tin, etc., on steep or flat roofs in all climates. It is entirely different from any other, and consists of a strong canvas, an asbestos-coated felt, and a manilla lining, with intermediate layers of an acid and waterproof composition, combined into a firm, compact material, resembling leather, which, in strength, uniformity, and durability, is superior to any other portable or composition roofing in use. It is fastened with roofing nails, no strips or tin caps being required, and is finished on the roof with the asbestos roof coating described. This roofing has been thoroughly tested, is endorsed by well-known and reliable authorities, and is now in use on thousands of buildings, in all parts of the country, and is particularly valuable for roofs of railroad buildings and bridges, and for manufactories, warehouses, etc., which are exposed to danger of fire from burning sparks and cinders. It can be more easily and cheaply transported and applied than any other roofing in use. The material constitutes one of unusual merit, much superior to any of the class previously brought to notice, and worthy of trial by those who desire a durable, easily applied, comparatively inexpensive, and safe roofing, the material having, in addition to the other merits claimed for it, that of being practically fireproof.

11.—JAMES JOHN, 457 Wabash avenue, Chicago. Fire-Proof Construction. The best possible mode of rendering structures thoroughly proof against the fiery element seems to be engrossing the

public mind in Chicago to a considerable extent, numerous inventions having been recently introduced, each claiming a fire-proof superiority over the other. After a careful and practical examination of the many so-called fire-proof mediums exhibited, and the forming of an impartial opinion upon the merits of the same, it would seem that the invention of this exhibitor is entitled to favorable consideration for its actual fire-proof superiority and the apparent feasibility of its being fully able to prove practically in case of emergency all that has been claimed for it by theory. The invention is a fire-proof construction as applied to wood joist. It is, proposing the floor shall be constructed of wood joist, say, for example, 3x12, placed twelve inches from centers, (bridging as ordinarily used to be dispensed with,) cross-furred with $\frac{7}{8}$ furring placed twelve inches from centers. It is now proposed to make this floor *more* fire-proof than if constructed of iron beams and brick arches, in the following manner: By filling in between the furring strips with a mortar gauged with plaster or cement; cement to this a course of hollow boxes, made of plaster of Paris, six inches high, or one-half the depth of the joist, and in width one and one-quarter inches less than the space between joist; these hollow boxes being placed in center of space, leaves five-eighths on either side; then place in a second course of boxes, inverted, breaking joints with the lower ones; these boxes in position, a liquid concrete is run into the space between joist and boxes until full to top surface of joist; a strip 1x1 inch is nailed on top of joist; then an additional concrete of coarse material is put in between said inch strips and struck off even with their top surface; it is now (when dry) ready to receive the floor; to the furring underneath is now nailed a wood strip one-half inch in width by one-quarter inch in thickness; strands of wire are now drawn tightly across these strips, two inches apart; a piece of corrugated sheet iron, five-eighths of an inch wide, is then nailed over the strands of wire to each wood strip attached to furring; it is then ready to receive the plastering, which is held firmly in position by the wire. A floor of wood joist protected in this way would be no more liable to burn than if they were set on the ground and filled in solid between with a concrete. In case of fire there would not be any expansion from heat. This method of protecting wood joist was patented Nov. 25, 1873, by the exhibitor. The expense of a floor so constructed is about one-fifth that of an iron construction.

12.—R. L. LUNDY & SON, Butler and Thirty-second street, Chicago.

Exhibited specimens of Fire and Stove Brick as manufactured by them.

13.—ALBERT W. M. MAAS, 49 North Clark street, Chicago. Model of Patent Brick Kiln. This highly valuable patent is of recent date, having been issued May 13, 1873, and being something entirely new and novel in its peculiarities, a full description is here given, which is quite interesting.

The model shows a kiln of fourteen compartments, which can be operated in the following manner as two separate kilns; the compartments from A to G, inclusive, represent or constitute one kiln, and the compartments from H to O, inclusive, constituting the other, the two kilns being separated by the sliding doors X and X'; but by changing the doors in the order indicated by the letters, the operation of burning can be carried from one compartment to the next, and so on around the circle. To make it more clear, suppose that the fire is in the compartments D and L, and the compartments E F and M N are filled with green brick, which can be heated by the waste-gases from D and L to drive off the "water-smoke," the gases finding exit through the channels *f* and *n* into the smoke-chamber P, and thence through the flues into the smoke-stack, the channels *a, a, b, c, d, e* and *g* of the one kiln, and *g, h, i, k, l* and *m* of the other kiln being closed. The compartments A and H are being emptied of their burned and cooled bricks while the compartments B C and I K are filled with burned bricks cooling off, through which the air coming from the compartments A and H, and going to the fire compartments passes, which cools off the brick and saving otherwise wasted heat by heating the air going to the burning kilns. The compartments G and O are being filled with green brick, and when this is done the slide-door X is moved to *o* and the door X' to *q*. The covers *v* in the smoke-chamber over the channels *o* and *g* are now opened and over *f* and *n* closed, when the next compartments are in order and ready for firing. All the doors T and fuel-holes *v*, except in such compartments as are being emptied, should be closed. In this manner the process of burning may be kept up continuously in two compartments with great economy in fuel and time.

In this kiln can be used any material, as coal-dust, etc., with a saving of $\frac{2}{3}$ on cost of burning material. This kiln appears to be superior to any ever invented, and should have the consideration of brick manufacturers it deservedly merits.

14.—NORTHWESTERN MARBLE & GRANITE CO., 147-151 Jeffer-

son street, Chicago. Marble Monuments, Tomb Stones and Statuary. This Company exhibited some really fine specimens of the above line of goods, executed in their usual commendable style of workmanship. The monuments and tomb stones appeared to be the specialty of the Company, while but a small showing was made of statuary, and that not so well executed as to be properly called artistic productions.

15.—SMITH, CLEMENT & Co., 119 Dearborn street, Chicago. Challenge Fire and Water-Proof Roofing. This roofing is formed upon scientific principles, and has withstood the severest tests of heat and cold. The base of its composition is Trinidad asphalt. Time does not affect this roofing, and no acid will act upon it. It is two-thirds lighter than tar and gravel, and its superior durability is a strong advantage, besides having the endorsements of eminent chemists, by whom it is pronounced indestructible by the elements. This roofing has been adopted by the Chicago Board of Underwriters as a standard roofing equal to slate, tile or metal, and can be manufactured at half their cost. This roofing is undoubtedly a valuable invention, and one deserving popular favor, as its superiority has been fully demonstrated.

16.—F. W. SMITH & Co., 941 Wabash avenue, Chicago. Marble Mantels, Tiling, etc. A very attractive display was made of the products of this Company, comprising a variety of various kinds of marble designed for mantels and floor tiling; marble for the latter use being made a specialty. The specimens shown consisted of Brandon statuary, central Vermont variegated, Champlain and Moriah marbles; the latter being celebrated for its desirability for mantels and furniture uses, from its peculiarly beautiful color, and also that neither oil, soap or ink will discolor its highly polished surface. The firm of the exhibitors are a branch of the Burlington Manufacturing Company, of Burlington, Vt., which is duly incorporated by an act of the Vermont legislature. This Company are among the largest marble manufacturers in the country, having several mills, one of which is located at Burlington and another at Brandon, Vt. At the former mill is employed over one hundred hands, running sixteen gang saws, the tile department alone having capacity to cut and finish seven hundred and fifty feet of twelve inch tile per day. These mills have the improved facilities for taking marble from the quarries in the rough block and finishing it to any desirable form. The specimens exhibited were finely finished, and the material of a good quality.

17.—JOHN STOCKINGER, 112 Bushnell street, Chicago. Marble Vase and Tomb Stone. The former article being finely executed in artistic style. The tomb stone exhibited contained the greatest wonder ever recorded in the annals of national history. In the grain of the marble was a human face, the features of which were of the Grecian type. It was accidentally discovered by the workman in polishing the stone. This wonderful freak of nature was plainly visible to the naked eye, but by aid of a glass it was brought out with perfect distinctness. It need not be said that the display of this exhibitor was, perhaps, the most attractive one of the entire Exposition.

18.—SAMUEL SMITH, Mattoon, Ill. Exhibited a specimen of Fire Proof Roofing, patented by him.

19.—ANDREW P. TEEL, 188 East Madison street, Chicago. Roofing Slate. The slate exhibited was the best quality of roofing slate, from F. W. Leinbach & Co., of Bethlehem, Pa., miners and shippers, for whom Mr. Teel is the Western agent.

20.—THE NORTHWESTERN GAS AND WATER PIPE COMPANY, Bay City, Mich. Office, Room 16, 145 LaSalle street. Wooden Gas and Water Pipe. This pipe is constructed after the Wyckoff patent. It is bound with iron and coated with asphaltum and tar on the outside, and in case of the gas pipe, inside also. In this way are secured strength, durability and cheapness. It is more than a fit substitute for iron for conveying gas and water. It is heartily commended, and is worthy the attention of city authorities, gas companies, etc. At the Cincinnati Exposition this pipe was awarded the first degree of merit, and was worthy of a gold medal.

21.—THE SCHUREMANN & HAND MANTEL COMPANY, cor. Michigan avenue and VanBuren street, Chicago. Marble Mantels, Grates and Statuary. The display made by this Company was unexceptionable, the specimens shown of their productions being not only the finest on exhibition, but would bear most favorable comparison with any goods manufactured in this country or Europe. All the marble used by these exhibitors is imported by them direct from Italy, under the supervision of Mr. L. W. Volk, who is the Company's sculptor, and long a resident of that country; hence a thoroughly competent judge of the qualities used. Among the attractive features of their display, were specimens of various kinds of Italian marble, comprising the celebrated Sarancholin, Brocatelle, Verd, and Gem of the Alps marbles, all of which are used extensively by them. The specialties of the exhibitors being Italian marble, Scotch and American

granite, monuments and statuary, floor tiling, and all kinds of marble work. This Company is among the largest importers, manufacturers and wholesale dealers in its line in the United States, and whose productions also include marble, slate and iron mantels, and enameled grates. The Company is regularly organized, having a paid up stock, and is officered by some of the most practical men in the marble line to be found in the country, and by whose marked ability the Company has reached the exalted position of perfection which it at present occupies. This fact entitles the officers of the exhibitors' Company to favorable mention, and the recording of their names in this volume. S. Hand, Esq., a man well known in the business circles of Cincinnati, O., is President, while J. L. Schureman is Vice-president and Treasurer. To these two, from whom the Company derives its name, it is indebted for the infusion of that business like energy, which has characterized all its business transactions. S. B. Vowell, the General Superintendent, is a man of practical ability, and under whose superintendence all the productions of the Company are manufactured. William H. DeCamp occupies the arduous position of Secretary, and by whom the workings of the immense Company are kept in running order.

22.—UNITED STATES PLASTER CASTING COMPANY, 191 Randolph street, Chicago. Specimens of Plaster Casting. This display consisted of specimens of plaster castings which are constructed in blocks two feet square by about six inches in thickness. These castings are hollow, and are used in building the same as ordinary bricks are used. The invention is claimed to possess fire-proof qualities, and is largely in use in Chicago, but no record is at hand of its ever having practically demonstrated its superiority in point of fire-proof excellence, although it appears equal to any test that may be imposed upon it.

23.—TIMOTHY WRIGHT & Co., 17 Portland Block, Chicago. Exhibited specimens of Artificial Sand Stone made by Mr. Rapsome's patent. Stones made by this process are not concretes, *i.e.*, mixtures of sand and cement, but they are *real stones*, their ingredients chemically united, as in nature, by silicate of lime, and therefore indestructible. The latest patent stone made by this firm is called "Apœnite," samples of which were also exhibited. This stone is designed for bridges, wharfs, piers, and all marine work; also, sidewalks, steps, tiles, mantels, etc. Its artificial character in imitations of granite, marbles, porphyry, etc., cannot be detected, because it is

a crystalline stone. The stone capping around the grand fountain in the Exposition building was composed of Ransome sand stone.

SECTION 3.

Wrought and Cast Work from the Useful Metals—Printing and Card Presses, Builders' Hardware, Edge Tools for Carpenters, Joiners, Coopers, etc., Safes, Locks, Scales, Bells, Copper, Brass and Tin-wares, Stoves, Furnaces, Wire-work, Ornamental Castings, Fences, Gates, etc.

1.—ROBERT ATCHINSON & CO., 23, 25 and 27 North Jefferson street, Chicago. Perforated Sheet Metals, Mill Furnishing Goods, etc. The sheet metals exhibited are perforated to be available for screening purposes, and are said to be far superior to wire-cloth, as they will not rust or tear. The specimens shown were intended for screens to be used in screening corn, barley, oats, small seeds, wheat, etc., the perforations being graded to suit the size of articles to be screened. It is an invention of decided merit.

2.—H. W. AUSTIN & CO., 221 and 223 South Water street, Chicago. Pumps, Corn Shellers, etc. A large display was made by this firm, consisting of a general variety of all kinds of pumps, corn shellers, cider mills, and church bells. The exhibition was attractive and the class of goods shown was excellent.

3.—AMERICAN SHEET AND BOILER PLATE CO., 99 and 101 Water street, Cleveland, O. Steel, Iron, and Metallic Tiles. This Company made a good showing of boiler plate, steel, galvanized sheet iron, bar iron, corrugated iron, and metallic tiles.

4.—AMERICAN STEAM SAFE CO., 51 and 53 Sudbury street, Boston, Hanscome & Glover, Agents, 60 South Canal street, Chicago. Safes. Four of the improved steam fire-proof safes made by this Company were on exhibition, and were evidently placed there on their merits alone, no ornamentation apparently being deemed necessary to make them attractive. These safes are built with extra heavy walls, filled with concrete, and in addition to this protection they have a lining, or jacket, of prepared water, contained in substantial copper vessels, which extend completely around the book-case. These copper vessels, or boxes, have a double return tube, so arranged as to prevent loss of water in case of overturning or falling of the safe. To prevent the premature evaporation of the water, and consequent dampness in the safe, the return tubes are

hermetically sealed with a fusible bismuth solder, which melts at 180° , thus allowing the escape from the vessels of the steam that is generated from the water at 212° . Between the outer concrete fire-proof filling and the water is an air space. This space also forms a separation in the iron flanges of the door and jamb of the safe, called a "patent heat cut-off," or "dead air space," to prevent the heat from directly communicating with the inside of the safe. It is claimed that when these safes are exposed to a fire, and the heat has penetrated through the outside filling (which is the burning-up point of other safes) the "dead air space" in the steam safe is just coming into play to prevent the too rapid evaporation of the water. The steam thus generated, immediately pervades all parts of the safe, and maintains in the hottest fires an even low temperature of 212° , which only water will give. Besides the fire-proof qualities described, it is also claimed that the massive welded steel and iron walls, etc., and Damon's detachable bolt arrangement, and unpickable locks, bid defiance to burglars, thus making these safes both fire and burglar-proof beyond a doubt.

5.—BRAYTON, KING & CO., 121 Michigan avenue, Chicago. The celebrated Goodenough Horse Shoe. Of this article too much cannot be said, and it is a matter of sincere congratulation to owners of horses that the *best* method of adapting iron to the foot of the horse has at last been practically illustrated by Mr. Goodenough, the inventor, through the above exhibitors. In adopting this method, its superiority over all heretofore known systems of shoeing the horse is shown by the allowing of the frog to strike the ground, and thereby absorb moisture and impart life and health to the hoof and expand the heels. In the old system of shoeing, the pounding comes on the most sensitive part of the horse's foot, viz., on the heel-calks. This keeps the frog above the ground, causing dry, feverish and contracted feet, quarter-cracks and corns. The not allowing of an easy and natural movement to the horse, or an easy bearing, or giving no support to the center of the hoof, its greatest strength, is not only destructive to the hoof, but decided cruelty to the noble brute, as it not only compels him to draw a heavy load on these calks, and does not prevent his slipping, but the result is springing the knees, interfering, contracted feet, and crooked joints, and the result is, the horse is "turned out" as useless, to grow the new frog and impart new life to the foot. If the Goodenough shoe is not all that is represented, why are the shoes always removed from the horse when he is "turned out"

but for the express reason of imparting new life to the hoof and joints? The Goodenough shoe prevents destruction to the hoofs, and keeps sound feet during the natural life of a horse, and restores the feet to natural soundness. This shoe has been used long enough by car and stage lines to fully demonstrate its great superiority over all others, and it is to be hoped that, not only for the sake of economy, but the saving of valuable horses, who are otherwise prematurely "used up," this shoe may be universally adopted.

6.—J. S. BASSETT & CO, 113 Clark street, Chicago. Crystal Chandeliers and Gas Fixtures. Among the many who had elegant goods upon exhibition, none were more worthy of note than the rich and costly chandeliers of this exhibitor. Among the collection was an elaborate chandelier designed for the drawing room of the Potter Palmer Hotel. It was ornamented by life-like representations of game, finished in light green, which, in contrast to the dark real bronze, presented a beautiful appearance. The display made by this firm of crystal chandeliers was as fine as ever made at any exposition in this country, and among this collection was particularly noticeable a chandelier designed for the new Tremont House, and undoubtedly as fine a piece of workmanship as ever came to Chicago. It was a massive 24-light chandelier, with large figure in center, and much admired by all. Among the novelties presented by this firm, was the new slide chandelier, patented by the Archer & Pancoast Manufacturing Company of New York, which is undoubtedly destined to supercede all the slides which have heretofore been in use. It is unlike many of the old slides, and is neat in appearance and works much easier. It is supported by two wire cords attached to a spring in the body of the chandelier, making it simple and durable. These slides were exhibited in a great variety of styles, of real and imitation bronzes, gilt, crystal, etc. This exhibition also included some elegant statues in bronze, church fixtures, etc., and was one of the most prominent attractions of the Exposition.

7.—C. A. BLOMYUIST, LaPorte, Ind. T Rail Fastener. This article is a most important one to insure the safety of railway passengers. Many of the fearful accidents that are recorded occur from "broken rails," so called, but the *actual* cause is that the constant travel of the many trains work the nuts loose from the joints, thereby allowing the joint that held the two ends of the track in place to fall off, and the track being left unfastened must necessarily come apart the first train which passes over it, and a fearful loss of

life is the result. The "fastener" exhibited is an article which, applied to railroad joints, *always* keeps them in place and secure. It is a simple contrivance, being a small pin of iron which fits over the nuts of the joint in the form of a T, and by which perfect security is had for all time thereafter so far as any accidents resulting from the cause already stated. This exhibitor is entitled to the greatest credit for his invention in the article shown.

8.—BROWN & VANARSDALE MANUFACTURING CO., 28 Kingsbury street, Chicago. Tinsmiths' and Machinists' Tools. A large assortment of this Company's productions were displayed, among the most prominent of which may be named the self-centering hub-reaming machine, lifting jack, seamless thimble skeins, fire benders, B. S. drills, Tuyere irons, tire shrinkers, etc. This Company are also the manufacturers of the celebrated "Silver Polish" sad irons, which were also exhibited. The display of this firm was highly creditable.

9.—WILLIAM BLAIR & CO., 172-178 Lake street, Chicago. Clothes Wringers and Washers. It is to be regretted that the only display that can be recorded as being made by this immense business house (one of the largest in the northwest) was an assortment of the improved Universal clothes wringers and Doty's improved clothes washer, both of which articles are strictly first class, and have so long been before the public that their many excellent qualities are so well known as to need no repetition of them here. It is to be hoped that another Exposition will not pass without this justly celebrated firm's availing themselves of suitable space, and making a display commensurate with their capabilities.

10.—BURDETT, SMITH & CO., 538 Clark street, Chicago. Stoves. This well known firm of stove manufacturers exhibited several styles of cook and parlor stoves, among which collection was found the celebrated soft coal base burner, "Dubuque." This stove is the greatest heater in the market, and is acknowledged by all to be the *very best* base burning and base heating stove yet produced. It has been thoroughly tested, and its operation is perfect in every respect with the poorest coal found in the west. It is all cast iron, simple in its construction, and a perfect gas and smoke burner. The "Dubuque" is entirely new, elegant in all its appointments, and cannot help meeting the approbation of all. It is claimed that this stove will not average *one-sixth* the amount of fuel as that consumed by other stoves. In fact this stove seems perfection in *every* respect, and its good qualities might be here enumerated until this entire vol-

ume would be occupied; suffice to say the manufacturers are to be congratulated upon, the great state of perfection their efforts have brought the "Dubuque" to, while the public are likewise fortunate in being able to obtain a stove which will give such satisfaction as the "Dubuque" seems capable of doing.

11.—BROOKS & BAKER, Columbus, O., W. G. Baker, General Agent, 143 Monroe street, Chicago. Hollow Ware. Specimens of enameled and plain hollow ware castings, which were commendable for smoothness and utility.

12.—BRINTNALL, TERRY & BELDEN, 175 and 177 Lake street, Chicago, made an imposing display of General Hardware, Cutlery, and Agricultural Implements. Also a large variety of tin plate and tinner's stock. The arrangement of the exhibition was carefully done, and very attractive.

13.—BLISS & BROWN, 82 Lake street, Chicago. Exhibited Boyington's Furnaces, Ranges, and Stoves. Also the Tuttle & Bailey Manufacturing Company's registers and ventilators, all of which articles are well known to the trade.

14.—L. A. BEEBE, 741 North Wells street, Chicago. Radiating Iron Furnace. The display of this exhibitor was composed of several sizes of Beebe's double radiating wrought iron furnaces, which, for their heating qualities, are possessed of many points of excellence.

15.—BALLARD, FAST & CO., 66 Lake street, Chicago. Saws, etc. Upon a dead black background was displayed saws of every description, comprising circular, cross-cut, and mill saws. The effect of this display was particularly fine, as the contrast of the bright, polished blades with the black background was excellent, and showed off the wares to a decided advantage. A case of pocket cutlery was also exhibited, in which collection was a knife of 120 blades.

16.—BANGS BROS., cor. State and Van Buren streets, Chicago. Stoves, Ranges, and Furnaces. This firm exhibited Barstow's dome furnace, for hard or soft coal; Barstow's brick set cooking range; stoves and ranges manufactured by the Richmond Stove Company, Norwich, Conn.; and James Spear & Co.'s anti-clinker, hot-base, self-feeding revolving light of 1872. The striking peculiarity of the Barstow cooking range consisted in the arrangement of the ovens. The lower oven stands upon the boiler plate, directly in rear of the fire. This oven, formed of cast iron, is readily heated, and, being ventilated, is an excellent roasting oven. The upper and much the larger

oven, and directly above the one first named, is as readily heated as the other. The Barstow dome furnace is intended for heating churches, dwellings stores, halls, school-houses, etc. The principal point of excellence of the Spear revolving light stove is, that it removes the ashes and clinkers from the fire-pot without dropping the fire out. This stove is also supplied with a patent damper at the smoke pipe, and the mica windows are placed in a revolving cylinder, by which means they can be closed while the fire is being kindled, and after the coal is ignited the cylinder can be removed, throwing the windows open — entirely free from smoke — and presenting a perfectly bright and clear light from both above and below the fire.

17.—BARKER & JACKSON, 115 and 117 Eighteenth street, Chicago. Champion Radiating Heater. This firm, while dealing extensively in stoves, etc., was only represented by the above heater, which is the specialty of their house. The construction of this furnace is such as to afford economy of fuel, and to produce heating power in the coldest weather, without over-heating any particular part, the surface being of sufficiently large proportions for the heat to radiate equally over its entire extent. The fire pot, which is the seat of power, is proportioned to each size of furnace, very large, and extra heavy, corrugated and globular shape, projections all around its sides, thus carrying the heat out where the air can reach it, and producing a healthy temperature. The radiating drum is a perfect dome of space for radiation around its ample surface, and from this returning down the fifteen outside radiating flues, to the circular drum around the fire-pot. The outside tubes have a double object: one is to diffuse the heat as it returns all round the outside, and comes in contact with the air as it ascends to be heated; the other object is to form a regular return flue, which prevents the heat from passing directly through the smoke pipe to the chimney. The lower part of the circular drum is met by the air first, so that the heat returning down to that part of the radiator gives the benefit of that heat towards heating the air, before it is allowed to escape to the chimney. The smoke pipe is situated so as to facilitate access to the damper, while the dust that collects can be removed, with little trouble, by means of a plate fixed at the bottom. A similar contrivance is placed at the opposite side for the purpose of cleaning out that side of the flue to the furnace. The vapor pan is so situated that it can be easily reached and filled without the aid of a step-

ladder. The pan in this new heater is placed immediately under the bottom of the radiator, producing an equal evaporation all round, and mingling with the ascending air which passes through the furnace, so as to give a more thorough distribution, and prevent the air from becoming too dry.

18.—CHICAGO PLATE AND BAR MILL CO., J. M. Ayer, President, 132 Dearborn street, Chicago. Plates and Sheet Iron. This Company exhibited specimens of sheet, boiler and plate iron which evinced good workmanship in the finishing. No specimen of galvanized iron was exhibited, although the Company have lately added to their establishment facilities for its manufacture. The display made was not so large as it should have been, as this Company rank among Chicago's principal manufacturers, and whose annual productions exceed half a million dollars.

19.—R. B. CARSLY & CO., 1 Arcade court, Chicago, exhibited the Buffalo embossing press, geometrical check protector, etc., the whole contained in a fine walnut case, and presented a creditable attraction.

20.—CHICAGO VICE AND TOOL CO., 149-153 Fulton street, Chicago. Anvils, Vices and Tools manufactured by this Company, and very neatly arranged upon a dead black background, which contrasted well with the polished surfaces of the goods displayed.

21.—H. CRIBBEN, 157 East Kinzie street, Chicago. Parlor and Cook Stoves. Among the collection of stoves exhibited in this attractive display was the Michigan base burning and heating parlor stove, made by the Detroit Stove Works, at Detroit, Mich., which for beauty of design and perfection in mounting is seldom equaled by any stove, every joint being perfect. The superior qualities of the "Michigan" consist in the magazine being so arranged that all gases generated in the same are carried back into the combustion chamber and consumed, thus preventing explosion or escape of gas and utilizing all the combustible products of the coal. The gas ring is constructed in a manner to supply the fire with heated oxygen in proper quantities to facilitate the combustion of the gases arising from the burning coal. The grate is supported at four points, thus prevented from sagging down under the weight of coal when heated, and is so arranged that it can be cleared from clinker by partially dumping the grate with the lock-bar, and returned to its position at leisure. The flues are very large, and the bottom is double to the outside edge of the stove. The fire-pot is of iron and very heavy, and will

not produce clinker. An assortment of ground hollow ware was also shown by this exhibitor.

22.—CHICAGO SHOT TOWER COMPANY AND LEAD AND OIL WORKS, cor. Clinton and Fulton streets, Chicago. Improved Shot of all sizes. The shot of this Company is said to be unsurpassed in roundness, solidity, perfection of polish, uniformity of size, and accuracy of weight. In addition to the shot exhibited, an attractive display was also made of sheet, bar, and pig lead, lead pipe, raw and boiled linseed oil. The samples of this Company's oil exhibited proves its claims for superiority to be well founded, not only being perfectly pure, but, as it is thoroughly boiled, a uniformity of color is thus obtained, as well as superior drying qualities. The works of this Company are marvelous in their magnitude and completeness. The lead department was started by the President of the works, Mr. E. W. Blatchford, in 1861. Subsequently the manufacture of linseed oil was begun, and in 1867 the shot tower was established. The interesting process of shot making cannot be here described, but must be seen to be fully understood. The assorting of the shot by means of a succession of graded sieves, the Companies own invention, form an interesting feature. The management of these immense works devolve upon Mr. C. F. Gates, Secretary of the Company. It is by continued industry and a thorough acquaintance of their business that the Shot Tower Company have attained to their present prominent commercial standing, ranking with the first organizations of the kind in the world.

23.—CHICAGO STOVE WORKS, Twenty-second street and Blue Island Avenue, Chicago. Stoves. The goods exhibited comprised all kinds of cook, parlor, and heating stoves. In parlor stoves were shown the celebrated "Triumph," an article possessed of some excellent qualities, a full description of which will be found among the goods displayed by Merwin Church. The wares of these works are fully equal to those of the best eastern make, and in some instances the castings are smoother and better finished. A manufactory of this kind should be sustained as it merits, and particularly so when the goods are equal, if not superior, in make, and can be bought for the same price. Another good reason is that these stoves are of home production, which should invariably be sustained in any locality. The capacity of these works are equal to the demand of the Chicago market if fully tasked. Lake Superior iron is used exclusively in the stoves manufactured by this Company on account

of its superior quality. In the full line of stoves exhibited all were commendable, being artistic in design and showing thorough workmanship in their construction.

24.—E. C. CHAMPLIN, LACON, Ill. Stove-Pipe Thimble and Ventilator. A useful little article, being stationary in the chimney, forming a collar for the pipe when the stove is up, and a ventilator at all other times.

25.—CLARK, ABBOTT & CO., 144 Lake street, Chicago. Railroad and Machinists' Hardware. A large and attractive display was made by this well-known house, embracing railway supplies in all its branches, which are a specialty of this firm. Among the immense variety of goods shown, may be named Le Count's iron and steel lathe, dogs and clamps, expanding mandrils, etc., specimens of Thos. Firth & Sons' celebrated English steel and files; sheet brass; brass, copper and steel wire; vices; wrenches, etc. The display was in every way in keeping with the reputation of the house by whom it was made, which is among the largest and most reliable in the northwest. The firm are entitled to great credit for the large exhibition made by them, as well as the careful and attractive manner in which their goods were arranged.

26.—CLINTON WIRE-CLOTH CO., Clinton, Mass. Branch office, 175 Randolph street, Chicago; H. H. Waters, agent. Wire Goods, etc. One of the most neat, and at the same time attractive displays in the Exposition, was made by this Company, under the supervision of their western representative. Every variety of wire goods was shown, prominent among which may be noted, specimens of power loom wire-cloth, wire fencing, and flower stands. This Company also exhibited an elegant wrought iron summer house, hexagonal shape, 18 feet high by 10 feet in diameter. The exhibition was commendable, and reflected credit upon the Company for so extensive a display of their wares, and likewise upon their agent, for the care in their arrangement.

27.—CONTINENTAL BOLT MANUFACTURING COMPANY, Market and Huron streets, Chicago. Bolts and Bolt Work. A full line of the productions of these works were exhibited, including hydrants and stop-cocks for water mains. The various bolts on exhibition which are manufactured by this Company were machine bolts, lag screws, bridge, roof and car bolts, turn-buckles, bolt ends, and in fact *every description* of bolt work, which is made the specialty of this Company. In the manufacture of these articles it is all done by the most improved

machinery, which is tended mostly by boys, so perfect are the various machines used. Their works are the *only* one of the kind in Chicago, and the largest in the northwest. The display made of its productions was large and attractive, and deserving of special mention.

28.—D. S. COVERT, 57 State street, Chicago. Diebold & Kienzle's celebrated Safes, Vault Doors, etc. The exhibition of the wares of these celebrated makers, as shown by the exhibitor, was not so attractive in exterior finish as many of the same kinds of goods shown by other exhibitors, but in quality and superior excellence fully equal to the best made in the world. The goods of this firm are well and favorably known, and in the most severe tests have always proved to be all that was ever claimed for them, and in rebuilt Chicago a large number of the most prominent banks and bankers have replaced their old safes and vault doors by those of this firm. In point of material, manufacture and latest improvements known, these safes will bear the most favorable comparison, as those exhibited fully demonstrated.

29.—H. B. CRAGIN & Co., 107 and 109 Lake street, Chicago. House Furnishing Goods. A very attractive display was made by this firm in their line by utilizing the wall of the building, upon which was displayed tin ware, etc., artistically arranged in circles, one enclosing the other, until the full space allotted was completely filled. The arrangement of this display was one of the most attractive in the building, and for which the firm is entitled to great praise.

30.—J. P. DOIG & Co, 32 West Kinzie street, Chicago. An assortment of Files of their own manufacture, and good material and workmanship.

31.—DANE, WESTLAKE & COVERT, 228 Lake street, Chicago. Car Lamps and Lanterns, etc. Several walnut show cases containing many elegant specimens of Westlake's patent loose globe car lamps and lanterns. Also was exhibited a full line of plain Japanned and planished tin ware, manufactured by the firm, together with various other articles, including patent zinc boards, locomotive head lights, etc. The display was in every way one creditable to the firm making it, and finely arranged.

32.—HENRY DISSTON & SONS, Philadelphia, Pa.; Branch house, corner Market and Randolph streets, Chicago. Saws. The display of the firm was very showy, and claimed a place among the prominent attractions of the Exposition. A large walnut and gold frame, 25x10 in size, the background of which was covered by black vel-

vet, and upon the surface was artistically arranged a full line of saws of every description, all of which were manufactured by the exhibitors, who are perhaps one of the most extensive houses in this line of business in the country, and whose wares have an unprecedented sale in every State of the Union. The goods of this house are manufactured from the best material, and great care is taken in the making, hence no articles made by this firm are placed upon the market except perfect in every respect and of a superior character, which fact was fully illustrated by those exhibited, which were splendid specimens, and to be accorded the credit of the workmanship of them is all that need be said, as they were among the finest specimens of saws ever exhibited, and spoke in their own behalf their many superior qualities.

33.—WILLIAM DOLAN & Co., Lyons, Iowa. A display of Patent Oil Cans.

34.—W. DICKS, 118 Third avenue, Chicago. Flower Pot Bracket. This bracket is called the "desideratum," and is a perfect safeguard to potted plants. It is composed of two wire rings, fastened together by a hinge; one the flower pot sets in, while the other is used for hanging it up by; thus not only protecting the plant from danger of accident, but gives it circulation and air through the soil, always keeping the plant healthy.

35.—GOBLE & Co., 14 State street, Chicago. Agents Cowing & Co., Seneca Falls, New York. Pumps and Rams. A large and attractive display of all kinds and styles of pumps and rams, containing the latest improvements, many of which were original with the manufacturers.

36.—GOULD BROS. & DIBBLEE, 149 and 151 State street, Chicago. Perhaps no exhibitor's display will be so well remembered by all who visited the Exposition, who had a greater variety of goods, and occupied more space, or whose wares were more conspicuously exhibited throughout the Exposition building, than that of this firm. The great fountain, which was the center of attraction, (as well as the center of the building,) was manufactured by this well-known firm at a cost of \$3,000. In addition to which was exhibited every conceivable article of cast work that could be manufactured from the useful metals—fountains, vases, statuary, settees, chairs, deers, dogs, lions, croquette, tents, lawn mowers and sprinklers, iron railings and castings of every variety; wire work, flower stands, hanging baskets, trellises, tree guards, wire railings for offices, windows, and

doors, guards galvanized, wire railings for fencing, iron stable fixtures, hay racks, blanket brackets, cow troughs, box stall fixtures, iron furniture, bedsteads, hobrocks, umbrella stands, etc. Copper weather vanes, perfect models of Dexter, Kate Fisher, Ethan Allen, Goldsmith Maid, and emblematic signs for all words and professions. All of the numerous articles displayed were manufactured at their various manufactories, having four in all, one of which is located in the "City of Iron," where unbounded facilities are had for obtaining direct from the mines the immense quantity of iron this firm consumes in their business. The exhibition of this celebrated house will long be remembered, which was a representation that showed the varied character of their products, and one of merit that reflected great credit upon the firm for the perfection and skill displayed.

37.—BEN. E. GIVAUDAN & TRESTED, JR., 349 State street, Chicago. This firm exhibited the Wrought Iron French Range and Boiler, manufactured by Bromhall, Deane & Co., of New York, for which they are the sole agents for the western states. The claims of this range are economy of fuel, convenience, and simplicity of management, and though but recently introduced in the west, has been highly endorsed by many as fulfilling all that is claimed for it. This firm also displayed two of Deane's patent tea and coffee urns, nickel plated and elegant specimens of workmanship.

38.—C. H. HANSON, 38 South Clark street, Chicago. Stencil Work. Some finely executed specimens of stencil and dye cutting were exhibited by this house, which reflected much credit upon the exhibitor for the superior manner of their cutting, as well as the skill in the designing.

39.—S. H. HARRIS, 23 and 25 Randolph street, Chicago. Safes, Vault Doors, etc. The Harris safes are well known, and need but little description, having "been tried and not found wanting." But a few years ago, the exhibitor was engaged in business in Chicago as agent for a celebrated safe manufactory in Boston. Believing that he could effect some important practical improvements in safes, he undertook the business of manufacturer. Turning out, the first year, twenty-five of those model safes which have since given so much satisfaction to Chicago's merchants and bankers, who now give them preference over others of eastern or outside manufacture, the capacity of the factory, under the steady encouragement extended to him, has increased to proportions that now enable him to

turn out work to the amount of nearly \$500,000 per annum, in safes and the iron work of fire and burglar proof vaults. The Harris safes stood the test of the great fire triumphantly, have given eminent satisfaction to the mercantile community, and afford a good illustration of Chicago's home talent, and her home resources for competing with the world in manufactures.

40.—HALL'S SAFE & LOCK CO., Cincinnati. One of the most imposing displays was that of the safes and locks exhibited by this Company. Upon a raised platform, 30 x 10 in size, richly carpeted and draped in bunting, were placed several safes of most elaborate finish. The large safe in the center of the exhibition weighed 32,000 pounds, and was manufactured for the Second National Bank of Chicago, but was too large for the vault of the bank. It was constructed in four inside compartments, one compartment having fifty small lock boxes for special deposits. This safe is a specialty for banking purposes. The principal features of excellence in the manufacture of these elegant specimens of "strong boxes" are highly interesting. The plates around the edge of the door are dovetailed and shut into corresponding dovetails in the door-jamb, and securely prevents the use of the most powerful instruments of the burglar; and if a wedge was attempted to be driven in, the more compact would the work be forced together. Also, a tenon around the door, which fits a corresponding groove around the door-jamb, forms a most perfect and compact joint, and prevents alike the introduction of the wedge or any explosive fluid. The locks with which these safes are secured are the Hall's patent combination lock, the invention of Mr. Hall, and are covered by a score of patents. These locks, it is claimed, cannot be picked or opened by burglars or experts, and the statement has been fully corroborated by the fact that although often attempted, yet in all the twenty-five years these safes have been in use not a single instance is on record where one of Hall's safes has been burglarized, or in case of fire has failed to preserve its contents perfect. The other safes of this Company on exhibition were smaller in size, weighing 8,000 and 12,000, respectively, and were intended for office purposes, but all were alike elegant specimens of workmanship. The case of locks exhibited by this Company were also very fine, and consisted of the Victor, Premier, Novelty, Chronometer, Champion and Security. The manufactory and general offices of this Company are at Cincinnati, O., and are represented in this city at Nos. 147 and 149 Dearborn street.

Branch houses are also located in all the principal cities of the Union. The cost of the display at the Exposition was \$19,000.

41.—HUGH W. HILL & Co., Decatur, Ill. Hog Ringer. The instrument consists of a pair of pliers with the jaws concave and grooved. The ring is made of wire and furnished in boxes of 100, bent and pointed. Placing it over the hog's snout and closing the pliers forces the ring through the snout, the points being sharp enough for that purpose. The ring is stronger and not so liable to open as a round ring. They cannot turn in the snout, heal quickly, and fitting close are not liable to be torn out. It is a useful little invention, meeting with unprecedented success.

42.—HEWETT MANUFACTURING Co., Pittsburgh, Pa. Patent Sad Irons. The articles displayed by this Company were termed the "King" iron, four of which irons could be used upon one handle, each iron being adapted to its particular duties. The specimens exhibited were finely made, nickel plated, and undoubtedly are "king" of all sad irons heretofore in use, and are especially commendable for their utility.

43.—S. J. HERON, 36 State street, Chicago. J. Van's Ranges, etc. One of the finest displays in this line was made by the above-named exhibitor, and consisted of a number of the universally known and popular ranges of J. Van. The superior qualities of these articles are too well and favorably known to require either description or commendation, as a record has been made for these goods which places them at the head of all kitchen ranges. Van's patent carving table, boilers, and coffee urns, were also shown, all of which formed an attractive and well arranged exhibition.

44.—HOUGHTON COPPER COMPANY, Houghton, Mich. Hibbard & Spencer, Agents, 30 and 32 Lake street, Chicago. Lake Superior Copper. Several sheets of this copper were exhibited, which were rolled at the mines, and which appeared to be pure and free from foreign substance. The Lake Superior mines are now producing some of the finest ores in the world, and especially copper, which it is claimed is far superior to that imported. From the specimens of copper shown by the exhibitors, in sheets, it would seem that the claims made for Lake Superior copper to be merited, as a *better* article cannot be produced anywhere.

45.—EDWIN HUNT & SONS, 58 and 60 Lake street, Chicago. General Hardware, etc. The display of this house was varied in its attractions, and comprised every description of goods in the general hard-

ware line, consisting of Silver's patent meat choppers and stuffers, for butcher's use; Wood's ice tools; Union Manufacturing Company's samples of bronze, nickel plated, enameled, japanned and other butts; Russell & Erwin's bronze hardware; Hunt's edge tools, etc. The exhibition of this house was fine, and fully represented its standing as one of Chicago's leading establishments, and the oldest house in the hardware line of the city.

46.—W. M. HOYT & Co., River street and Michigan avenue, Chicago. Patent Revolving Tea Canister.

47.—HITCHCOCK & WALKER, 128 Michigan street, Chicago. A large assortment of church and other bells.

48.—M. C. ISAACS & Co., 47 and 49 Congress street, Chicago. Wire Brooms and Brushes. These goods are made from the very best refined English spring-steel wire, which will not snap or break, and are used extensively throughout this country and Europe. The display made embraced a large variety of wire brushes and brooms, which are used in most all foundries and warehouses as the most durable articles for the purposes intended that can be obtained.

49.—IRON-CLAD CAN CO., 143 and 145 Lake street, Chicago. Milk Cans and Dairy Implements. Several articles for dairy use were displayed by this Company, whose specialty is the iron-clad milk can which was exhibited in a number of styles. This can is constructed of wrought iron, tin coated, and but *one* piece is used in making the can proper, or three pieces including bottom and cover. These cans are a great improvement over the old style articles, and possess many good qualities, which are deserving the attention of those engaged in dairying.

50.—ILLINOIS IRON AND BOLT CO., Carpentersville, Ill. Copying Presses, etc. This Company acquitted themselves in a highly creditable manner by the imposing display made of their wares, consisting of Letter Presses of unusual fine finish, nickel plated and with walnut stands, iron castings, hoisting jacks, anvils, sad irons, pumps, bolts, etc., all of which were manufactured by the Company at their works as above.

51.—JONES & LAUGHLIN, 190-196 South Canal street, Chicago. Cold-rolled Iron and Steel. While this house is one of the largest in this country if not in the world in their line of goods, yet for an exhibition they display the great specialty of their house in the above-named iron and steel, the process of making being covered by several patents. By the use of powerful and peculiarly constructed machinery

this firm has succeeded in rolling and drawing bars, rods, plates and sheets of iron and steel while cold into any of the shapes ordinarily given to hot iron by rollers. The effect of this process is to compress and pack together the fibres of the metal to such an extent as greatly to increase its strength, hardness, elasticity, etc. These points of superior excellence in this iron have been fully demonstrated by experiments and tests of the most eminent engineers in Great Britain and the United States. The process of manufacture produces a highly polished and perfectly smooth bright surface, and finishes the bar or rod as straight and true as if turned in a lathe or planed. The material used is of the best quality and manufactured at the American Iron Works, Pittsburgh, Penn., of which the exhibitors are the proprietors, and under whose personal supervision the work is done. This iron cannot fail to recommend itself to all interested in the manufacture or use of the metal. Its invention and manufacture yield a material possessing a surface nearly as dense as steel, much increased elasticity, and greater resistance to tensile and torsional strain than the same sectional area of iron finished in the ordinary method.

52.—CHAS. J. JETTER, Manager, J. R. Palmenberg's Wire Works. 200 and 202 Madison street, Chicago. This display was particularly noticeable, it being the only exhibition of the kind in the Exposition and comprised new busts imported from Paris for tailors and dress-makers, *papier mache* busts and figures, wire frames and stands for cloaks, shawls, corsets, dresses, coats, vests and pants, umbrellas and canes, branches for hats, bonnets, and milliners' goods, bird cages, polished brass and silver plated stands for jewelry stores, shoe stands, and brass window fixtures. This house is a branch of J. R. Palmenberg, of New York, and is the only establishment of the kind west of New York, and all articles manufactured are the invention of Mr. Palmenberg. They manufacture especially the above goods. The business has grown from a small beginning to its present large proportions, till now there is hardly a store in the entire country that does not use these goods, in which the public is constantly looking for something new and attractive.

53.—JEWETT & ROOT, Buffalo, N. Y.; branch office and warehouse, 30 River street, Chicago. This firm had on exhibition the Diamond stove, all sizes and kinds; the Emerald, Galaxy, Falcon, Grand Union, Extension, New Echo, Hawkeye, Chancellor, New Portable range, together with others of their assortment, all of their

own manufacture. This firm is one of the largest in the manufacture of stoves in the United States, and whose goods have long been before the public, and which have always had a reputation for superiority and excellence. The exhibition made by these exhibitors was commendable, and one which demonstrated that the high reputation accorded their stoves to be one in every way deserved.

54.—JEFFERSON IRON WORKS, Spaulding, Woodward & Co., Stuebenville, Ohio. A display of Nails and Spikes of this Company's own manufacture, which is their specialty.

55.—JOLIET IRON AND STEEL COMPANY, A. B. Meeker, President, 94 Washington street, Chicago. Iron and Steel. Specimens of some excellent quality of iron and steel rails were shown by this Company in the different processes of manufacture.

56.—KIMBARK BROTHERS & Co., 80, 82, and 84 Michigan avenue, Chicago. Carriage Hardware, Chrome Steel, etc. This firm, which are the largest dealers in heavy hardware, iron, steel, nails, and wagon and carriage material in the whole west, and are said to carry the largest and most complete stock of any house of the kind in the country, made a display in the Exposition which was in every way in keeping with their standing in the business community. The display consisted of blacksmiths' and carriage-makers' tools, railroad and miners' picks, mill tools, stone-cutters' tools, wagon wood-stock, comprising spokes, hubs, wheels, and carriage wood-stock of all kinds, axe, pick, sledge, and hammer handles. This well-known house has been established twenty-one years, and its trade extends all over the west, northwest, and far into the south, doing a considerable business in Texas and other States. They are agents for the celebrated Chrome steel, which is claimed, by those using it, to be superior in every respect to carbon steel, not excepting the choicest brands of foreign or home manufacture. It is now used in many of the largest railroad shops in this country, to the entire exclusion of carbon steel, and in every case has proved its great worth and economy. Its chief points of merit are, that it can be worked to a white heat without fear of injury, that it will weld without sand or borax, that each grade is uniform in quality and never varies, that when worked as directed it is superior to and more economical than any other steel. When hardened, it cannot be drilled by carbon steel, and is particularly adapted to turning down the chilled tread of car or steel driving wheels. Tests made with this steel at West Point, under supervision of U. S. A. officers, show the extraordinary strain of 198,970 pounds

to the square inch. The highest ever obtained with carbon steel was 132,909 pounds. It is the only steel which would stand the strain required for the anchor bolts and staves to be used on the gigantic bridge connecting St. Louis, Mo., with Illinois.

57.—KENOSHA HARDWARE COMPANY, Kenosha, Wis. Castings, etc. The display made by this Company was large, and commendable for the quality and workmanship of the goods shown, but was not as attractive as it might have been made if more attention had been given to the arrangement. The exhibition consisted of florists' goods, brackets, iron vases, plant stands, etc., all of which were manufactured by the Company, and comprised but few of the many articles of their wares.

58.—GUSTAVE KOCH, 73 Dearborn street, Chicago. A display of Burning Brands, Stencils, Dies, Seals, etc.

59.—E. E. LEAVENWORTH, 102 Randolph street, Chicago. Stoves and Ranges. A fine collection of stoves, among which were noticed the celebrated "Excello" parlor stove, "Empire" furnace, "Empire" Gas Burner, "Peerless" range and "Vindicator" cook stoves. Many superior points of excellence are noticeable in the Empire Gas Burner, which is designed for the parlor, and manufactured and sold exclusively by the exhibitor.

60.—M. W. & F. LESTER, 304 State street, Chicago. Furnaces, Ranges, Cooking and Heating Stoves, etc. Among the large display of goods, made by this favorably known house, was noticed the "Imperial French Range," for which the exhibitors are western agents, manufactured by Duparquet & Huot of New York. These ranges are in use in most all of the leading hotels of Chicago, including the great Palmer House, just completed, and are said to be unequalled. They are highly endorsed everywhere, and from personal observation they seem perfection. The "Magee Range" also claims a share of attention, ranking with the "Imperial," and is a first class range in every particular. The exhibitors manufacture fourteen sizes of portable ranges, both surface and base burners, specimens of which were also exhibited. In addition to the goods already enumerated, this firm are the manufacturers of six sizes of brick furnaces, for public halls, churches, etc., two sizes of portable base burners for soft coal, and Bulkley's super-heated steam furnaces, several of which styles were shown. The entire display was one of credit to this popular house

61.— J. F. LOCHWOOD & Co., Taylorsville, Ill. Exhibited a model of Carburetor and Gas Generator. Patented by the exhibitor.

62.— H. LISSBERGER & Co., corner Clinton and Jackson streets, Chicago. Lead Pipe, Sheet Lead and Metals. The principal article of notice in this display was Lissberger's patent tin-coated pipe, a most convenient and safe mode of conducting pure water from the street mains. This pipe will not corrode nor rust in a life-time, either when exposed to the atmosphere or submerged in the water or buried in the earth, and when exposed to view it presents a beautiful and ornamental appearance, and it can be worked with all the ease of the ordinary lead pipe without detriment, is free from all the objections, to be found in that, and excels the tin-lined pipe since it is protected both inside and outside. This pipe has the endorsement of eminent chemists after being subjected to seven chemical tests by them for several days. The introduction of this pipe in Massachusetts some time since met with the greatest success, and it is now used in the city of Boston to the almost entire exclusion of any other.

63.— MCNEAL & URBAN, Cincinnati, Ohio. J. M. Terwilliger, General Agent, 49 State street, Chicago. Fire and Burglar Proof Safes. Five safes comprised the display of these well-known manufacturers. The one that attracted the most attention from bankers and merchants was the burglar proof safe, having twelve bolts that worked in four different directions. This safe has a groove in both the door and the safe, which, when the door is closed, fits so tight that it is impossible to insert powder or nitro-glycerine in any manner. When closing, the door is swung on what might be termed a crane hinge until within about half an inch of being shut, and in that position stands square in front of the safe, when a lever with an eccentric movement is drawn and the massive door is forced into the grooves of the safe, the bolts are turned, and the safe is closed—the work of a moment, and not requiring the strength of a child. A burglar may destroy the lever, wrench off the handle, yet the safe remains intact, defying his every endeavor to gain an entrance, there being not even a hair's space for the insertion of any instrument, however slender.

The painting was done in an attractive and artistic manner, while the bolt-work was finished in as elaborate a style as is consistent with strength and durability. The bolt-work of the fire proof safe is six inches from the outer edge, and covered by a cap on the inside which is only accessible to the owner of the safe when open. It is unnecessary to allude here to the locks manufactured by this house, as they

have been in use for several years, meeting with such favor as their merits deserve. The display, although not showy in appearance was remarkable for solidity and strength.

64.—THE MECHANICS TYPE FOUNDRY CO., Wm. Pigott, Pres.; N. R. Lyman, Vice Pres.; John Creswell, Sec.; 81 and 83 Jackson street. A stop cylinder printing press from the well known factory of R. Hoe & Co., New York, for whom they are the western agents. This press is of latest pattern and the second of the kind ever made. The bed is driven by a crank, so that there is no jar at either end. The distribution is effected by the table and oblique roller system, and the form is inked by four rollers that pass over its entire surface. After a sheet is printed the cylinder remains stationary while the bed is running back, during which time a fresh sheet is placed in position; the fingers then close on the sheet before the cylinder starts, and before the feed-guide and register-points are withdrawn, and as the cylinder gears directly into the bed, perfect register is secured. The Company exhibiting this press is an association of mechanics who desire to use their skill to their own and their customers' advantage, each member of the Company being practical in their respective departments, thus assuring to the purchaser the best article that can be produced. It is matter upon which the printing fraternity of Chicago and the northwest can congratulate themselves that they have in their midst an establishment of this kind.

65.—M. MALLERY & Co., Elgin, Ill. A large Heating Vat used in the manufacture of Cheese.

66.—MAC COUN & Co., 538 Clark street, Chicago. Bells. This firm, who are the western representatives of the celebrated house of Jones & Co., Troy, N. Y., exhibited one of the productions of that justly popular firm. The "big bell," as it was termed, is doubtless familiar to the many thousands of visitors to the Exposition. It was rung four times daily, during the continuance of the Exposition, by order of the Executive Committee; at 9 o'clock, to open the building; at 12 and 6 o'clock, announcing the mid-day and evening repasts, and at 9:30 o'clock, to prepare to leave the building, and at 10 o'clock, to close the same. During all this time, the "big bell" continued to ring out its own superior qualities, as well as to "ring" the praise due to the eminent firm by whom it was manufactured. The house of Jones & Co. are known throughout the United States, and the excellence of their productions have been fully attested by the scores of first premiums they have taken at various Expositions and

Fairs, in addition to which may be added thousands of unsolicited letters of commendation. In the manufacture of these bells none but the best and purest metal (copper and tin) is used, and the firm offer to forfeit the price of any bell made and warranted by them, if an authentic analysis of its composition shall disclose that it is alloyed with zinc or spelter, as is much of the inferior bell metal of the present day. Every part of the mountings, including yoke, stands, frame, wheel, etc., is made of the best iron and timber, in order to secure both their strength and durability, and are considered the most complete and perfect mountings in use. The bell exhibited was manufactured to order, and bore the inscription, "Presented to the Temple Baptist Church of Chicago by N. F. Ravlin, 1873." Its weight was 5,025 pounds. This firm also manufactured the largest chime of bells ever made in this country, for the Michigan avenue Baptist church of Chicago, which consisted of seventeen bells, the largest weighing 3,656 pounds, while the total weight was 17,860 pounds. Although the exhibition made by this firm did not merit as long an article as has been given, yet it was the gate to enter into a brief sketch of the merits of the general productions of this justly and deservedly popular firm.

67.—GEORGE MITCHELL, 39 Canal street, Chicago. Wire Work. A collection of some very fine wire work was shown by this exhibitor, consisting of window screens, flower stands, trellises, and every description of plain and fancy wire work. The display was excellent, and arranged in an attractive and pleasing manner.

68.—W. K. MANNING, 139 Lake street, Chicago. Exhibited the patent Champion Gas Burner.

69.—C. MASON & CO., corner Carroll and Sangamon streets, Chicago. Castings. This firm exhibited a large boiler-head, and an assortment of ornamental lamp-posts, by no means a fair showing of this firm, who are the proprietors of the Excelsior Iron Works, one of the pioneer works of the kind in Chicago, whose annual productions are near \$1,000,000, their specialty being marine and stationary engines and boilers.

70.—MORTON, HULL & CO., 63 Lake street, Chicago, Agents for Victor Scale Company, Moline, Ill. Track and Hay Scales, etc. The specimens of scales exhibited combine valuable improvements, which were patented by L. M. Severence, of Dixon, Ill., in the year 1867, and purchased by the Victor Scale Company in 1870. The particular advantages of this scale may be summed up in the follow-

ing points : Each of the four levers work independently of the others, and thereby are not affected by a disturbance of the level of the platform. Owing to the independent leverage, friction is almost entirely avoided; and the greatest possible sensitiveness in their action is maintained. The weight bearing upon the fulcrum of each lever is so distributed and thereby lessened, that the wear is almost nothing; and hence their durability is largely increased. They are simple in their construction, and with the aid of printed instructions any good carpenter can set them up. They require only a shallow pit, and thereby lessen the cost of building. Every scale is warranted to be equal to the best scale in the country. This Company manufacture nearly every description of portable scales in use, including hay, grain and track scales. They use the best material and employ the most skillful workmen in their construction, and their facilities for making and shipping scales are equal to the very best in the country. During the last three years their scales have gone into extensive use among stock dealers, coal merchants, grain men and railroad companies, and have given universal satisfaction.

71.—NORTON BROTHERS, 10 State street, Chicago. Japanned Ware. This firm exhibited a large assortment of plain and japanned tinware, especially designed for grocers, coffee and spice dealers and the paint trade. Few people know the extent of the manufacture of these small tin cans and boxes in the United States. Some idea of it may be formed if one will estimate the number used in a year by a single family for their spices, baking powders, canned fruits, etc., remembering that none are used a second time. This firm make no statement of the number made by them, but the variety of sizes and styles exhibited show that they are prepared to meet all requirements in that line. In their samples of japanned ware they have a fine display of grocers' shelf caddies of all sizes; some finished in plain style and others of beautiful designs elaborately ornamented. Several revolving pagodas (so called from their supposed resemblance to those Oriental structures) attracted much attention by their novelty and beautiful finish. They contain compartments for several kinds of teas or spices, the whole revolving on a handsome iron pedestal. All goods exhibited were taken direct from their stock.

72.—NEVERS & CO., 252 and 254 Fulton street, Chicago. Reeves' Patent Measuring Faucet. This faucet is one worthy to take position at the head of all small patented articles, and is one of real

merit, being accurate, durable and reliable. It is unequalled and unlike any other in use, and perfectly simple in operation and construction. By the use of this faucet all liquids are drawn direct from the barrel into a glass receiver which measures the quantity required, and disposes of it into the vessel placed to receive the article drawn. The workings of this invention must be seen to fully comprehend its great worth; but it can safely be pronounced one of the finest inventions of the age.

73.—A. M. GILBERT & Co., 38 State street, Chicago. This firm made one of the largest and finest displays of scales exhibited, showing a large and elegantly finished assortment of the celebrated improved Howe scales,—of which the judges of the Massachusetts Charitable Mechanic' Association said, "Too much cannot be said in their praise," and at the San Francisco Institute the judges said, "destined to supercede all others." Every scale contains one or more valuable improvements,—for instance, in the counter-scales of all varieties, there is a patent outside frame which protects the working part of the scales from injury, and keeps the dust, dirt, etc., from the sensitive bearings. This renders them both stronger and more accurate. Then, in all their platform scales they dispense with check rods used by other manufacturers, and place chilled iron balls between the platform and the knife-edges,—as these balls receive all the friction, the pivots or knife-edges remain sharp and the scale accurate. In the various sizes there are different improvements exclusively their own,—in the drop-lever scale a marked improvement, whereby the platform is raised or lowered, without moving the works of the scale. The Howe Dormant Scales have the fewest points of friction, and an extremely simple arrangement of levers; their practical superiority is testified to by hundreds who have used them. They also exhibit their improved hay and railroad track scales, in which perfection seems to be nearly reached, for their great strength, their delicate accuracy, and their extreme simplicity, were a marvel to all who examined them. Over 350 modifications of these justly celebrated scales are made, but only about eighty different styles were exhibited. The display reflected great credit to the makers as well as the enterprising exhibitors.

74.—NES. SILICON STEEL Co., 182 Dearborn street, Chicago. Exhibited specimens of the celebrated Nes. Silicon Steel Rails.

75.—NORTHWESTERN HORSE NAIL COMPANY, 68 West Van Buren street, Chicago. Horse Nails. This Company was established some

ten years ago, upon a comparatively small scale to the present extensive proportions of the works. Their annual productions are now seven hundred and fifty tons of horse nails, valued at \$300,000; but they are still engaged in extending their capacity, so great is the demand for their popular wares. The Company have just completed extensive additions, both in buildings and machinery, which will increase their capacity to one thousand two hundred tons per annum. Their finished nails are the only hammered finished nails in the market, and in their manufacture is used only the best benzoin iron, which is imported from Norway expressly for the exhibitors. The manufacture of these nails is done by machinery, and the manner in which they are made, being of much interest, is here given. The machines are placed in front of a forge, by which stands a workman, who grasps a long, square bar of this benzoin iron, plunges it into the forge; it is brought to a white heat; the end is then thrust into the machine, and one by one, with marvelous rapidity, the nails are drawn from the end, hammered, and drop perfect into a box beneath the machine, which is the Dodge patent, and certainly a most wonderful invention. Its working seems simple, yet the results are surprising. Its accuracy, regularity and perfect control is truly wonderful. It would be a pleasant task to here record all the minor details of finishing, packing, boxing, etc.; but space will not permit more to be said. Suffice it to say, this establishment is distinctive in its character and is destined to become one of the greatest manufactories, not only of Chicago, but of the northwest.

76.—PROVIDENCE TOOL CO., S. H. & E. T. Moore, Agents, 68 Lake street, Chicago. Samples of Heavy and Marine Hardware, Railroad Supplies, and Ship Chandlery of their own manufacture. Among the many articles exhibited by this Company prominent were hot and cold pressed nuts and gimlet point coach screws. A specialty of this Company's exhibition was a large variety of the "Providence clothes wringer." This wringer is extensively made and is warranted in every respect. Its chief excellence consists in the Moulton roll used in all Providence wringers. The rubber of which this roll is composed is of a better quality than is ordinarily used in wringers, and makes them much more durable. The display made by this Company was large and arranged attractively and with care.

77.—PARKHURST & WILKINSON, 171 and 173 South Canal street, Chicago. Wagon and Carriage Hardware, Wood Stock, etc. An immense showing was made by these exhibitors. Goods of their line in

great variety were displayed, which conveyed the idea that this firm fully realized *what* an Exposition should be, and also that the success of the same depended as much upon the individual efforts of each exhibitor to make his particular display attractive in itself as it did upon the united efforts of them all; hence the exhibition made by this firm was both attractive and commendable. Among the numerous articles displayed which may be named as specialties, and for which the exhibitors are sole agents, were Sweet's oil-tempered seat springs, cast steel tire, Brockway's patent seat fasteners, Hurlbut's patent brake locks, Milner's patent wagon stakes, and Richards' patent truss brace skeins. This firm also exhibited specimens of the well-known "P. & W. red jacket" and "Diamond P." axles, of which they are the proprietors. These exhibitors have acquitted themselves with great credit by their able efforts to make a good display, in which they so admirably succeeded.

78.—SAMUEL I. POPE, 87 and 89 Lake street, Chicago. A display of Heaters, Coils and Radiators.

79.—J. P. DALTON & Co., 80 and 82 Randolph street, Chicago. House-furnishing Goods. A large and attractive display was made in the above line of goods by this exhibitor, comprising stoves, tin and Japanned ware, brushes, bird cages, etc., the arrangement being particularly noticeable by the good taste evinced in the display of the goods shown, as was also their uniform fine quality.

80.—D. DRUMMOND, McGregor, Iowa, exhibited an improved Screw-Driver.

81.—E. B. PRESTON, 138 Lake street, Chicago. Rubber Goods. In the above line this house showed an unequalled assortment in great variety, consisting of rubber clothing of all kinds, rubber belting, steam packing, hose, etc., the latter goods from the well-known house of the New York Belting and Packing Company, for which the exhibitor is sole agent for the northwest. In belting was also shown specimens of J. B. Hoyt & Co.'s patent stretched and patent riveted short lap belting. These belts are made from pure oak-tanned butts, and of the heart or solid part only. No part of the shoulder is used. Any one not familiar with belt making can readily detect this by the shortness of the lengths and laps. Long laps are made including the shoulder or thinner part of the leather, causing the belt to be in its enduring qualities no better than its poorest or thinnest parts. This belting is warranted to run straight and maintain an even bearing on the pulleys, and is sold under the *fullest guarantee*.

The arrangement of this display was especially fine, while all the goods were of excellent quality.

82.—CHAS. W. PATTEN, 173 Madison street, Chicago, exhibited Leffingwell's Patent Gas Saving Governor.

83.—W. & B. DOUGLASS, 197 Lake street, Chicago. Pumps, Hydraulic Rams, Garden and Fire Engines. The excellence of the wares of the above exhibitors are too well known to need extended comment. The display consisted of goods of their own manufacture, the specialty being a great variety of pumps. This firm are said to be the oldest house in their line in the United States, and were the *first* manufacturers of *iron* pumps in this country. Their works are located at Middletown, Conn., and were established in 1832. The goods of this house are not only sold throughout the United States but Europe. They were awarded the highest medal at the Universal Exposition at Paris, in 1867, and the grand medal of progress at Vienna, in 1873. The goods exhibited were highly praised for their excellence in workmanship and finish, and are deserving of especial mention.

84.—FAIRBANKS, MORSE & CO., 111 and 113 Lake street, Chicago. Fairbanks' Standard Scales. Among the objects of special interest that attracted general attention and comment by the variety, elegance, beauty, perfect mechanical finish, and marvelous taste shown in arrangement, were the articles of this celebrated and widely known firm, who for energy and enterprise stand unrivaled. At the Exposition in Chicago they occupied that leading position which they have so successfully maintained in every fair throughout this country and Europe. In their display may be found a large and varied assortment of grocers' and tea scales, jewelers' scales, druggists' and apothecaries' scales, confectioners' scales, furnace charging scales, dealers' scales, pork-packers' scales, cotton scales, hay scales, market scales of all varieties and styles of finish, railroad and stock scales, etc. The special attention of furnace men is called to their furnace-charging scales, by which the weight of the different materials, as coal, iron, etc., can be ascertained without change. City weighers and common councils should examine their assortment of dealers' scales, weights and measures. They are of the legalized standard, and warranted durable, accurate and strong. Their premium stock scales, made with the latest and most valuable improvements, have a capacity of from three to ten tons; they are simple in construction, delicate in operation, and made of the best materials,

under the strict supervision of the inventors. They are the only scales used in the great stock yards of Chicago, St. Louis, and many other great cattle markets, and are the acknowledged standard. Their grain or hopper scales, with a capacity of from thirty to five hundred bushels, give universal satisfaction. The merits of their coal, hay, millers' and grain dealers', family grocers' counter scales, and balances, are too well known for further comment. Their dormant warehouse scales, with iron columns and sliding poise beams, are marvels of accurate mechanism. In their display we also noticed quite an assortment of platform scales, with heavy wheels and drop lever, with capacity from one to three thousand pounds. Also a complete assortment of standard weights and measures, block weights, nest weights of iron, zinc or brass, standard liquid measures of copper, brass or iron, and standard dry measures. The grain men speak in the highest terms of their grain tester, to ascertain the grade of grain by weight. They also display samples of post-office scales. The United States government are using Fairbanks' scales.

A feature of their exhibition is samples of scales manufactured for the governments of France, Portugal, Spain, Russia, China, etc. The Japanese Commissioners, on their recent visit, ordered the "Fairbanks" for Japan. They also exhibit a duplicate of one made for the U. S. Mint at Philadelphia, which seems the perfection of skilled labor, elegant in design and beauty of finish. The assortment of bullion scales, flour inspection beams, cloth beams, paper beams, etc., was complete. The pork packers' scales manufactured by this firm possesses new and novel features that will especially recommend itself to notice. This firm does an immense business in furnishing railroad companies with hay, stock and ore scales. Their cotton scales are the standard in the South. Fairbanks' scales now embrace over three hundred modifications, and are made of the best materials, with the latest and most valuable improvements. Their manufactory was established in 1830, and commenced in a small way, but now its employés are numbered by hundreds, and a whole city derives its main support from this great manufacturing house. Fairbanks' Standard Scales received the first premiums at the great Paris Exposition, in 1867, over thirty-four different competitors; also the "Medal of Progress" at the Vienna Exposition. Fairbanks' scales have twelve patents in force. They also manufacture the neatest, most complete and strongest baggage barrows and warehouse trucks in the market. They also have one of the best, sim-

plest and most reliable money drawers. The Baldwin's improved double lock money drawer is superior to any offered to the trade. In their display was noticed one of Troemner's celebrated steel coffee mills, which are said to possess points of excellence over any in the market. The display made by this leading firm is deserving of universal commendation, and for which they are entitled to great credit.

85.—FULLER, WARREN & Co., 58 and 60 Lake street, Chicago. Troy Stoves, Ranges, Heaters, etc. One of the most conspicuous displays of stoves, etc., in the building was that made by these exhibitors. This firm has been, for twenty years past, as noted for the quality of the stoves which they have made, as have the Sheffield people for their cutlery.

The Stewart cooking and heating stove, made by this firm, are, and always have been, the standard of comparison among stoves. Of late years, stove makers have been much given to imitating each other, and the standard stoves made by these exhibitors have been "original" with many firms; which speaks well for their popularity, and excellent qualities which are exhibited. The Stewart stoves for 1873 are the result of twenty years' experience, and every part is so made as to secure durability, economy, and perfect operation. The castings of these stoves being particularly noticeable for their great smoothness. The Stewart heating stoves have told their own story in the comfort they have brought to thousands of homes during the past ten years, and need no comment. For houses of those having large families, the Warren elevated double oven range exhibited seems to be the ideal article, and one look at its ample provisions fully demonstrates the fact. The success of this, like other goods, seems to be dependent upon its acknowledged efficiency. The J. A. Lawson's heaters assure the critic that within houses containing them it will be continual summer throughout the year; and the fact that they leak no gas, and are easily managed, is indeed a recommendation. W. J. Keep's side-burning, self-feeding parlor stoves and fire-place heaters, with their "non-clinker" and shaking fire-pots, powerful illumination and heating properties, mark a new era in the stove trade. Other prominent features in the goods displayed by this firm consist of their hot-blast ranges, and especially the low drum grate Franklin stove, called the "Harvard." This firm consumes *forty tons* of iron daily, in the manufacture of stoves; and those enumerated above are but a few of the many different kinds made.

86.—C. FLAMMER, 45 West Adams street, Chicago. Ornamental Japanned Ware, consisting of Tea Caddies, Water Coolers, Coffee and Spice Cans, etc. Particularly noticeable was a glass picture of the Exposition building and several bouquet and checker tables, decorated with views on glass tops. This work is a specialty of Mr. Flammer, and is patented by him. The patent consists of transferring from stone to glass, and of which process as yet but little is known. The work is first engraved on stone, and when transferred to the glass is inlaid by mother-of-pearl, as the fancy of the artist suggests. The picture is upon the reverse side of the glass, and has the appearance of an elegant painting covered by glass, while in reality the picture seen is upon the glass itself, and presents a splendid and durable parlor decoration.

Of the Japanned work shown, all the ornamentation was done by hand, and were not transfers, as is usually the case with such work.

This artistic display reflects much credit upon the exhibitor, and marks him as an artist of repute.

87.—KIRK & BARKER, 196 and 198 Lake street, Chicago. Heavy Hardware, Wheels, Spokes, Hoop Iron, etc. This leading house made a large and imposing display of heavy hardware, wagon and carriage material. Particularly noticeable in their exhibition was a glass case containing some beautiful specimens of coach and carriage lamps and nickel plated tips. Among the specialties of this house shown were Burden's celebrated horse and mule shoes, and the Northwestern "finished" horse nails.

88.—D. H. KEYES, 79 Dearborn street, Chicago. Allen's Patent Oil Safe. This is a very important invention, and as a matter of economy, safety, and convenience for all manufacturers who use oils of any kind it seems indispensable. The outside casing of wood and the lining of zinc are made entirely independent. The lining is of heavy zinc and lead, and every seam in it is thoroughly soldered upon both sides. The bottom is constructed, to make use of a familiar article to illustrate, like a "hopper" in a grist mill. The four sides of the bottom converge to the center, being made of a single piece of heavy lead, pressed into shape in a mould. The place of discharge for the oil is at the lowest point or center of the bottom, corresponding with the point in the "hopper" through which the grain discharges. This place of discharge is connected with the faucet in front by a lead pipe.

89.—S. H. RANSOM & Co., 6 and 8 River street, Chicago. Stoves

in great variety. This firm is said to be the most ancient institution of the kind in the country, and occupied space sufficient for the conspicuous exhibition of a large stock, representing the multitude of styles, forms, and sizes of various patents and inventions in cook stoves, parlor, office, warehouse, and dining-room stoves, etc., some of them representing the perfection of mechanical finish in iron goods. Among those which formed conspicuous objects of attraction were the Lighthouse self-feeding, base-burning heating stove, the Vanguard cooking stove, for soft coal or wood, the modern Vulcan cooking stove, for hard coal or wood, besides a great variety of coal and wood heating and cooking stoves adapted, by their construction, to the varied wants of all classes of people. The great foundry of this firm is at Albany, N. Y., while the western establishment is under the management of Mr. H. W. Bliss. The many excellent qualities the wares of this house are said to possess, have been practically demonstrated to the satisfaction of all using them for the past *fifty* years they have been before the public, and hence no description is required, as the imprint of the firm on any stove is a sufficient guarantee of their excellence.

90.—JNO. F. ROTH, 66 Lake street, Chicago, exhibited a window sash to which was applied the Anderson Patent Sash Balance. This appliance is one of the many useful patents of the day, and by its use, weights, pulleys, and boxes are entirely superceded. It is neat, simple, durable, and cheap, and is a perfect balance at all points. Over 300,000 are in use in the city of Chicago alone. The above named exhibitor is the sole proprietor and manufacturer of this valuable patent, and for which Mr. H. F. Kett is manager.

91.—E. H. ROBINSON, 17 Cottage place, Chicago. New Ruling Device, or double-tongued square, for the use of wood-working mechanics. This tool is a rule of equal thickness, having two permanent right angles and a slotted adjustable bar placed upon it, with tightening screws at each end, by which it may be fastened in any position desired, in the various uses for which it is designed. It is unequalled by any yet introduced to the public for facility and convenience in laying out mortices, tenons, gains and sizings; and is useful as a gauge, a pitchboard for laying out stair-stringers, also as a bevel for all kinds of mitres, roof-pitches, etc. Mechanics should examine this great improvement upon the common square and they will readily find it all that is claimed for it, and a valuable labor and time-saving invention.

92.—RATHBONE, SARD & Co., Albany, Detroit, 38 and 40 Lake street, Chicago. One of the largest exhibitions of Stoves in the Exposition was made by this well-known firm. The display being of such immense variety prevents a full description of each stove, but a careful list is appended of the various names, styles, etc., and it is regretted a more extended mention cannot be accorded, as each and every article shown by this firm is claimed as first class, and so justly popular are their goods that the imprint of the firm upon any stove is a sufficient guarantee of its excellence. The following is the list of stoves exhibited, all of which were manufactured by them: No. 9 Fearless, with low copper reservoir and cast closet for bituminous coal. No. 8 Fearless, plain top for bituminous coal. No. 8 Fearless, with low copper reservoir and cast closets, with anti-clinker grate and illuminated mica front. No. 9 Fearless, with low copper reservoir and cast closet for wood. No. 9 Fearless, plain top, with cast water front. No. 7 Rathbone range, for hard coal, soft coal or wood. A No. 8 Rathbone ditto. No. 7 Rathbone range, with hot closet and water back. A No. 8 ditto. No. 10 Hotel Fearless, with reservoir and closet. No. 824 Acorn cook, plain top, for wood. No. 926 Acorn cook, with low copper reservoir and closet. No. 8 Pacific, plain top, for coal. No. 9 Prairie, with low reservoir, for coal or wood. No. 8 Loyal cook, plain top, for wood. No. 9 Loyal cook, with low copper reservoir and closet. No. 12, 14 and 16 Brilliant, anti-clinker, reversible flue, double bottom, reversible flue base burner for hard coal. No. 5 Brilliant, oval. No. 20 Hickory, for wood. No. 24 Hickory, for wood. No. 2 Acorn, for wood, base heater. No. 3 Acorn, for wood, base heater. No. 24 Camelia, for wood, base heater. No. 19 Swiss Cottage parlor, for wood. No. 22 Swiss parlor, for coal. No. 25 Swiss parlor cook, for coal. No. 14 Monitor, hot base coal burner. No. 7 Templar, coal burner. No. 15 Gen. Franklin, for coal or wood. No. 12 Aurora, self-feeder, for coal. No. 22 New Iris, for coal, and No. 25 New Iris, for wood.

93.—ABRAM REESE, Pittsburg, Pa. Patent Safety Railway Car Stove. By the use of this stove the many terrible railway accidents, which are of so frequent an occurrence, might be prevented. The stove is automatic and self-extinguishing. It will instantly extinguish the fire, in case the car leaves the track or in the event of a collision by which the timbers of the car are damaged. There is no steam, no explosion, no gas and no dust. No more valuable article has ever been invented, and this stove should receive favorable con-

sideration from every railroad man in the country, and no delay should be used in its general adoption by every road in the United States.

94.—RUSSELL & ERWIN MANUFACTURING COMPANY, New Britain, Conn. Door Trimmings. A pleasing display was made of bronze and other door trimmings, of the manufacture of the exhibitors.

95.—C. E. ROBERTS & Co., 7 and 9 South Jefferson street, Chicago. Screws. In the display of this firm great taste was evinced in its arrangement. An unique glass case, octagon in shape, contained screws from one-eighth of an inch to one foot in length, which were neatly fastened to an inner frame, the background of which was covered by black velvet, the whole presenting a fine and attractive appearance. This firm manufacture case-hardened set-screws, steel set-screws, machine and cap screws, etc. A bolt machine in operation was also exhibited, showing how rapidly the article is made.

96.—ROGERS & Co., 144 Market street, Chicago. Exhibited sections of wrought iron pipe, beams, girders, channel tee axle irons, etc.

97.—SCOVILLE MANUFACTURING COMPANY, Waterbury, Conn. Western office, 137 State street, Chicago. Sheet Metals, Hinges, Buttons, etc. This Company, who are so well and favorably known as the manufacturers of the finest sheet brass, German silver, and plated metals, had on exhibition some very fine specimens of these metals in sheets. They also displayed various other goods manufactured by them, including gilt and fancy dress buttons, thimbles, kerosene burners, etc. The display was finely arranged and the Company's wares admirably represented, for which E. H. Patterson, Esq., Western Manager, is entitled to much credit, and by whose able efforts the Company has been brought into prominence in the west.

98.—N. L. STOW, 27 and 29 South Clinton street, Chicago. Carriage and Wagon Work, Axles, Tongues, etc. Prominent among the above mentioned articles was exhibited the complete wood work for a buggy. The work was excellently well done, the seams being so well brought together as to be invisible, and resembled one piece of wood.

99.—C. H. SMITH, 253 Lake street, Chicago. Lightning Rods. A large walnut frame, the background of which was covered by black velvet, upon which was artistically arranged points and fixtures for

all kinds of rods, neatly surrounded by specimens of the tubular fluted copper lightning rod, a specialty of the exhibitor, by whom it is manufactured. This rod is said to be vastly superior to all other rods now made, owing to its peculiar tubular shape.

100.—SINCLAIR BROTHERS, 396 State street, Chicago. Griffith's Patent Archimedean Ventilators and Smoke Conductors. This invention consists of an Archimedean screw suspended within a cylinder, centered upon an imperishable substance, moving without noise, and surmounted by a rotary head which is so delicately hung that the least breath of air will cause it to revolve. The screw within the cylinder, revolving with almost inconceivable rapidity, acts as a pump, exhausting the air from the flue, thereby creating a tendency to vacuum which must be filled from below. This simple explanation will show to all, that, in a chimney or ventilation flue, topped by one of these ventilators; a draft is a necessary effect. Applied to the airing of rooms, ventilation is inevitable; applied to chimneys, the smoke must ascend.

101.—WILLIAM STARKE, 206 West Randolph street, Chicago. Flynn's Patent Self-Fastening Bed Springs. Each spring is *self-fastening*, and can be applied directly to the slats of the bedsteads without making holes or any other preparation, and being all complete in itself, needs not the attachment of any wood, iron, or leather work to fasten it to the bedstead, or to connect it to the other springs.

102.—STERNS & COATES, 170 Washington street, Chicago. The Health Lift. A most ingenious instrument, adapted to physical culture. It is simple, practical, healthful and thoroughly indorsed by the medical fraternity of the entire country. Its mechanism is wonderful, and a personal examination of its many merits for the purpose intended would amply compensate any one for the time expended in so doing, and as health is more valuable than gold or silver, this apparatus, which is conducive to the same, may be said to be invaluable.

103.—SARGENT, GREENLEAF & BROOKS, 25 Randolph street, Chicago. Patent Adjustable Elbow and Combination Locks. The patent elbow exhibited is really a novel invention. They are manufactured of all kinds of sheet metal, and possess advantages over every other elbow in the market. They readily fit a right angle, any angle between that and a straight line, an offset—either horizontal or perpendicular—a beveled elbow, and almost any turn or twist that can be conceived of. Thus their use prevents all the usual trouble in

adjusting stove or furnace pipes to odd corners or turns, and workmen of ordinary skill can do the work for which, heretofore, the highest price men have been required. The adjustable elbow, with this brief description, must commend itself as being one of the most useful articles introduced. The celebrated locks of this firm also occupied a prominent place in their display. These locks are manufactured at Rochester, N. Y. This firm, in addition to their office here, have salesrooms in Boston, New York, St. Louis and San Francisco. Their celebrated combination lock is now adopted by the United States government, and used by the heaviest banks and business houses in the country. Their beautiful mortise-key locks, with their small, flat keys, are becoming universal favorites, and can be seen on the finest blocks and buildings of rebuilt Chicago.

104.—GEORGE M. SCOTT, Twenty-second and Johnson streets, Chicago. Blacksmiths' Bellows. An important improvement of these bellows consists of increasing the capacity of the upper chamber, where the power of a bellows lies. The upper chamber is a reservoir for compressed air, as in the force pump, acting upon the fire in a strong and long continued heat. This great advantage is readily seen in the saving of time and coal in bringing iron to a needed heat.

105.—CHAMPLIN & ROGERS, 155 Fifth avenue, Chicago. Machinists', Gas and Steam Fitters' Tools, etc. A great variety of tools of all kinds were shown by this house, consisting of machine bits, of all sizes; checks, wrenches, vices, of every variety; Morse twist drills, Darling, Brown & Sharpe's United States standard rules and machinists' tools, steel and iron set-screws, of every variety and length; Stephen's patent parallel vice, with attachment; Union bit clasps, LeCount's patent iron and steel clamps, lathe dogs, Tanite emery wheels, emery grinders, diamond tools, etc. This firm are general agents for the west and south for goods manufactured by the New York Tap and Die Company, whose goods were also represented by a full line, and of which the exhibitors make a specialty.

106.—D. A. SPERRY & Co., Batavia, Ill. A display of Boilers, Sugar Kettles, Caldrons, Hollow Ware, etc.

107.—FRANK STURGES & Co., 72 to 76 Lake street, Chicago. Tinner's Goods, consisting of Tinned Iron Ware for kitchen furnishing; Stamped or Pressed Tin Ware for kitchen furnishing; Japanned Tin Ware for house and kitchen furnishing; Japanned Tin and Iron Ware for spice dealers, grocers, etc.; Tin Cans and Boxes for paints, oils, spices, etc. Trimmings of Tin, Iron and Copper, for tin-

ners' use. In addition to the above display, this firm presented the attraction of making tin ware by the aid of improved machinery.

108.—N. W. SPAULDING & BROTHERS, 20 South Canal street, Chicago. Saws. This firm exhibited two of their patent, inserted tooth, circular saws which are manufactured by them, and of their own patent. These saws are highly endorsed and are said to be equal if not superior to any circular saws in use.

109.—EDWARD SMEETH, 125 West Randolph street, Chicago. Brass Castings, etc. This house was represented by a full line of its most prominent productions, that consisted of heavy copper work for grain and alcohol distilleries, and for rolling mills, heavy brass castings and milk cans. The establishment of this exhibitor is one of the oldest of the kind in Chicago, and the display of its productions was highly creditable.

110.—TILLOTSON BROTHERS & Co., 272 State street, Chicago. Stoves and Ranges. This firm made a creditable display of various styles of cook and parlor stoves, prominent among which were Magee's celebrated portable range, Advance and Standard cook stoves, Standard parlor, Round Illuminator, Champion dining-room heater, Treadwell Stove Company's Franklin Illuminator, for hard coal, and many other popular brands of stoves; a fair showing was also made of housekeeping goods in great variety.

111.—TENNEY & POTTER, 275 and 277 Madison street, Chicago. Rubber Stamps, Stencils, etc. A commendable display was made by this firm, including printing wheels, seal presses, hotel checks, steel stamps, door plates, etc.; all of which were well executed, and with creditable skill.

112.—THE CORRUGATED IRON COMPANY, 79 Dearborn street, Chicago. Corrugated Iron Work. This display was of interest especially to Chicagoans, who are ever ready to examine carefully all that pertains to giving additional security from a second invasion of the "fiery fiend." A large corrugated iron house was exhibited by this Company, showing doors, shutters, roofing, siding and shingles, all manufactured from the celebrated corrugated iron. In the construction of buildings, great care is taken to provide heavy walls and safe roofs, but in the majority of cases the windows and doors are left unprotected, and it is through these openings that fire gains access. The old style of ordinary plain iron shutters, being made of heavy iron in order to give them stiffness, would consequently hold more heat than light iron, and when heated would warp the wall, and so

change their shape as to become practically useless for protection. In the manufacture of shutters of corrugated iron, lighter iron is used and obtain stiffness and strength by corrugating it, each corrugation acting like a brace through the sheet. And when made double, with an air chamber between, if the outside sheet does not become heated the circulation of air which takes place between the two sheets prevents the inside sheet from being affected. This iron is highly endorsed by builders and architects, and is undoubtedly an excellent article, and one deserving the careful consideration of all.

113.—C. C. JEROME, 175 South Clark street, Chicago. Thorp's Portable Burglar Alarm. This simple mechanical device, which weighs about a half pound, and can be carried in the pocket, valise or trunk, and can in a second be attached, making it impossible for a burglar to enter your room, and if the attempt even be made, it sends forth its warning that will awaken the soundest sleeper or frighten the boldest robber. The size of the smallest alarm is a little larger than a hen's egg, with bridge underneath and extending springs, which when laid on the floor or carpet, wedges the door, making it impossible to open the same and causes the alarm to sound at once. The door can either be locked or left ajar at the option of the occupant, and if the alarm is attached, no person can enter your room, while any attempt so to do will cause the alarm to sound.

114.—TIBBALS, SHIRK & WHITEHEAD, 141 and 143 Lake street, Chicago. Stoves. A good showing was made by this firm of goods from the celebrated manufactory of Perry & Co., Albany, N. Y., together with a fine assortment of stoves of the exhibitors' own manufacture, whose works are located at Erie, Pa. The display comprised many well and favorably known styles, such as Argand base burner, American base burner, new "Head Light," American cook, American heater, etc., all of which are thoroughly known to the public, and need no description of the many qualities they possess. The exhibition made by this house was commendable, and the arrangement of the goods shown evinced good taste and judgment.

115.—J. F. WOLLENSAK, 128 LaSalle street, Chicago. A variety of Locks, Bells, Letter Plates, Miscellaneous Hardware and Patented Articles. Prominent among the latter was the patent transom lifter and lock, patented and manufactured by the exhibitor. This is really a meritorious invention, and the only one ever invented for raising and lowering transoms and fanlights. It is simple in construction and very durable, and dispenses entirely with cords, pullies,

buttons and all other contrivances heretofore used to open and shut transoms. By the use of the patent lifter the transom can be raised or lowered at will, and securely fastened at any point. It is also a perfect lock when the transom is closed, no other fastening being required. Another invention of this exhibitor is a patent shade roller for heavy store shades. Very cheap and simple in construction. No friction on the pivot, and being self-locking, always holds the shade in any position, and prevents the shade from falling, as is often the case, and by which much damage is done. This gentlemen also exhibited a newspaper file that was very ingenious, simple and practical.

116.—WESTFIELD LOCK WORKS, Westfield, N. Y.; office, 137 $\frac{1}{2}$ Lake street, Chicago. Locks, Latches, Knobs, etc. A very neat and attractive display was made of the products of the above works. Wares of their manufacture were displayed in great variety of styles, and among which was especially noticeable a very beautiful lock and latch combined, manufactured of box metal and finely finished. This lock is a specialty of the works, and has been adopted by the United States Government, by whom it is extensively used where superior locks are required, the Mint at Philadelphia being furnished throughout with this lock. The Westfield Lock Works have reason to feel honored by this mark of recognition on the part of the Government in adopting their locks as those possessing superior qualities, and which have made the enviable reputation enjoyed upon merit alone.

117.—WAKEFIELD EARTH CLOSET COMPANY, 112 Fifth avenue, Chicago. Automatic Earth Closet. This article is admirably adapted for the sick chamber, and is one of the simplest and most useful inventions of modern times.

118.—NORTH CHICAGO ROLLING MILL COMPANY; office, cor. Randolph and LaSalle streets, Chicago. Iron Bars, Pig Metal, Steel Ingots, Steel and Iron Rails, Muck Bar, Bar Iron, Boiler Plate, Steel, Iron, and Silver Ores. The specimens of steel exhibited by this Company for quality are unequalled, and the reputation of their rails are unsurpassed. The display made by these exhibitors was large, and attracted unusual attention from admirers of the productions of the useful metals. The mill of this Company covers eighteen acres of ground, and has the annual capacity of over 100,000 tons of its several productions above enumerated.

119.—WYANDOTTE ROLLING MILL COMPANY, Wyandotte, Mich.;

office, Detroit, Mich. Rails, Bar Iron, Boiler Plate, Chains, and Fish Plates. The display made of the products from the above celebrated mills consisted of ores, charcoal iron made from Lake Superior ore, boiler plates and heads, chains, rails, etc. The superiority of Wyandotte iron over other iron is owing to the fact that it is all made from selected Lake Superior ore, and plate charcoal hammered by a new process of this Company, by which they are enabled to make plate free from blister. Wyandotte iron takes its leading position for the many qualities it possesses, and particularly for its tensity. Comparative tests of Lake Superior iron, as compared with the other best iron in the world, show that Lake Superior iron has more tensity than the best Swede, English, or other American iron. D. B. Martin, Engineer-in-Chief United States Navy, in his report to the Secretary, speaking of this iron, says: "A piece was drawn down to an inch in diameter (round), made into a chain link, tested in the cable proving machine, and broke at 169,120 lbs." The mills of this Company cover about fifteen acres of ground, and have a capacity of 50,000 tons per year. The specimens of products exhibited by this Company fully sustain the high reputation given Lake Superior iron by the most competent judges in the country.

120.—WILSON & EVENDEN, 46 and 48 West Lake street, Chicago. Patent Oil Cans and Tanks. This firm make these goods a speciality. The oil tank, which is made of heavy galvanized iron, with Wilson's patent revolving dome and Evenden's patent measuring force pump, is about the neatest, most complete and perfect in every respect, of anything in this line that was ever exhibited. The top is so arranged as to afford the utmost space for pump and the requisite utensils. It is next to impossible to get out of order, and presents the most tasty appearance. The pump, which will accurately measure the liquids passing through it, and at the same time is simple in its construction and rapid in operation, is worthy a Chicago manufacturer. It is used for filling as well as emptying the tank, and throws fifty gallons in six minutes. The Evenden patent jacket transportation can is well known to the trade of the west, and truly merits its popularity.

121.—WARREN BROTHERS, 447 State street, Chicago. Patent Metal Center Pieces for Ceilings. The metal center pieces are an entirely new invention, patented by the exhibitors, who were also the inventors. This is the first instance on record where metal was ever used for the purpose as above stated. These center pieces are made of different styles and patterns, and are certainly a great improvement

over plaster or stucco, to which they are vastly superior in every way, and far more durable. They are light, and are no weight on the ceiling, and can be removed in case of painting, gas fitting, or calcimining, and easily readjusted at pleasure. In appearance, these center pieces are made to resemble stucco or any other style desired. The invention is a highly commendable one, and will doubtless come into general favor, as it deservedly should.

122.—J. J. WADE, 95 South Desplaines street, Chicago. Gas Fixtures, Plumbers' Ware, etc. A very attractive showing was made by the exhibitor of goods in the above line, and most excellently arranged, the entire display being neatly enclosed by a railing made of gas pipe. Marble top and enameled cast iron washstands, bath tubs, chandeliers, etc., were exhibited in a variety of styles. A noticeable feature in the plumbing department was a cook stove, with hot water pipes and boiler attached, also patent water closet attachments, etc. The whole formed one of the most imposing displays in this line of goods in the Exposition.

123.—SARD & FOOTE, 182 State street, Chicago. This firm made a very creditable display of Patent Stove Furniture for culinary purposes, although they are dealers in stoves and housekeeping goods generally. Upon this occasion they exhibited what is known as Anderson's patent culinary utensils. The improvement claimed over other kinds consists in attaching the boiler with a shell whose lower edge rests upon the stove, while the bottom of the pot is so upheld that the vapor arising from the food while being cooked is allowed to escape through the pot hole into the stove, and from thence into the chimney. The lid, which is concave in form, and perforated, rests upon the shell, causing the steam arising from the pot to condense on the under side, and drop back into the pot. It is claimed that by this method meats, fish or vegetables can be broiled, fried or boiled without in the least affecting the olfactory nerves of the most sensitive person during the process. Mr. Sard is the sole agent for the United States for the sale of this furniture.

124.—J. L. WAYNE & SON, 74 and 76 Randolph street, Chicago. W. D. Gibson, Manager. Hardware, Cutlery, etc. A highly attractive and imposing display of the wares of this house was made by the enterprising manager, which reflected great credit upon him for its artistic arrangement, and also upon the firm, the extreme good quality of the wares shown, which fact has always been a noticeable feature characterizing the business of the firm. Among

the goods shown was a case of elegant pocket and table cutlery, Hemish's celebrated shears, Corbin, Russell & Erwin's, and Mallory, Wheeler & Co.'s locks, undertaker's goods, builders' hardware, in extensive variety, wood mouldings, carvings, etc., an especially attractive feature of the display being a large show card of nails, of all sizes, fastened to the frame, representing the mechanic's hand-hammer and anvil. An extensive line of all goods were also shown incidental to the hardware trade. The Chicago house of these exhibitors is one of a chain of three, the others being located in New York and Cincinnati respectively.

125.—W. W. WILCOX, 148 West Van Buren street, Chicago. Exhibited a fine display of railroad, hotel and baggage checks, of his own manufacture, which were well executed.

126.—STEPHEN WILKS, 143 State street, Chicago. Patent Car and Hotel Ranges. The display of this exhibitor consisted of hotel and car ranges, carving tables, vegetable steamers, broilers and copper and tin cooking utensils, of every description, manufactured by him. The car range is the same as those used exclusively by the Pullman Palace Car Co. in their famous hotel cars, and by several prominent railroads in their paymasters' and directors' cars. This range is a model of completeness, the small sizes of which are adapted for families, while the larger ones are intended for hotels and restaurants. The excellence of these famous ranges can be testified to by many prominent hotel keepers and *restaurateurs* throughout the northwest, by whom they are used. A fine specimen of a carving table was also shown, which possessed many excellent points, and compared favorably with the ranges, which were both first-class articles, as are all the goods thus far produced by the exhibitor.

127.—A. L. WINNE & Co., 57 and 59 Wells street, Chicago. Steam Heating Apparatus, etc. Among the articles shown by this firm and deserving of special mention, may be named the "Union Steam and Water Heating Apparatus," for warming and ventilating private residences and public buildings. In application, the entire apparatus is located in the basement or cellar, where is erected a steam generator or boiler, made of cast iron, in separate sections, each a complete boiler in itself, so that, by using a greater or less number of these sections, the capacity of the boiler will be increased or diminished to adapt it to the size of the building to be warmed. This, with its necessary appurtenances, is so constructed in substantial brickwork

that there is secured not only the power of heating up quickly and thoroughly, but, what is very desirable in warm weather, the ability of maintaining a moderate heat by means of its external radiating surface, without assistance from the radiators, which insures great economy in the consumption of fuel. The simple construction of the boiler, and the fact that the fire is entirely surrounded by water (except at the grate), makes it entirely safe from accident by fire. The pressure of steam under which the apparatus operates is limited to three pounds per square inch, at which limit, by an automatic regulator, the draught door is closed, rendering the further accumulation of steam impossible. As an additional security, a safety-valve is attached to the boiler, by which, at all times, all the steam that arises above the given pressure of three pounds can escape. From the steam generator or boiler the steam is conveyed through wrought iron pipes to the patent steam radiator, which is also made of cast iron, and so constructed as to increase the external surface to fully three times the extent of the inner, so that the heat is liberated at a much lower temperature than the steam inside, imparting to the air a soft and genial warmth, without detracting from its natural moisture or otherwise injuring it. The pure fresh air from the outside is warmed by contact with these radiators, placed in chambers especially prepared therefor in the basement or cellar, and located directly under the rooms to be warmed, and is thence conveyed by means of flues and registers to the different apartments, each receiving its own separate and independent column of steam-warmed air. When a sufficient pressure of steam has been obtained it immediately operates on an automatic draft-regulator, shutting the draft-door, and consequently checking the fire and the increase of steam. When, by condensation, this pressure is released; the draft-door again opens, and the fire and steam increases until the pressure is again obtained. A self-acting valve is attached to each table or stack of radiators, which allows free egress to the air and permits the steam to enter, and so make its heat available, as air and steam cannot at the same time occupy the same space.

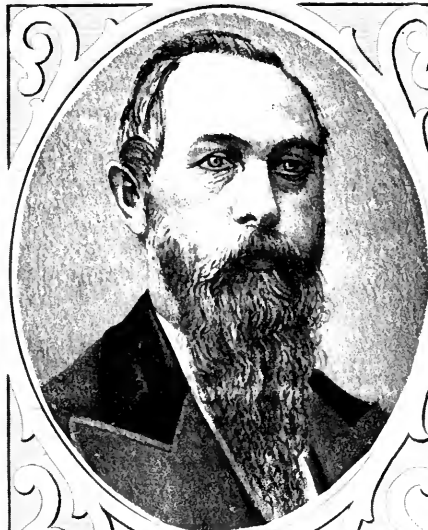
Besides the entire apparatus described, there were exhibited single radiators and those in stacks. There were also different styles of box or pipe coil radiators, and radiator screens of various patterns, the whole making a costly and attractive display, worthy the occasion and enterprise of this well-known firm.

128.—L. WOLFF, 109 and 111 West Lake street, Chicago. Copper

and Brass Work, Plumbers' Material, etc. A fine exhibition was made by this exhibitor of copper boilers, bath tubs and plumbers' materials in great variety. A full line of the goods manufactured by this house were shown, consisting of brass work for water, steam and gas; copper ware for hotels and confectioners' use. Plumbers' supplies are made a specialty, and the display made of this class of goods was particularly noteworthy.

. 129.—H. C. VAN SCHAACK, 50 State street, Chicago. Stoves, Ranges, etc. Among the many attractive features in the stove line, comprising the display of this well-known exhibitor, was the "Hub" range, manufactured by the Boston & Maine Foundry Co. of Boston, Mass.; a range justly celebrated, and so well known that an enumeration of its many qualities are not required here. It is beautifully finished, occupying less room than an ordinary cook stove, with greater capacity and consumes less fuel. The "Buck" range also claims a share of attention; which is manufactured by the Simmonds Manufacturing Co., of New York. This range is designed to be set up in brick work. It has two large ovens and hot water closet above, and is unequalled for its cooking capacity. The modern improvement of the water back is commendable, giving at all times an abundant supply of water. The fire box is economical in construction and saving in quantity of fuel consumed. The "Radiant Home" parlor stove, manufactured by Johnson, Black & Co., of Erie, Pa., is a model stove. This exhibitor also showed four sizes of the celebrated "Fisher" refrigerators, which are manufactured by him, as are all of these renowned articles. The four sizes shown have been adopted as the standard, and are extensively used and pronounced the *ne plus ultra* of all refrigerators. A large and attractive display was also made of carved walnut goods manufactured by the exhibitor, whose exhibition may be classed as among the most attractive features of the Exposition.

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EXECUTIVE COMMITTEE.

INTER-STATE INDUSTRIAL EXPOSITION

DEPARTMENT "D."

Raw Material (not Metallic) and Chemical and Natural Products Used in the Common Arts.

SECTION 1.

Fibres in Different Stages of Preparation — Wool, Cotton, Silk, Hemp, Indian Mallow, Ramie, etc.

1.— J. I. & J. W. CLAPP, Kenosha, Wis. Exhibited two fleeces of Wool in cases. Noticeable for its extra fine quality.

2.— G. F. FOSTER, SON & MCFARRON, 4 Market street, Chicago. Exhibited American and Russian Manilla Sisal, New Zealand and Jute Hemp Fibre in different stages of preparation, which were attractive as well as instructive.

3.— JAMES H. MCCONNELL, Springfield, Ill. Indian Mallow Fibre of Indian Mallow in different stages of preparation.

4.— NONOTUCK SILK COMPANY, New York, Boston and Chicago; Chicago office, 147 State street. Spool Silk and Twist, etc. The productions of this Company stand unequalled in this country, and are pronounced the best in use, and the specimens shown seem to substantiate the sweeping endorsements previously given them. They were established in 1838, and are the oldest Company in the silk line at the present time.

SECTION 2.

Specimens of Wood for Useful and Ornamental Work, etc.

1.— T. S. CONSTANTINE, 75 Randolph street, Chicago. Veneers and Fancy Woods. This display was rendered highly attractive by the woods exhibited, being shown not only in their finished state, but by the immense rough logs, showing the great labor necessary to produce as fine veneers and woods as those made by this house. The noticeable feature of this display consisted of an elaborately finished frame inlaid with fancy woods in the form of a star. It was a fine piece of workmanship, and one commendable to the exhibitors, and illustrated

fully that the reputation already enjoyed by the house was justly deserved.

2.— J. WILLARD SMITH & CO., 28 South Canal street, Chicago. The display of this firm (who are dealers in veneers, mahogany and fancy woods) was an artistic representation of their business, and consisted of a handsome frame, seven feet square, containing forty specimens of highly polished woods, gathered from every quarter of the globe, and framed in the form of a star. This elegant piece of workmanship attracted much attention, and reflected great credit upon the enterprising exhibitors. The line of business represented by this firm grows more important every year, as home manufactories continue to spring up. Only a few years ago and all the furniture for this section was shipped from the east ready for use. To-day some of the largest furniture and billiard manufactories in the country are located in and about Chicago. They have hitherto depended, singularly enough, upon the east for their supply of rich wood and veneers, until recently convinced that a large proportion of the stock they consume grows and is cut at their very doors in the west, and is only taken east to bring high prices in a strongly competitive market. The display made by these exhibitors fully assures buyers in this line that Chicago is the market to buy in.

3.— ADOLPH STRUM, 36 South Clinton street, Chicago. This exhibitor, who is a dealer in fancy woods and veneers, adopted a novel and attractive mode to display his goods. A large frame, about five feet square, entirely made of fancy woods, inlaid, represented perfectly a map of the United States, the outlines of each State being perfect, and of different coloring. This was a masterpiece of workmanship, and the exhibitor deserves credit, not only for the execution of the same, but the conception of so original an idea.

SECTION 3.

Furs, Peltries, Feathers, Hair, etc.

1.— CHARLES EMMERICH, 287 and 289 Madison street, Chicago. Feathers and Pillows. A fine display was made by this exhibitor, of feathers of different grades, pillows, and ticking. Although the names of the goods shown fully explain themselves, yet a word may not be here out of place in commendation of the quality of the articles exhibited in this display, they being as fine specimens as it could be

possible to produce, while the exhibitor is to be accorded much praise in the good judgment evinced in the selection of his productions.

2.—C. C. WALLEN & SONS, 221 Lake street, Chicago. Exhibited several sides of Sole and Harness Leather, of the justly celebrated Union Cross brand, which is manufactured by this firm. This leather is considered superior to any in use for the purposes it is intended, and has a large sale among harness, and boot and shoe manufacturers of Chicago and other cities. The reputation of this leather is owing to the superior qualities imparted to it in its manufacture. This firm also exhibited a case of tools for tanners' use.

SECTION 4.

Artificial Fertilizers, Paints, Oils, Varnishes, Artists' Colors and Materials, Photographers' Materials, etc.

1.—P. M. ALMINI & CO., 344 State street, Chicago, made a fine and attractive display of artists' materials, paints, oils, brushes, foreign and domestic designs in fresco, etc., the whole presenting an exhibition of much attraction to all, being arranged in a highly commendable manner, but the space occupied was not well adapted to show off the goods as well as might otherwise have been done.

2.—BAEDER, ADAMSON & CO., 182 State street, Chicago. Glue, Curled Hair, Flint Sand and Emery Paper, and Emery Cloth. The goods constituting this display are manufactured by the exhibitors as a specialty, being the *only* goods in which they deal, and as ordinary a line of trade as this branch may seem, yet to supply the demand for their production this firm have immense establishments in New York, Boston, Philadelphia, Cincinnati, and the well known branch located in Chicago. Their productions rival any make, and while few outside of those experienced could tell if the goods exhibited were coarse or fine, for the information of such it may be said that they were of excellent quality.

3.—CHASE, HANFORD & CO., 1, 3 and 5 Wabash avenue, Chicago. The display of this firm consisted of some fine samples of paints and oils,—also Wilson's patent oil tank, and Barker's patent boxed faucet can, manufactured solely by Chase, Hanford & Co. The exhibition made by this firm, while by no means large or attractive, should not deteriorate from their established reputation of being one

of the largest and most extensive houses in their line not only of Chicago but of the northwest.

4.—CHICAGO WHITE LEAD AND OIL COMPANY, corner Green and Fulton streets, Chicago. The display of this Company consisted of their justly celebrated white lead; also, several excellent specimens of linseed oils, together with zinc white, dry colors and colors in oil, varnishes, etc. This Company, under the above corporate name, is comparatively a new concern; but is composed of men long and favorably known to the paint and oil trade of the northwest, and the reputation of their goods is such that the brand of this Company is a guarantee not only for their ready sale but their excellent quality. A 250 horse power engine is required to run the paint and color mills of this immense concern, which is probably doing the largest business in this line of any house in the west. The manufacture of white lead originated in Holland by the Dutch. The process of making is very interesting, and consists of the lead first being extracted from the ore or crude state and run into bars, which is called "pig lead," from which it is run into what is termed "buckles," and placed in earthen jars and covered with acetic acid or vinegar. These jars are then covered with manure or tan bark and left to stand until the ammonia of the covering causes corrosion, which takes place in from two to four months. The lead is then taken out and washed, and ground in stone mills, with water, and then allowed to settle in vats. The lead (which is now a flaky white substance, resembling magnesia), is then carefully skimmed off the surface of the water and is ready for the oil. The manufacture of white lead in England takes a much longer time, from six months to a year being consumed in the process; but the progressive nature of the American people has lessened the time to *four months*. The display of this firm was made without attempt to be "fancy," but simply to show their goods exactly as they are daily turned out from their factory. Notwithstanding this fact the display made was in every way praiseworthy, and reflected much credit not only to the Company but also to Mr. W. C. Wright, under whose management and care the exhibition was made.

5.—CLINDINING & Co., 35 Clark street, Chicago. Samples of Homœopathic Cerate.

6.—FRENCH & Co., 23 South Water street, Chicago. Exhibited refined kettle-rendered leaf lard, in pails, buckets, kegs and tierces; also, lard, tallow and neatsfoot oils, of very fine quality. A very

attractive feature of this display was a plate glass show-case, containing several 10 pound pails, with the lids off, showing their contents to be lard, of as fine quality as one would wish to admire, and admired it was by all those who were a judge of the necessities of life.

7.—FAIRBANK, PECK & CO. Office, 45 LaSalle street, Chicago. Lard, in tierces, half barrels, buckets, caddies and tin pails, expressly put up and packed for family use. Lard oil, of various qualities, and extra Nos. 1 and 2 winter strained pure neatsfoot oil, all of their own manufacture. The display of this firm was particularly attractive and arranged with care. Suspended above their goods was the very appropriate trade-mark of the "boar's head," especially adapted to this business.

8.—GALWAY & SARGENT, cor. Throop and Sixteenth streets, Chicago. Soaps. A very attractive display of all kinds of soap.

9.—HEATH & MILLIGAN, 170 and 172 Randolph street, Chicago. Paints, etc. A liberal and artistic display of colors, dry and in oil; white lead, and numerous other materials used in painting and ornamenting buildings, was made by this firm. These exhibitors are extensive manufacturers of the finest brands of white lead, zinc and colors, and importers and wholesale dealers in English varnishes, bronzes, carmines and all fine colors, besides a vast assortment of brushes and painters' implements and materials generally. No house in the west is more widely or favorably known to the trade. Their display comprised several hundred most elegant specimens of their goods, taken from regular stock, but arranged with exquisite attention to effect, and constituted in itself a feature deserving the attention of those who admire taste in the arrangement of goods which in themselves are but plain articles of commerce. This firm is one of the "old reliable" houses of Chicago. Their goods are as standard as flour. They sell about two millions of dollars per year of their manufactured articles, and their energies and the increased capacity of their immense establishment are unequal to the demand made for their goods. "H. & M." white lead holds an exceptionally high position in the market as an absolutely pure white lead. The house in fact pride themselves upon the standard excellence of their goods.

10.—HOLDEN, TASCOTT & Co., 242 Madison street, Chicago. Paints. This firm exhibited specimens of the Chicago enamel paint, which is composed of the very best materials known to the paint

trade, strictly pure white lead, without acids, metal zinc and pure western pressed linseed oil, with other materials, adding to the durability, beauty, and strength of the paint — mixed ready for the brush — of pure white, or any shade or color.

11.— DANIEL B. SHIPMAN, Fifteenth street, Chicago. This exhibitor made an imposing as well as instructive display of White Lead. Perhaps very few persons are aware how white lead is manufactured, but from a glance at this stand one at once comprehended it. Commencing at one corner was the crude lead ore, next, the lead extracted therefrom, in bars, while adjoining were small thin moulds of lead in the crucible, ready for the burning process, after which is seen the lead, white and flaky like chalk, and from which, perhaps, it derives its name. Next it was seen in large, refined, white lumps, and lastly the article ready for use, packed in cans, kegs, and barrels. To any one unacquainted with the process of manufacture of this article, no more interesting study could be had in the Exposition building.

12.— E. SCHNEIDER & Co., McGregor and Wallace streets, Chicago. Star, Coach, Sperm, and Tallow Candles. From the material of which this display was composed, it would seem impossible to be very attractive, but nevertheless it was truly beautiful. Upon a platform, some four feet high and covered by blue cloth, was raised a monument of ten feet in height by four in diameter, surmounted by a large spread eagle. At a glance, one would pronounce the whole a fine piece of marble sculpture, but upon close inspection the material was found to be that of which candles are composed — a mixture of glycerine and sperm. Surrounding this beautiful piece of workmanship were candles, arranged in pyramids, and composing the various kinds manufactured by this firm. A very fine article of chemically pure glycerine concluded the imposing display.

13.— E. SHOENEMAN & Co., 425 and 427 Chestnut street, Milwaukee, Wis. A display of Morning Glory Stove Polish in packages. The merits of this polish are many, and it is said to be unrivaled. It has carried off the *first premium* at all Fairs where it has been previously exhibited where prizes were offered to competitors.

14.— C. T. REYNOLDS & Co., 21 Lake street, Chicago. A large display of Paints, Oils, Colors, Varnishes, and Artists' Materials; also, every description of Brushes, and Architects' and Wax Flower Materials, Painters' and Decorators' Supplies in great variety, all of which were taken from the regular stock in store, and not made

especially for exhibition. This firm is probably one of the oldest in this line of business in the United States, having been established in 1770. They have two stores, one of which is located at 106 and 108 Fulton street, New York City, and the other at the above address in Chicago, the latter store being under the management of Mr. C. H. Cutler, the resident partner.

15.—THE JOSEPH DIXON CRUCIBLE COMPANY, Jersey City, N. J., exhibited Dixon's World-renowned Carburet of Iron Stove Polish, Lead Pencils, Black Lead, Crucibles, and Plumbago; also specimens of American and Ceylon Crude Graphite. This house is the oldest in the plumbago trade in the United States, being established in 1827.

16.—HUGH RITCHIE, 211 to 221 Goethe street, Chicago, exhibited Fancy and Staple Soaps.

DEPARTMENT "E."

Instruments and Machinery of the Useful Arts.

SECTION I.

For Mining and Metallurgy, Boring, Drilling, Quarrying, Crushing, etc.

1.—JACOB J. STORER, 8 Summer street, Boston, Mass. Mining Machinery, Breakers and Pulverizers. The breaker or crusher is an iron cylinder or tub, the sides of which are of thick wrought iron plates, in several sections, perforated with holes of from three-quarters to one inch in diameter. The cover of the cylinder consists of two plates of cast iron, in one of which is the opening to which the hopper with swinging door is attached, and through which the material to be crushed is introduced. The bottom of the cylinder is a strong cast iron plate or table, on which are bolted several blocks of heavy hammers of iron faced with steel. When in position, the cylinder, with its top, is firmly fastened to strong timbers, while the table carrying the hammers is attached to the upright shaft, and is intended to revolve. The whole machine is surrounded by a chamber or hopper for the collection of the crushed material. The table revolving freely upon a pivot resting in a cup of oil, moves with the least possible friction. The material to be broken being fed into the cylinder

through the feed hopper, falls until it reaches the upper edge of the revolving blocks or hammers, against which it is broken by concussion, and is thrown through the perforations in the sides of the cylinder into the surrounding hopper or chamber. The pulverizer is constructed solely for the pulverization, or reduction to dust, of sand and gravel, and cannot be used as a crusher or breaker. It consists of three parts or elements. The first is an automatic feed, which furnishes a regular and constant supply of the material to be pulverized. The second is a series of paddle wheels revolving in an iron drum or cylinder, and generating vortices of air, which reduce gravel or sand into dust by causing a mutual attrition of particles. The third is the fan-blower, which is the continuation of the pulverizing cylinder, and separated from the pulverizing chamber by a diaphragm with a central opening, through which the dust is drawn from it by exhaustion as fast as produced.

SECTION 2.

Machinery and Implements used in Agriculture, Horticulture, Floriculture and Dairying,

1.—W. H. BANKS & Co., 34 and 36 Canal street, Chicago. Farm Machinery, Implements, etc. This display comprised a large assortment of agricultural implements and machinery, prominent among which are the Dodge Excelsior hay press, which attracted a great deal of attention from its novelty and for the excellence of its work. The press operates on an entirely new principle, and is constructed of a frame of cast iron, with a wrought iron column or support at each angle; to the upper end of the column is attached a circular cast iron platform or frame, having teeth on the inner circle, into which the teeth on the outer end of the conical press rollers gear; above this platform or frame is a circular wrought iron frame with two arms connecting it with an iron hub in the center; there are four press rollers which are supported at the small end by the hub, and at the outer or large end by boxes attached to the circular wrought iron frame; a wrought iron pin or shaft runs down through the hub and through the sliding circular table upon which the bale is formed; on the upper end of the pin or shaft is a collar to support it on the hub; underneath the table, and connected to it, is a friction box which is operated by a hand wheel grasping the pin or

shaft. The sliding table is a wrought iron frame covered with oak or hard wood plank or boards. Two wooden feed tables are attached to the circular wrought iron frame, and also two wooden sweeps to which horses are attached to work the press. If desired, the press may be worked by steam or water by the substitution of gears for sweeps. It is portable, and can be moved and placed in position in less time than two men can load a ton of hay and move it the same distance. The bales, being round, are easily handled; can be made of any weight not exceeding five hundred pounds; of any length to suit cars in which they are shipped, and the hay is not injured in the least by the operation of pressing, which is as follows: The material to be pressed is placed upon the feed tables, which revolve with the action of the press when at work, and is fed down between the revolving rollers upon the circular table on which the bale is formed. As the substance is fed to the rollers it is constantly forced between them and the table, each succeeding layer receiving any desired degree of pressure. As the amount of material constantly increases, something must yield, and here the table, restrained by the friction box, slowly yields to the increased thickness and descends, presenting in its descent a circular hard-pressed bale that can be held in its place by strong annealed wire. It will be seen that the bale is made solid from the start, and if no more than one foot in length, will weigh just as much in proportion as a full length bale.

The lock lever hand rake is complete in construction, simple, durable, and makes the labor of raking so slight that a boy can do it. The teeth with spring coils are made from refined cast steel, tempered in oil, and put to the severest tests at factory. The rake is tilted by the driver's weight, only the slightest effort of the hand being required to raise and lower the lever discharging the hay. The Burdick hay, straw and stalk cutter is a strong machine, made of the best material and in the most thorough manner. One revolution of the crank gives five revolutions of the knife, and it is so constructed as to cut long or short at pleasure, no change of position or gear being necessary. The Eagle hand corn sheller and separator is unequaled in merit as to construction or operation. It is made with a frame joined with iron bolts, cast iron wheels are keyed on to the *wrought iron* shafts, the springs are tempered in oil, has heavy balance wheel, runs very light, and shells all kinds of corn perfectly clean. The A. P. Dickey & Co. fanning mills are well known, and

stand unrivaled. They do their work rapidly and well, and never fail to meet all reasonable demands. A special feature of this fan is the MacPhail hurdle and spout, which effects a further separation of matter rejected from grain being cleaned, by throwing off all foul substances, such as straw, etc., and spouting out at the side and end of the hurdle any oats or other grain remaining. The American cider mill is everywhere well known and regarded in every respect as one of the best of its kind. The grinding parts are a top roller furnished with sharp projecting ribs, which break and cut the apples just sufficiently to allow the pieces to be drawn in between the two bottom rollers. These are cast with alternate grooves and ribs run at the same speed and interlocking each other, by which means the fruit is mashed thoroughly, breaking all the culls and rendering the subsequent labor of pressing much lighter. The lower rollers are adjustable, so that they can be set to mash grapes without crushing the seed.

The improved Buckeye force feed broadcast seeder is strictly a force feed, and gives a steady, even, constant stream; does not bunch or break the grain; will sow wheat, rye, oats, barley and flax; is easily regulated to sow the desired quantity, and will sow that quantity correctly. The arrangement of the drag bars is very complete. Chains are attached to the upper side of each of the drag bars, which leaves no obstruction below them, and by pulling down on the lever, which is easily operated, the chains are wound around the lifting bar and the hoes are easily raised high to pass over obstructions, or for turning, and at the same time throws the feeders out of gear. It has high drag bars and long hoes, which are easily adjusted to any required depth, with no obstruction under the drag bars, thus allowing it to work in trashy ground. The Buckeye is a model for lightness, durability, good workmanship, neatness, and efficiency.

This firm also exhibited a grain register, for measuring and counting grain as it comes from the threshing machine.

The Excelsior money drawer, with combination lock, capable of fifty-two different changes, giving positive safety for money and private papers during business hours. Ice plows, and all the tools used in cutting and storing ice, while the fine display of hay forks, scythes, corn cutters, etc., together with the tasty ornamentation of the space allotted this firm, rendered their quarters an attractive place to all intimately or remotely interested in agricultural pursuits.

2.— C. AULTMAN & Co., Canton, O. D. B. Whitacre, Agent, cor. Beach and Sebor streets, Chicago. Reaper and Mowers. This firm, who are the manufacturers of the celebrated "Buckeye" mowers and table rakes, which are said to be the best self-rakers known, exhibited one of their machines, to which was applied Willson's improved table rake, which is unlike any other rake in the market. It both compresses and delivers the gavel, so as to have the heads away from the standing grain; rakes it at will, according as the grain stands thick or thin, and is so simple in its construction that it cannot add materially to the draft over the ordinary dropper. The rake is independent of the reel, so that a square reel can be used, thereby reeling the grain square on the platform, and not inclining it toward the outside divider board. The Buckeye with this rake can cut standing and lodged grain equally well. Another important point in this rake is, that it distributes the weight over the machine so as to perfectly balance it. Examination alone is needed to show that this is the most simple and complete self-rake before the public.

3.— T. D. BREWSTER & Co., Peru, Ill. Plows and Walking Cultivators. Among the display of this firm, and noticeable for points of excellence, were several of their "Eureka" style of plow with both wood and wrought iron beams, also their "Peerless" double shovel plow, the distinguishing feature of which is the wrought iron standard, with an "offset" which entirely prevents all clogging with weeds or grass, and the accumulation of soil usual to the wood standard. This firm are also the manufacturers of the well and favorably known "Clipper" plow, for common sandy and clayey soils. They also make the celebrated Prairie Breaker, which they also exhibited. The principal attraction of their display was the renowned Peru City walking cultivator, which is a specialty of this firm, and is so constructed as to combine lightness with strength. This cultivator also possesses many good features, and shows thorough workmanship and good finish in its manufacture.

4.— BRAYLEY & PATTERSON corner Beach and Sebor streets, Chicago. The "Buffalo Pitts Thresher" Threshing Machine. To those who are acquainted with the many valuable qualities of this old and standard machine no explanation is necessary; but it is due to threshers and farmers who are not acquainted with its merits that its good points should be here recounted. This machine is manufactured by the Pitts Agricultural Works, at Buffalo, N. Y., who for over *thirty years* have annually sent forth the "Pitts" to their

thousands of customers, far and near, which have always given the most complete satisfaction in every case. The genuine Buffalo Pitts thresher has no equals, either for good material, handsome finish or perfect work in the field, and has earned for itself the name of being the best thresher in the world. Some of its good points are the fan mill. In this thresher, instead of requiring more attention than any other part (as in most machines), this requires little or none; no necessity for poking the chaff off the sieves—*there is none to poke off*. While the grain is perfectly cleaned, none is blown over. Another special feature is the end shake shoe. By the substitution of an easy, noiseless *end* shake of the sieves, in place of the heavy *swing* and thump of the whole shoe against *the sides*, there is a great saving in power and wear, and there is no lateral motion of the machine. This improvement was thoroughly tested throughout all sections of the country last season, and all who have seen it work declare it to be the most brilliant and successful improvement of the last twenty years. The improvements made in the mounted power are of the greatest importance, reducing the friction immensely, and making them the easiest running of all mounted powers. Their arrangement for raising and lowering the stacker is so convenient and yet so simple that one wonders how any other way could have been thought of. Just so with the concave raiser. It is just a "twist of the wrist," and you raise or lower the concave evenly throughout its whole length. The three hitch gear, wind shields on shoe, wind shield on stacker, etc., are points of excellence. In the Buffalo Pitts every good point is found that is found in any other machine, and *many others* that are found no where else. In material the Buffalo Pitts is the *superior* of every other machine made. Nothing is used in building it which is not first-class. In finish it is unsurpassed, either for the taste or the durability of the painting and ornamenting. Brayley & Patterson, who are the general agents for the "Pitts," also exhibited the American meat and vegetable chopper. This is a great labor-saving invention for all requiring such an article. Over 30,000 of these machines have been sold in the last three years, and the universal satisfaction given by the large number now in use proves, conclusively, their practical utility and general excellence. Being extremely simple in construction, they are less liable to get out of repair; while they perform their work with astonishing rapidity, it requires less power to operate them. They do not grind and tear the meat, leaving it in

strings, but cut it evenly and as fine as may be desired. Awarded the highest premium at the Great American Institute Fair of 1869, 1870 and 1871.

5.—BLYMYER MANUFACTURING CO., 664 to 694 West Eighth street, Cincinnati, Ohio. Thresher and Separator. This machine is the result of a long series of experiments, and was patented in April last, and although not widely known, it is strictly a first class machine and superior to any small thresher heretofore known. Its construction is exceedingly simple, and is a strong, compact, and yet light machine, weighing, with power, complete, less than 2,000 lbs. It runs with but little jar and wear, hence is more durable than the large machines. The chief difficulty heretofore with small threshers has been the imperfect separating of the grain, owing to the small compass of the machines. In this machine, the difficulty seems to have been entirely overcome by a new and simple device, original with this Company, by which it separates the grain thoroughly, cleans it ready for the market, leaves the straw in good condition, and in every particular appears to be able of doing its work as well as the best large threshers. It is predicted that this machine will mark a new era in the history of threshing machines.

6.—J. J. BROWN, Davenport, Iowa. Automatic Grain Meter. One of the most ingenious and valuable inventions on exhibition at the Exposition was the automatic grain meter, for weighing all kinds of grain, the grain being accurately weighed while passing in a continuous stream through the machine, and the weight is registered on a dial attached. By this wonderful, yet simple contrivance, much time, labor and expense is saved.

7.—CHAMPION SMUT MILL CO., Chicago. Smut Mill. This machine combines the advantages of separating, rubbing, and scouring in one process. The entire machine is driven with but one pulley, and it can be run with less power than any smutter yet produced. After thorough testing by some of the most expert millers and millwrights, it has proved to be the best machine in use for cleaning grain,—separating from the pure wheat all impure or foreign substances, such as dust, chaff, ches, sticks, smut-balls, etc., etc., before it enters the rubber, thereby obviating the difficulty of having the smut-balls broken with the wheat during the scouring. In other machines it is more or less apt to be ground on, causing the smut to adhere or stick to the pure grain. By the proper application of mechanical principles, found in no other machine, the wheat is *re-*

tained longer in the scouring case, subject to the action of the beaters, by which the fuzz and impurities adhering to the grain are more thoroughly removed than by any other machine, leaving the wheat bright and clean.

8.—GEO. H. W. CUSHMAN & Co., Ottawa Machine Shop and Foundry, Ottawa, Ill. A working model of the "Ottawa" Excavator was here shown. It is intended for making railroads, township roads, cutting open ditches, etc. The excavator is so constructed that it will only take the services of two men and four horses to excavate from 500 to 1,000 cubic yards of earth in ten hours. The model was well made, and answered very well as an illustration of what could be done with the "Ottawa" when on actual duty.

9.—E. H. CLINTON, Iowa City, Iowa. The Clinton Harvester. This invention was used in the harvest of 1873 with success. In actual operation it is at least 200 lbs. lighter than any other self-rake reaper in use. The draft is light for two horses. The point from which the rake, sickle, reel, and all the movements of the machine are moved and produced, and the fulcrum for all these movements, is at the center of the machine, and by a successful combination of these movements the draft from all parts of the machine tends to the center, strengthens and solidifies the machine and does away with the vibration common in reapers. The machine has more than one-third less gearing than any machine in successful use. The sickle is driven by a cam wheel and lever, avoiding the crank so liable to break the sickle and get out of repair. The rake is of steel, about 3 lbs. weight, driven by an endless chain under the platform, yet without platform gearing or any liability to disarrangement, moving with the regularity of a clock at a right angle with the draft of the machine. The rake carries the grain across the platform of sheet iron in bundles, one in fifteen feet, over the drive wheel, and drops it on a platform where two men bind it easily. The instant the sheaf is dropped the rake falls backward into a concealed position, and passes under the platform to the opposite side, where it rises into position, catching every straw on the platform, and repeats its former movement. There is neither dragging of grain or vibration of the rake; the movement is positive and certain. The driver retards the movements of the rake by applying his left foot to a lever. There is no shelling of grain in operating the machine. The platform on which the grain is bound, and the one on which the binders stand, fold up in passing gateways and narrow

lanes. The machine has no equal in its work ; the grain is delivered in convenient bundles, exactly suited for the attachment of an automatic binder. The reel attaches so as to do away with the weight and obstructions commonly seen on the outer end of reaper platforms.

10.—DAYTON MACHINE COMPANY, Dayton, Ohio. Grain Drill. This Company exhibited Hoover's improved grain drill and seed planter. This drill will sow wheat, rye, oats, barley, buckwheat, timothy, corn, and millet seed ; can be regulated to any quantity per acre, from the smallest to the greatest required ; it is very simple in its construction. It makes no difference whether the drill is driven at a slow walk or a brisk trot, it sows evenly and regularly under all circumstances. It sows the hopper entirely empty, and with the same regularity when the last grain is going out as when the hopper is full. The discharge openings are so placed that the driver can see the drill feeding from all the openings. The style of workmanship and finish, and the substantial manner in which this machine is put together cannot be surpassed. The most thoroughly seasoned timber and the best quality of iron and steel is used.

This Company also exhibited two Coe's patent upright press drills and the Dayton sulky rake, all of which are manufactured by them.

11.—DEERE & CO., Moline, Ill. Plows. The representation of this old established house was particularly fine, embracing some splendid specimens of plows and cultivators. Of the merits of this firm's productions but little need be said, they being well known to all, having taken many first premiums, both in this country and Europe.

12.—J. D. EASTER & Co., 70 South Canal street, Chicago. The Marsh Harvester. This machine has for the past ten years been so well and favorably known to a large portion of the farmers of the northwest as to require no commendation at this time. It is so different and so far superior to every other machine for harvesting grain, that it cannot be considered in connection with any of them, except that it is founded on the principle discovered by McCormick in his original invention. It cuts with the same sort of knives, and in the same manner, as McCormick's machine ; but the grain is bound on the machine by two men in better order than is possible for five men to bind it after the rake or dropper places it on the ground.

13.—CHAS. A. GUMP & Co., 51 South Canal street, Chicago. Mill Furnishing Goods, consisting of Bran Dusters, Flour Packers,

Corn Shellers, Smut Machines, etc. This firm, who are general mill furnishers, made a large display of mill goods besides those enumerated, prominent among which was Merrill's cosmopolitan emery wheels and saw gummings, specialties of these exhibitors. These wheels are claimed to be of superior construction, and with many points of excellence over others now in use. The cement or uniting combination is entirely mineral, containing no glue, shellac or rubber, or other gumming substance, which, unlike any other cementitious combination, *wears away in advance*, leaving the sharp, angular points of the emery protruding from the face of the wheel. This latter consideration is deemed worthy of special notice, for the reason that the most that can be claimed for all other methods of manufacturing solid emery wheels is that the cement, or uniting combination, *only wears away equally* with the emery, presenting, of course, an even, smooth surface, which *must* more or less *glaze or gum*; hence in a degree to obviate this difficulty, greater speed and more force is necessary to perform the same or less amount of work, and as a direct result of such increased speed and force, not required to make the emery go *faster or better* but to *remove the impediment* to its work, the measure of friction or danger of heating the work, is correspondingly increased, while in this solid emery wheel nothing hinders or opposes the work.

14.—WM. HARRISON, Grand Rapids, Mich. Farm Wagon. The manufacture of these farmers' wagons was commenced in 1850, and they are said to be the lightest running farm wagon sold, giving great satisfaction to all who use them.

15.—M. G. HUBBARD, Minneapolis, Minn. Mower and Reaper. One of the celebrated "Hubbard" standard combined self-raking reaper and mowers, was exhibited and attracted considerable attention, having been of late hailed as the champion of the harvest field. The "Hubbard" is undoubtedly most durable and effective, and one of the lightest draft machines in the world. Wherever it has been entered it has never failed to add new luster to its already brilliant record.

16.—W. S. INGRAHAM, 173 South Clinton street, Chicago. Sickle Grinder. This machine is plain, simple and durable, and seems destined to be a close companion to the mowers and reapers of the country. The Sanford improved sickle grinder is also patented in Europe, where it is having an extensive sale. This machine certainly offers more inducements than any other before the public.

17.—W. W. INGRAHAM, 48 South Canal street, Chicago. Ingraham's Excelsior Grain Scourer, Smutter, Separator and Grader Combined. The importance of having wheat thoroughly scoured and cleansed before grinding into flour, continues to attract the attention of mill men. Probably no department of milling has been the subject of more varied and numerous inventions. Years of hard labor have been spent and hundreds of expensive experiments have been made to bring out perfect machines for this purpose, some of which have been successful while others have proved a loss to the experimenters. This machine for that purpose is acknowledged to be the best scourer, smutter, separator and grader in use; and it has been fairly tested, and has the preference over any other machine for doing the best work. In construction, it is simple; easy to be adjusted; is not liable to heat or set fire to a mill, as the spindles are set in the most approved manner, being made and finished in the most thorough manner in every part.

18.—JOHNSTON HARVESTER COMPANY, Brockport, N. Y. Western Office cor. Beach and Sebor streets, Chicago. A. J. Glass, Manager. Harvesting Machines. This Company exhibited one of their world renowned harvesters, which requires no comment, having competed with every machine in the world, and whether it is the best machine in the world is left for the public to determine. This harvester is covered with the highest honors that could ever be conferred, and is the victor of a hundred hard fought battles, and now rests upon the laurels of universal commendation.

19.—S. JOHNNOTS, Burlington, Vermont. Patent Potatoe Digger. This article is highly practical, and raises a whole hill of potatoes on a purchase; when the fork is shaken the earth falls through the tines, and leaves the potatoes in bowl of the fork, dug, picked up, and sorted ready for the market.

20.—MOLINE PLOW COMPANY, Moline, Illinois. Plows and Cultivators. The display made by this Company was particularly attractive, and consisted of plows of many kinds, among which may be mentioned the Prairie Breaker, the Extra Breaker, the Diamond and the Clipper, the latter being manufactured in several styles. The polished shires of this display were very beautiful, and resembled burnished silver, so highly were they finished; and when contrasted with an old plow made forty years ago (also exhibited by this Company), the effect was grand, and more fully demonstrated the superiority which has been attained in mechanical pursuits in that length of time

than a volume of print could have done. The specialty of this Company is the "Western" walking cultivator, of which much has been said in its favor, some having acknowledged it to be "the" best in use.

21.—MITCHELL, LEWIS & Co., Racine, Wisconsin. Farm Wagons. Several of the original and well known Racine wagons were exhibited by this firm. The running gear is painted red, while the body is green, tastily ornamented. These wagons combine three essential points of excellence, which are strength, durability and lightness, and are designed for farm and freight use.

22.—C. H. McCORMICK & Co., Chicago. Mowers and reapers. If there were any doubts about the success of the celebrated McCormick mower and reaper, at the various exhibitions and fairs in different parts of the world, it is dispelled by the display at the Exposition of the various original medals and premiums given to this world-renowned machine. This is the first public exhibition of all of these valuable original awards. A brief description of each will doubtless be of value to the reader. They are twelve in number, as follows: 1. Gold medal of American Institute, 1849. 2. Council medal of the London Exhibition of 1851, of which the *London Times* says: "The most valuable contribution to the great exposition, and of sufficient value to compensate for the expense of the whole Exposition." 3. Grand gold medal of honor, Syracuse, N. Y., 1857, "for the best reaping machine," after a trial of nine days' duration. 4. Grand gold medal of honor, Paris, 1855, "for the best machine exhibited in a field trial, and as a type after which all others were made." 5. Silver medal of the Royal North Lancashire Agricultural Society, England, 1862, "for the best reaping machine." 6. Prize medal of the London International Exposition, 1862. 7. Gold medal, Brussels, Belgium, 1862, "for the best reaping machine." 8. Gold medal of the Great International Exposition, Hamburg, 1863, "for the best machine." 9. Gold medal of the International Exposition, Lille, France, 1863, after a field trial of reaping and mowing machines, "for the best machine." 10. Grand prize for reaping machines at the Great International Exposition at Paris, in 1867. This elaborate medal weighs three-fourths of a pound, troy, and is a fine piece of work. On one side, "Napoleon III., Empereur;" on the reverse, two cherubs, bearing a card inscribed, "McCormick." To this medal was added by the Emperor the "Cross of Chevalier of the Legion of Honor." At the Great Exposition at Paris this machine won its

highest honors, Hon. Cyrus H. McCormick, according to the *Moniteur*, the official paper of the French government, not only obtaining the grand prize for his invention, but being nominated by the Emperor Knight of the Legion of Honor. 11. Cross of the Chevalier of the Legion of Honor, by Emperor Napoleon, at Vincennes, in 1867, after two great trials, as well as at a private trial of the same on his farm, at Chalons, made at his own request, for his private satisfaction. 12. Grand gold medal of merit at the World's Exposition at Vienna, in 1873, after a severely contested trial in the field. This is the highest premium of the Exposition, and was awarded to the "Advance" reaper, and was the *only* medal awarded by the Exposition for reaping machines. There was also awarded a similar medal of merit for the same machine, as a combined reaping and mowing machine. Thus, the *only two* gold medals awarded for any single article fell to this machine; and all American citizens may well feel proud of this distinction and honor conferred upon an American inventor. The factory of the McCormicks is the largest of the kind in the world. They make nothing but the mower and reaper, or both combined. The works cover an area of twenty-one acres, situated on the south branch of the Chicago river. Some idea of their extent may be formed from the fact that there are six acres of floor room. These machines are sold to the farmers on the most liberal terms, giving ample time and easy terms to the poorest, so that there need be no monopoly in its use. The Messrs. McCormick are foremost in public improvements, and have erected more fine blocks in Chicago since the fire than any other firm. Not less than sixteen massive blocks present their handsome, substantial façades along the principal business streets.

23.—ORVILLE L. MASON, East Saginaw, Mich. Automatic Gate. This gate is one of the most perfect inventions of the kind ever introduced, is purely automatic in all its workings and is invaluable to all requiring a gate which needs no attention, opening at your approach and closing after passing through, which is a great convenience to business men whose time is precious.

24.—SOULE, KRETSINGER & CO., Fort Madison, Iowa. Farming Tools, Barrows, etc. This firm displayed a large variety of farm tools, railroad and garden barrows, road scrapers, etc., all of their own manufacture, prominent among which was the patent fork ferule cap. This little arrangement prevents the ferule from splitting and increases the strength of the fork at its weakest point, thus rendering

the shank of the fork less liable to break. The motto of this house is, "To lead the market in quality," and judging from the goods composing their display it is well applied.

25.—SPRINGFIELD MANUFACTURING CO., Springfield, Ill. Corn Planter. This Company exhibited one of their Climax corn planters, the finish and painting of which were noticeable. The qualities and superior points of excellence claimed for the "Climax" seem to be generally conceded by all. This machine has been awarded *thirty-two* first premiums. The superior merits of the "Climax" lie in its accuracy of drop, the ease with which it can be handled in regulating depth, passing obstructions and turning, and its lightness of draft.

26.—SANDWICH MANUFACTURING CO., Sandwich, Ill. Samples of their celebrated Corn Shellers, of the "Cadet" and "Veteran" styles.

27.—SEYMOUR, MORGAN & ALLEN, 93 and 95 West Lake street, Chicago. W. H. Browne, General Agent. Seymour & Morgan's Triumph Mower and Reaper.

The "Triumph" will cut and deliver in good shape for binding, the *tallest* or *shortest* grain. One great point of superiority in this machine consists in the perfect automatic connection between the vibrating over-hung reel and the rake, each working independent of the other, and yet together. The reel and rake are so connected that when the rake strikes the cut grain at the cutter bar the reel is doing its work several feet in advance of the knives, as the rake commences to draw (not push as in reel-rakes,) the grain towards the rear end of the platform, the reel passes back towards the knife, and when the rake has delivered its gavel the reel is at work above and back of the cutter bar, thus reeling the *shortest* or thinnest grain back on to the platform in easy reach of the rake. As the rake passes forward the reel advances, maintaining at all times the same relative distance from the rake. This arrangement, exists in no other machine.

28.—SUPERIOR MACHINE COMPANY, Wheeling, West Virginia. J. G. Stowe, General Agent, 51 Canal street, Chicago. This Company had two of their mowing machines on exhibition, one of which was in operation, and known as the "Superior Mower." The peculiar feature of this machine is the application of a worm wheel and screw to the rotation of the crank-shaft, which drives the cutter bar, which worm wheel and screw possess features that entitle the arrangement to be classed as a new movement. The worm wheel is peculiarly

constructed, the teeth being formed very differently from those of the ordinary worm gear where the screw actuates the wheel. In the wheel impelling the screw, the teeth are so cut that they only operate on that side of the axis of the screw at which they disengage from their contact with the thread. By the peculiar pitch of the screw-thread employed, and the shape given to the teeth, the two do not come into contact until the teeth reach the position to act with greatest power upon the incline of the thread, and with the least friction. The screw is of steel, double threaded, and consequently revolves once in the passage of two teeth. The worm gear is of gun metal, and inclosed in an iron case which forms part of the frame. The finger bar, shoe, etc., are attached to the frame with pins and a hinged coupling that allows the bar to work below or above a level. The bar can be thrown entirely up, by the driver while in his seat. The cutting apparatus may be adjusted to any required height, or set at any angle, without disturbing in the least the driving device.

29.—WARDER, MITCHELL & CO., 59 Lake street, Chicago. Mowers and Reapers. Several of the "Champion" machines manufactured by this Company, were exhibited, among which was the mower with self-raking attachment. This attachment is all that can be desired. It is simple, very light and strong; is easily attached by two bolts, and is driven by a stout chain, dispensing with all complication and cog-gearing. The rake is under perfect control of the driver, and large or small gavels can be raked off at will, or the rake can be set to work automatically, delivering a bundle at every revolution. The grain is delivered at the side of the machine, out of the way of the team in making the next round. In reaping, the pivot at the heel of the knife is stiffened, and the weight of the reaping attachment is carried equally upon the two driving wheels. A dropping attachment is also put on and taken off quickly, and works to perfection. The reel has a steady and reliable motion. The outer end of the machine is carried upon a castor wheel, which prevents all trouble in turning. A "Champion" light mower was also exhibited. This machine is a great favorite with the farmers, by whom it is termed "the prince of mowing machines." A great feature in the construction of this mower, and all the Champion machines, is, that all the boxes, shafting, and gearing can be adjusted, or taken off and replaced with new parts while in the field, with a common wrench, without the use of machinist's tools, thus avoiding the necessity of transporting the machine long distances when repairs are required.

Few other machines, if any, possess so many valuable features as will be found in the Champion.

30.—WALTER A. WOOD MOWING AND REAPING MACHINE CO., Hoosick Falls, N. Y. General Western office, 206 Lake street, Chicago. Mowing and Reaping Machines. This Company made an exhibition of Wood's self-rake reaper with mowing attachment, and Wood's new iron mower. A detailed description of the merits of this Company's celebrated machines would be useless, as all who have need of such articles know full well the great excellence and capabilities of the products of the Walter A. Wood Company. The reputation of these machines extends over two continents, they having been awarded over *forty first prizes in Europe* during the season of 1873, including the grand diploma of honor at Vienna, which was the *only* diploma on mowers and reapers awarded at that Exposition. During the time these machines have been before the public they have been awarded, up to the present year, over *five hundred first-class* county, district, and state prizes, which certainly establishes their great superiority. Over 190,000 of these machines have been made and sold, including 21,000 for the season of 1873 alone. Some of their chief points of excellence may be named in the simplicity and perfection of construction, durability, lightness of draft, facility of management, adaptability to any and every condition of crop, or surface, manner of leaving the cut grass or grain, etc. The success of these machines, both at home and abroad, is complete and fully demonstrated by the largely increased demand each harvest.

31.—H. WOODMANSE, Freeport, Ill. Stover's Automatic Wind Engine. It is generally known that the great majority of wind-mills are not to be relied on in storms or in a light wind. The gales that occur on western prairies often, in a single night, completely wreck one of the ordinary mills. The Stover is so constructed that if left running when it encounters a storm or gale, it will quietly stop running, and when the storm subsides will commence pumping again. It can also be arranged to pump a large or small quantity of water, as may be desired. Its construction is compact, strong, and simple, having only three joints, none of which are exposed to the weather, thus completely avoiding any possibility of freezing up in winter. Other mills have from fifty to one hundred joints. This mill is placed before the people entirely upon its merits, and it seems to possess many.

SECTION 3.

Vehicles, Railway and Car Fixtures, Motors Adapted to Steam, Water, or other Power, Apparatus Used in Navigation, Models of Life Boats, Life Preserving Apparatus, etc.

I.—THE AMERICAN BRIDGE COMPANY: A. B. Stone, Cleveland, President; H. A. Rust, Chicago, Vice-President; Wm. C. Taylor, Chicago, Secretary and Treasurer; E. Hemberle and W. G. Coolidge, Engineers; Works corner Egan and Stewart avenues; office, 210 LaSalle street, Chicago. This Company exhibited a fine model, about ten feet long, of one complete span, showing both substructure and superstructure of the Iron Railroad and Highway Bridge now in process of erection, to be completed January 1st, 1874, for the Missouri, Kansas & Texas railway company across the Missouri river at Booneville, Mo. This bridge, when completed, will be 1,637 feet long, the superstructure, consisting of six fixed spans, and one draw span, will rest upon masonry abutments and masonry and pneumatic piers. These pneumatic piers, now largely used in the construction of bridges, are formed of cast iron cylinders, those for this bridge being eight and one-half feet in diameter, cast in sections of ten feet in length, and weighing about ten tons each. These are sunk, as the name implies, by pneumatic process through the different strata of sand and gravel to bed rock; the sections as they are sunk being bolted together through inside flanges, which, being smooth and packed in red lead, form air and water tight joints. The cylinders are then filled with concrete, thus forming a compact column encased with iron, upon which rests the superstructure of the bridge. These piers can be built much cheaper than the usual style of masonry supports, and as their smaller size offers less resistance to the current are preferable to them where the water is deep with a shifting bed of sand overlaying a permanent foundation. The iron superstructure of this bridge, as shown by the model, is built after the "Post's" patent diagonal truss plan, which combines all the essential elements of strength with elegance of proportion and beauty of design. This system has been adopted by this Company as one of the best, if not *the* best, in use in this country or in Europe for long bridges. Several monuments of the American Bridge Company's extensive operations at different points upon the Missouri river is here made brief mention of, which will serve to illustrate the kind of work it is now so well calculated to undertake: 1. The iron

railroad and highway bridge at Fort Leaveaworth, Kansas — a “high” bridge — 996 feet long, resting upon pneumatic piers measuring 140 feet from their bed foundation to the floor of the superstructure. The bridge was completed in 1872 for the Kansas & Missouri Bridge Company, at a cost of \$700,000, 2. A similar bridge between Council Bluffs and Omaha, Neb., completed in 1872 for the Union Pacific railroad company. The attention of thousands who have passed over this bridge has been attracted to its great length and height, and we need only mention its dimensions to convey to the reader an idea of its grand proportions: Its total length, composed of eleven spans of two hundred and fifty feet each, being 2,750 feet and the height above low water sixty-five feet. This bridge cost upwards of \$1,000,000. 3. The bridge at Booneville, which has been fully described from the model. With such structures as examples, who shall question the ability of Chicago enterprise to cope with the greatest difficulties that may be presented to engineering skill? The extensive works of the Company are most advantageously located on Egan and Stewart avenues in Chicago, connecting with all the railroads leading out of the city. Its shops cover an area of about three acres, and are all well supplied with the most approved machinery for prosecuting all kinds of bridge work from the ordinary wooden single span “Howe” truss to the immense iron structures before mentioned. Another important branch is the building of iron roofs, many of which have been erected in Chicago, the most prominent one being that of the passenger depot of the Lake Shore & Michigan Southern railroad company. The operations of this Company are necessarily on a large scale, and its works scattered almost literally from Maine to Texas, there being in process of erection at this time several railroad bridges in New Hampshire, and in Texas, where it has a regularly established agency, a large amount of work is being done for the many new roads that are opening to civilization that great State. This cursory sketch of the operations of the American Bridge Company, whose annual productions exceed \$2,000,000, exhibits in brief one instance of the growth of Chicago in her manufacturing industries, showing as wonderful progress in this department as in those local enterprises that are more apparent to her citizens.

2.—ANDERSON STEAM HEATING COMPANY, 107 Lake street, Chicago. John Ellis, Agent. Steam Heater. This machine is the only really automatic steam generator extant. The hydrant being attached,

it supplies itself with water, evenly and regularly, without attention. It being a base burner, requires to be fed with coal only at long intervals. It works perfectly, and requires no skilled attention; and is, without doubt, a most perfect apparatus.

3.—J. BARKER, 845 West Washington street, Chicago. Sand-Papering Machine. This machine is for finishing plain surfaces on soft or hard wood, making a more perfect finish on doors, at the rate of one hundred and fifty per day, than can be done by hand. It will also run sash for four or five hundred windows per day, making a good finish. This is the only known machine that will finish doors, sash, blinds, etc., after they are put together (even if a stile or rail is just as it comes from the saw), with sand-paper alone.

4.—THE BABCOCK MANUFACTURING CO., 81 and 83 Washington street, Chicago. Babcock Engines, etc. Prominent among the many fire displays was that of this Company, which is the pioneer in the manufacture of improved self-acting fire apparatus. They were the first to introduce and perfect in this country the Babcock Fire Extinguisher, which, although the chemical principle is a foreign invention, never proved an entire mechanical success until some prominent Chicago men invested their brains and money in it and made it what it is, an invaluable protection against fire. Few persons are aware of the magnitude of the business done by this Company. Nearly every prominent fire department in the United States have adopted the Babcock, and have them in constant use, while they are to be found in nearly every town in the country. Fully 26,000 machines are in use, and the sales approximate 1,000 monthly. The display of this Company consisted of an engine, hook and ladder truck, two hundred portable extinguishers, and miscellaneous fire department supplies, the value in all aggregating fully \$20,000. In addition to this, fifty of their portable extinguishers, charged for use, were distributed throughout the Building, by order of the Executive Committee, for its protection. That this was a most wise precaution was fully demonstrated by the fact that a fire *did* occur in the Building during the continuance of the Exposition, which was promptly put out by these never-failing extinguishers. It is a source of gratification that so valuable an apparatus has been introduced and perfected, and its great utility demonstrated by a purely Chicago organization.

5.—A. S. BAILEY, Paxton, Ford Co., Ill. Bailey's Car Pusher. This is a hand machine to move freight and other cars on railroad tracks, and can be operated by one person. It weighs but forty pounds.

It is so constructed that the lower end clamps the rail and will not slip on rails in any condition. The upper end has an adjusting clamp that fastens to the sill of the car to be moved. By raising the lever the rail end of the pusher is drawn forward, and by depressing it the rail clamp clutches the rail and the slide part of the pusher that is attached to the car moves the car, and operating in such a manner that as fast as the car is pushed forward the car-pusher holds the car to its place. This machine has an attachment connected with it to separate cars that are together so as to get the car-pusher in place on the rail to operate the same. This is undoubtedly a convenient labor-saving and an indispensable machine.

6.—F. L. CLARKE, Paxton, Ill. Brick Machine. This machine appears to be most economical in its working, and is simple. It is worked by horse power, but can be worked by steam if preferred. It is portable—has trucks attached to it,—and can be taken apart when shipped. It can be worked with clay of any consistency, and any amount of pressure can be applied from the lower end of the mud-shaft. The filling of the mold is under the control of the operator, who, when a signal is given, steps on a platform, puts an empty mold in place, takes the filled one from its place, steps off the platform, and waits for another signal. The operator sands the molds. Capacity, from 10,000 to 30,000 per day.

7.—CRERAR, ADAMS & Co., 11 and 13 Fifth avenue, Chicago. Railway Equipments, Locomotive supplies, etc. The display made by this firm, who are among the largest manufacturers and dealers in railway supplies in the country, was most decidedly as fine an exhibition as the building contained. A large and imposing black walnut case especially erected for the occasion was filled with everything pertaining to the equipment of both day and night railway coaches and locomotive engines that is worth attention. Occupying a prominent position in the display, were three brass steam domes, made for the Hinkley & Williams locomotive works of Boston, Mass., at the works of the Union Brass Manufacturing Company, which is controlled by the exhibitors. From the fact that locomotive manufacturing establishments in Boston purchase their brass work and head lights for their engines of this firm in Chicago, fully demonstrates the popularity of their goods abroad. Other particularly noticeable attractions among their display was a fine gilt chandelier that was as beautiful a piece of work as could be shown in America, while a nickel plated locomotive head light presented the appearance

of highly burnished silver. Several center lamps were also extremely ornate and tasteful in design, and such as are placed in the most elegant and palatial cars in the country. As before remarked, the Union Brass Manufacturing Company, which is under the control of this firm, and of which J. H. Dow is President, manufactures all kinds of household hardware, and nickel plating of every kind is here carried on, the lamps, etc., exhibited being specimens of work from their shops. In 1860, the firm commenced the manufacture of railway lanterns and head lights, a business that has developed with wonderful rapidity since it was undertaken. In 1868, the manufacture of railway frogs was commenced, substantially as it is now carried on, except that it has largely increased and is still growing. The concern use largely of iron and steel, the latter of which is imported from the works of Sir John Brown, of England. Besides the articles mentioned, the firm deal in car trimmings of all descriptions, wrenches, waste, çar and switch locks, locomotive tires, car springs and wheels, steel, and almost every conceivable tool or appliance that is used in the construction or equipment of a railway. The amount of their annual business can only be estimated by millions, and their manufactured goods can be found on almost every railway between Ohio and the Pacific slope.

8.—THE DRAKE ROTARY FIRE EXTINGUISHER COMPANY, cor. Clark and Washington streets, Chicago. The fire engine exhibited by this Company was the first one they ever manufactured, and was built in forty days. This chemical fire extinguisher is said to be the most powerful in the world. This extinguisher undoubtedly possesses many advantages over its competitors. A prominent one is that the cylinder head fastens without screws, and hence is not liable to corrosion, the head being instantly attached by a quarter turn of a patent eccentric self-packer. A new feature in fire extinguishers is introduced by this Company, and consists of stationary extinguishing tanks. This machine can be placed in the basement of a building; a connection attaches the extinguisher to the main water-pipes of the building, upon which connection is placed a self-operating check valve, which admits of the extinguisher being always kept filled, the pressure of the water *from* the pipes being only 40 lbs. to the square inch. An alarm wire or cord attached to a handle upon each landing in the building and in connection with the extinguisher below, is sprung in case of fire, which instantly charges the machine and raises a pressure of 200 lbs. to the square inch, opens the check

valve, and assumes control of the main water pipes. An ordinary fire butt is placed on each floor, with hose attached, and hence the same is supplied with a powerful extinguisher, which, in case of emergency, is ready for action in a moment's notice. When the machine has emptied itself, the pressure falls from 200 lbs., below 40 lbs. to the square inch, as before stated, which allows the water to again fill it to its capacity, which is 200 gallons. This extinguisher is possessed of very many valuable points of excellence which space will not permit of being enumerated. The "Drake" is generally conceded to be the latest, best, and most valuable invention of the age, and is undoubtedly destined to make for itself a record second to no extinguisher known.

9.—EXCELSIOR PRESS BRICK MANUFACTURING COMPANY, 77 Dearborn street, Chicago. A complete working model ($\frac{1}{4}$ scale) of the Brick Machine made by this Company was exhibited. The machine has two sets of moulds, seven in each set, fixed in an alienating carriage that passes under a feeder, which fills the moulds with clay, and which, when filled, pass and repass under a traversing pressure wheel that give to the bricks in the moulds two downward pressures. To the plate bottom of each mould is attached a piston, which is made to pass up an inclined plane as the carriage moves to its point of alienation, and as the pistons move on that plane, they give to the bricks an upward pressure; and when all the pistons have passed the summit of the inclined plane they rest on the level plane of a lever, which, in its turn, lifts the bricks to the surface of the moulds, from whence they are moved by means of a sweep. The feeder is supplied with clay by elevators, which get their supply from the pit of two grinding rollers, which rollers take the clay fresh from the bank and prepare it for the moulds. This machine was awarded two prize medals, the highest in the class, at the French Universal Exposition of 1867. One year since, some leading citizens of Chicago, conjointly with some eastern capitalists, created a stock company for the manufacture of bricks, and erected Excelsior machines upon land situated a few miles from Chicago upon the C., B. & Q. Railroad. These works have been under the management of W. L. Gregg, Esq., the son of the inventor and President of this Company, and to the persistent efforts of this gentleman is Chicago indebted for a fine quality of brick, which heretofore has been attainable only through costly importation from Philadelphia and St. Louis.

10.—HALL BROTHERS, Boston, Mass. Brown Brothers, sole western agents, Chicago. Hall Brothers' Fire Extinguishing Apparatus. This invention is as novel as it is perfect protection in case of fire. A series of perforated iron pipe traverse every room in the building, as well as the outside and upon the roof. A large receiving pipe is placed in some place easy of access in case of emergency. From the top of the "Receiver" are main pipes leading to each room in the building, each numbered like the room to which it leads, and cut off from the receiver by valves. These mains are watertight until they get to the rooms, where the perforated pipes or "sprinklers" commence; these perforated pipes run across a room, say a line every eight or ten feet. The perforations are small and frequent. Now if a fire occurs in any room—say room No. 3—the valve of No. 3 leading pipe is turned, and in an instant a fine rain shower of spray fills that room. A few moments of this fine rain will suffice to extinguish almost any fire, and that without flooding or deluging the room with water. As soon as the fire is extinguished, the valve upon being turned back, will immediately stop the supply of water; and as soon as the pressure is turned from the receiver, the valve is again opened, and the water remaining in the pipes at once runs out through the small waste cock at the bottom of the receiver. When a fire takes place, the excitement and confusion always existing is very unfavorable to efficient action; and while men are running amid the smoke with hand hose, portable engines or extinguishers, the fire generally spreads beyond control. The opening of doors and windows to get access, admits the air and supplies the fire with oxygen; but the "sprinklers" are a fixture, always on the spot, and ready for instant action. Perforated gas pipes have been, for several years, placed in certain portions of cotton and woolen mills, but the great objection to them has been that in drilling the holes a ragged burr is left upon the inside, upon which are constantly collecting lint, dust, etc., so that after a time the hole becomes filled up so much that it cannot be used with any degree of certainty; we have even known of manufacturers who had this kind of pipe who were obliged to paste over every hole a piece of fine tissue paper. Messrs. Hall Brothers use a pipe made of galvanized sheet iron, and claim that they have the only machine in the world for making sheet metal pipe in long lengths. The holes are punched out on the sheets before forming them into pipes, thus leaving a clean smooth hole. The working of the extinguisher was practically demonstrated by

the exhibitors, and attracted great attention from scientific persons, by whom the workings of this apparatus were pronounced superior to any now in use. In the short time this system has been in operation it has already been adopted by many of the largest manufactories and mills in the country.

11.—W. HUTCHINGS, Agent National Fire Extinguisher, 210 La-Salle street, Chicago. This display consisted of four extinguishers, very highly and finely finished, but the elaborateness of manufacture has but little to do with the working qualities of an article upon which so much reliance is placed in time of need. The mechanism of the extinguisher is very simple, and not liable to derangement or leaking of the acid, and the general excellence of construction, aside from the peculiar features involved, the "National" appears to be all that it is claimed, viz: a first-class article.

12.—JOHN HARDEN, 65 and 67 South Clinton street, Chicago. Anti-friction Glass bearings for Cross-heads, Cylinder packing rings, and all other working parts of Machinery. This invention seems to be a highly valuable one, and for the durability of which reference is made to eminent mechanics who have subjected them to the most severe tests, and after an experience of years have pronounced in their favor as a saving of expense in every particular, quite a number of whom have adopted them on the railways and other institutions with which they are connected.

The harder and smoother the material used for bearings is, the less friction there will result. With this fact in view glass was tried for bearings of machinery. It is extremely hard and smooth, and may be made perfectly secure, and capable of sustaining an immense pressure. Glass is a non-conductor of heat and electricity. Its hardness is uniform. It is not porous or fibrous, as metals are, therefore will not use up oil so fast. It has the effect of creating a gloss on the surface upon which it is working. The oil which it requires to keep it lubricated is but one-fourth the amount which metals use. It can be moulded to suit any surface or shape—plain, convex or concave—and there are but few working parts of machinery where it cannot be used to great advantage. The inventor has applied it chiefly to cross-heads, packing rings, link blocks and eccentrics, his patent covering the use of glass in all working parts of machinery.

There seems to be an idea prevailing in the minds of many practical men, that should any of the glass bearings break, while in use, the broken glass would cut the part on which it was working. The

inventor has thoroughly proved by many practical tests that it will not do so under any circumstances; on the contrary, it is a well-known fact that with broken glass you can make a much finer steam joint, and smoother surface on a valve seat than with emery or other substances.

13.—R. M. JOHNSON, 228 Lake street, Chicago. The "New Chicago" Fire Extinguisher. This extinguisher is one of excellence, and like all other *valuable* patents, its chief merit lays in its simplicity, there being nothing complicated about it. One great feature of this machine is, that it cannot be got out of order in any way, or by overturning, but always does its work commendable, and is always ready. This machine is of Chicago invention and manufacture, and the city is to be congratulated in having so valuable a patented article go out to the world as one of her many products, and particularly one that is destined to be so soon largely used and brought into prominence. The Illinois Central Railroad have adopted this extinguisher, as well as the great Palmer and Tremont Houses of Chicago. It has three points of excellence, sought by all manufacturers of extinguishers, and not before fully attained. 1st. The combustion, or thorough mixture of the chemicals in every part of the machine, takes place instantaneously, without shaking, and it is ready for immediate action. Hence the mixture is perfectly harmless when shot upon the finest fabrics. 2d. No lifting the handle, or overturning the machine, will ever prematurely mix the chemicals, as in others. Hence it is always ready when the fire comes. 3d. Its perfect simplicity of construction, nothing to get out of order, and ease of operation.

14.—JOHN KILLEFER, Bloomingdale, Mich. Bolt and Nut Threading Machine. A very useful machine for general shop use, combining two perfect machines on one bed, and has a capacity of cutting three thousand bolts and nuts per day. This machine has been in use for three years, and fully demonstrated its great value, doing its work thoroughly, with a great saving of time and labor.

15.—ALFRED LAGERGREN, Western Agent White Star Line, 97 and 99 Clark street, Chicago. A Model of the famous Steamship Baltic. The little vessel was complete in every detail, a perfect *fac simile* of the vessel that has made the fastest trip across the Atlantic on record—seven days, fifteen hours, and eight minutes. The large vessel from which the model takes its name, the "Baltic," was constructed in hull, by Messrs. Harland & Wolff, of Belfast, Ireland. Her stern

is straight, and not unlike many of the recent larger English steamships. The dimensions of the Baltic are, length on deck, 440 feet; breadth of beam, 41 feet; depth of hold, 36 feet; load draught, 24 feet; tonnage (British measurement), 2,700 tons net, and 4,350 tons gross. Her frames are of angle iron, with double riveting throughout the vessel. There are three decks of iron, the height between which is nine feet, and these are covered with wood. Plate stringers are upon each of these. Her rig is somewhat novel, as she is fitted with four masts, three of which are ship rigged. These masts are a single iron cylinder, with a wooden fall for the colors. The height of truck above water is 150 feet. There are seven water-tight compartments in the vessel; she carries a hurricane or turtle deck over forward part of the boat, and this part of her construction is of the most approved character. Her upper deck presents the opportunity of a grand promenade, and on every hand there are so many improvements on the old style of ocean steamers that are suggestive of comfort, that the beholder is lost in admiration and astonishment.

16.—WILLIAMS & ORTON MANUFACTURING COMPANY, Sterling, Ill. Pulleys, Hangers, etc. This Company made a display of several leading articles of their manufacture, which consisted of iron shafting, compression couplings, pulleys and adjustable hangers, with self-oiling journal boxes. These articles are the specialties of this Company, and are of superior make and material.

17.—WILEY & RUSSELL, Greenfield, Mass., and 136 Lake street, Chicago. Grant Bolt Cutter. The machine exhibited was a No. 1 hand bolt cutter and drill combined, with taps, adjustable dies, reversable nut check, and rut for drilling. This machine is highly indorsed, and only those who have seen one in operation can form a fair idea of the time saved by its use, and the high quality of its work.

SECTION 4.

Machinery in Motion Requiring Steam Power.

1.—AMERICUS MANUFACTURING COMPANY; N. P. Wilder, President; James Bolton, Secretary; office, 123 Dearborn street, Chicago. Corn Husking Machine. This is a new corporation, having been organized under the laws of Illinois on the 30th of March, 1873, its object being the manufacture and sale of a machine known as "Phillip's Spiral Corn Husker," one of which was on exhibition in full

operation. It is very strong, exceedingly simple, and very practicable, and consists of eight iron rollers contained in a frame work of hard wood. The rolls are placed in this frame in an inclined position. The surface of these rolls have spiral depressions or grooves running around them from one end to the other, and in these grooves are stout steel spikes. As the ears of corn pass over the rolls, the husks, caught by these spikes, are torn off and dropped under the machine, while the ears pass on to the end. The grooves upon one of the rolls are opposite spikes of the other roll, which allows the ear to settle down between them, so that the grip upon the husk may be more certain. These depressions and spikes being arranged spirally, rip husks at one end of the ear, and continues the grasp to the opposite end, making the process of stripping the husk from the ear very similar to that of husking by hand. Although it husks so rapidly as to seem almost incredible — husking at the rate of three bushels per minute, when run to its full capacity — its process is so simple and natural that not a kernel of corn is shelled from the ear during the operation. It husks the corn cleaner and better than is ordinarily done by hand, while it produces husks soft and free from stalks, "nubbins," or any foreign substance, and ready for the consumer without any waste whatever.

2.—BUCKEYE ENGINE COMPANY, Salem, Ohio. Exhibit a small upright engine and boiler combined, designed for printing offices and other establishments requiring a small motor. The boiler is of the "vertical flue" form, and rests upon a large circular base, which is of such form as to collect the water emitted from the gauge cocks and other parts of the engine. The cylinder, upper cylinder-head, frame, slides, pillow-block, and supporting bracket which secures the engine to the boiler-head, are formed in one casting of elegant design. Upon the lower cylinder-head the feed pump is attached, the plunger of which is a projecting rod from the piston of the engine. The engine is provided with a heater for the feed water, close to the boiler shell, with governor, steam gauge, water indicator, and all requisites necessary to a complete steam power. As an article of intrinsic merit, it was not excelled by anything on exhibition. Mr. J. Ferguson, 56 South Canal street, represents the Buckeye Company in Chicago, and is to be commended for introducing so thoroughly first-class an article as the Buckeye engine.

3.—BATTLE CREEK MACHINERY COMPANY, Battle Creek, Michigan. Bolt's Patent Carving, Paneling Irregular Moulding and Dove-tailing

machine, for shaping, edge-moulding, paneling, surface moulding, moulding scroll or fret work, dove-tailing, etc. By the use of this machine, can be accomplished all kinds of work hitherto only done by hand. It has often been offered as an objection that machines adapted to an extended variety of work must be more or less complicated—the changes difficult and tedious, and the adjustment troublesome. The inventor's long acquaintance with machinery has seemed to give him practical suggestions on this point, and the consequence is an arrangement so simple that not *five minutes'* time, on the removal of *two bolts*, is necessary to effect the most radical change in this machine, which seems to have been adapted to the *general* wants of the various workers in wood. The dovetail attachment is a simple and perfect arrangement for making a *strong, beautiful, "honest" dovetail*, on any kind or thickness of lumber, and perfectly adapted to all the requirements for such work, cutting both parts (side and front) at the same time; and the work is done with dispatch and scrupulous exactness.

4.—L. J. COLBURN, 67 East Randolph street, Chicago. Fancy Confectionery and Candy in the process of manufacture. This exhibition was very attractive, as few persons using confectionery have the least idea of its mode of manufacture, which is now made by steam and by a greatly improved process over the old hand shaking mode, which consisted of a large round flat-bottom pan, about six inches deep, suspended by ropes over a furnace fire, and all the stirring and shaking necessary to its manufacture was done by hand, which was an extremely slow and tedious process. Steam candy pans and kettles were first introduced in France some fifteen years ago, and by their use candy is now made in greater quantities and with less labor and time,—one thousand pounds of fine confectionery being made per day by this exhibitor in the building. Mr. Colburn has long been in the business, and was the first to inaugurate the manufacture of candy and fine confectionery in Chicago. The consumption of this article in the United States is greater than in any other country, and each year largely on the increase; and during the past seven years greater advance has been made in this branch of business, as to variety and quantity, than ever before. In 1868 there was not a single first-class confectioner in Chicago, either for the sale or manufacture of confectionery, while now there are many. A specialty of this exhibitor is his "Alaska crystal rock," a candy of his own introduction, and made by him exclusively in the United

States. It is of a delicious flavor, and so peculiarly made that if broken into many pieces the same pattern appears at each end. The display made by this exhibitor was one that maintained his reputation for enterprise, and also fully sustained the popularity his goods have gained both in Chicago and abroad.

5.—CRANE BROTHERS MANUFACTURING COMPANY, 10 Jefferson street, Chicago. Steam Engines, Steam Elevator, Steam Pumps, Wrought Iron Pipe, Gas Fittings, etc. The display made by this representative house of the northwest was large and particularly fine, the elevator being a great attraction. To give a description of all the goods exhibited, would be but to occupy space for naught; as no manufacturing establishment of Chicago is more widely or favorably known throughout the United States than that of this Company; as are also their productions. It is not a western establishment to supply western wants only. Boston, New York, Philadelphia, Pittsburg, and other cities of the east, San Francisco, Salt Lake, New Orleans, St. Louis, Montreal, and other cities north, south and west, are all numbered among its customers. It is of national repute, and has a trade established upon the merits of its products, and not by territorial limits. And as one Company, producing millions annually, and giving comfortable support to thousands of the population, under the guiding influence of intelligent minds, it is a feature of Chicago enterprise, tending to solve the mystery of Chicago's unequalled progress. Men like those who created and control this establishment, have made Chicago.

6.—FILER, STOWELL & Co., proprietors Cream City Iron Works, Milwaukee, Wis. Stowell's New Gang Bolter. The principal features of this machine are that the movable box or journal at the end of the arbor allows the saws to be taken off and replaced just as readily as any ordinary circular mill, by passing them through the open circle in the frame, there being no chain or other obstruction in the way. The guides are readily removed and easily adjusted. The guide-plate is so constructed as to receive wooden guide-pins, so that the expense of renewing is merely nominal, and the plate will last as long as any part of the machine. Another feature of great importance in this machine is a new device, operating as a press-roller and guard for each separate bolt, while and after thus sawed, until carried entirely away from the machine. This is effected by placing a series of saws behind the cutting saws, there

being one outside of each outside cutting saw and one for each intervening space between the saws. Each guard-saw revolves on a stud attached to a heavy arm depending from a shaft immediately over the large saws. These saws ride each bolt, holding it down against the lower feed-roller, and, as they revolve freely in the direction the bolts are moving, they present no obstruction to their passage through the machine. A ratchet wheel and pawl is attached to each of these saws, with teeth in opposite direction to the teeth in these roller saws, so that they are only allowed to revolve in the direction the bolt should travel. If, as sometimes happens, there is a tendency for the rear edge of cutting saws to catch the bolts and throw them forward, these guard saws being rigid in that direction, and there being a guard for each separate piece, no such result can happen. This is regarded as a very important improvement, and one that should be attached to all gang saws. The forward press roller is a ribbed roller, ten inches in diameter, and driven from the shaft directly over the cutting saws. Being so large, ribbed and driven, it easily rises over any inequality on round surface of slab, and materially aids the lower roller in feeding. There are several other excellent improvements in this machine, which must be seen in practical operation to be appreciated. Several other machines were also exhibited by this firm, whose display was one that reflected great credit upon the firm, and manifested an enterprise second to none in their line in the Exposition.

7.—GORE & EDGCOMB, Goshen, Indiana. Gore's adjustable saw shaping machine, for carriage, wagon, agricultural and cabinet wood work, squaring, rounding and chamfering sawed or bent stuff. This machine is made of iron and steel, and every part is finished in a durable manner, and is claimed to be the only *perfect* combined shaping and rounding machine in use. It runs perfectly against the grain of the wood, and uses no clamps to hold the work, no matter how knotty or cross-grained the stuff may be. For rounding bent rims it uses no patterns, having peculiar gauges to control the work, and is easily adjusted to suit different sizes of rims. A valuable attachment to this machine is one for squaring sawed fellows without patterns, cutting both sides at the same time and working any size up to four feet ten inches and any depth to four inches. By the use of this attachment there can be squared from 1,500 to 2,000 pieces of sawed fellows in ten hours. This machine is highly endorsed by all who have ever used it, and received many words of

praise during the Exposition by those competent to judge, who witnessed its work.

8.—HEATH & HOBKIRK, 166 Randolph street, Chicago. Managers Branch Houses of S. A. Wood's Machine Co., Boston, Mass., and Union Stone Co. Wood Working Machinery and Solid Emery Wheels. The display of wood working machinery by these exhibitors was the finest made, and consisted of one planing and matching machine (made by S. A. Wood's Machine Co.), No. 2 size, 13 feet long, with six feed rolls, 8 inches in diameter, and weighed 8,500 pounds. This is one of the most important and complete machines of its kind now in existence. The amount of careful study and inventive skill which have been expended in bringing it to its present improved form, is indicated by the fact that it has been the subject of no less than eight distinct patents; the earliest bearing date April 13, 1852, and the latest, March 22, 1870. Each of these patents cover some important advance on the previous construction of the machine; and as it is now presented to the notice of mechanics, it is safe to say that its capacity and working efficiency are exceeded by no other planing machine in the market. For dressing all kinds of lumber, and for performing all the various operations for which it is adapted, this machine stands without a rival in Europe or America. It has been the effort, in perfecting the machine, to construct all parts in the most simple manner; to avoid complications, and make all parts easy of adjustment. At the same time, strength and durability have been constantly kept in mind. Eight sizes are made, with 4, 6, and 8 feed rolls, making a variety of 30 different constructions. The lighter machines weigh about 4,800 pounds, the heaviest about 12,000 pounds. Another machine in this display was a four-side molding machine, manufactured by the same Company, combining all the latest improvements. This machine was strongly and substantially built, and was expressly adapted for car work, house and picture frame moldings, dressing narrow boards, sheathing, flooring, etc. A combination planing machine and a surfacing machine completed the display of wood working machinery by these exhibitors; all the above being in operation, and attracting much attention. The machines of the S. A. Wood Co. have a world-wide reputation, and in every instance where they have been exhibited their superior excellence has been so thoroughly demonstrated over their competitors that they have always carried off the first prize, and a score of gold medals fully

attest the many merits of this Company's machines over all others made.

The display of emery wheels made by Heath & Hobkirk was particularly fine, and was adapted to every branch of manufacturing business where emery wheels could be used. The Union Stone Company, represented by these exhibitors, who are the managers at Chicago, are manufacturing solid emery wheels, from one inch to six feet in diameter, and from one-eighth of an inch in thickness to one foot. They are the largest manufacturers of this class of goods in the country. The Union emery wheel is entirely mineral, and contains no glue, shellac, rubber, or other gummy substance. They do not glaze or heat the work, are absolutely free from smell, and require only three-fourths the speed and power to run them of other solid emery wheels, and will do good work at less than one-half the speed. For this reason, they are used successfully in foot lathes, and will grind knives or tools without drawing the temper.

9.—HARRIS & SANBORN, 51 West Washington street, Chicago. The Harris Rotary Steam Engine and Harris Safety Sectional Steam Boiler. The Harris engine is simple and durable, and is specially adapted for many purposes—running elevators or hoisting machines. Its practicability and utility have been fully demonstrated by constant use for many years, and its equal for cheapness, power, and economy of fuel is seldom if ever seen. The Harris sectional boiler is constructed wholly of wrought iron, and so made that there is no unequal expansion or contraction, and no joints to leak. It cannot explode under any circumstances, and no extra insurance is required when these boilers are used. Steam can be raised in from five to ten minutes, and they are not only light, but economical, requiring less fuel than any other boiler.

10.—CHAS. KAESTNER & Co.; Office, 58 South Canal street, Chicago. This firm exhibited one of their celebrated Patent Burr-Stone Grist and Feed Mills. The great superiority of these mills consists, first, in the vertical position of the stone; second, the speed at which these mills are usually run enables them to do a great amount of work, and are especially adapted to light power, such as wind, horse, and portable engine power; third, the running stone is securely braced upon a wrought iron shaft of the best iron, while the bed-stone is held in position by a universal joint, which enables it to adapt itself at all times to the face runner, therefore offering a face parallel to each other. The runner stone is set in working position by

means of a steel point, which is attached to the lighter lever, and is set together by a hand wheel; this lever is provided with a spring, so attached that if by accident a small pebble or nail should get mixed with the grain the stones would yield in such a manner as to allow it to pass out without injury to either of the burrs; fourth, another advantage gained in the construction of this mill is the device for separating the stones at any time, and which prevents them from running together in case the feed is shut off; fifth, another important advantage in this mill is the ease with which it can be handled for dressing, one man being able to handle and turn face up the largest size stone without any extra machinery.

11.—LEWIS, OLIVER AND PHILLIPS, 114 and 116 First avenue, Pittsburg, Penn. Bolt Machinery and Samples of Heavy Hardware. The display of this firm consisted of specimens in great variety of their specialties in Heavy Hardware and new and patented Wagon Hardware. All the goods manufactured by this firm are from a very superior quality of iron, rolled by them expressly for the purpose. In addition to their specialties was also exhibited every size of merchant bar, band, round, half-round, square, oval, and half-oval iron, of their own manufacture. This firm makes a specialty in addition to those named, of rolling peculiar odd shapes, for agricultural implements, etc. A Bolt machine, exhibited by this firm, in operation, by which bolt-making was fully illustrated, was a commendable attraction.

12.—MACKEY, WALKER & Co., 128 Michigan street, Chicago. Mackey's Patent Gang Lath Mill, Self-feeding Boilers and Combined Mill, and Lath Mill Machinery. Mackey's Patent Lath Mill runs a gang of six circular saws, with the collar so constructed as to perfectly prevent them from heating or dishing—an advantage possessed by few other mills. They are very simple in construction, there being no gear-wheels, and so little machinery that there is scarcely any liability of their getting out of order, and the frequency of stopping for repairs, as is the case in other machinery of the kind, is entirely avoided. They will cut from one to six lath at a time, as fast as one man can feed the bolts, and have a capacity, if properly managed, of 9,000 lath per hour.

13.—WM. F. MOODY, cor. Monroe and Clinton streets, Chicago. Moody's Patent Dovetailing Machine. This machine makes a perfect and complete dovetail, of the same kind as the hand-made. The work is done by chisels, working alternately. The machine is

easily adjusted, not liable to get out of order, and seems to require but very little skill or practice in its use. The work is done with perfect accuracy and great rapidity, dovetailing complete 600 drawers per day. The merits of this machine are worthy the attention of all manufacturers.

14.—MARDER, LUSE & Co., Chicago Type Foundry, 139 and 141 Monroe street, Chicago. This well-known establishment contributed one of the most interesting and novel features in the Exposition — a miniature type foundry in complete operation. Here could be seen different processes by which the dull lead is transformed into bright types, that are so useful in disseminating knowledge of all kinds throughout the habitable globe. The first to be noticed were two casting machines — perfect marvels of ingenuity — propelled by steam, an improvement lately introduced by this firm, operated on what is termed a steam table, each machine being so arranged as to act independent of the other. Each machine is provided with a furnace, in which the metal is melted, from whence the metal is injected by a pump into the type mold with such force as to make the type perfectly solid. The type mold is in two parts, made of steel, which forms the body or shank; and the matrix, made by driving a steel punch with the face of the type cut accurately thereon, makes the letter itself. This matrix and mold, to make perfect type, are made to fit together with mathematical accuracy, otherwise the face would not fit squarely on the body, a fact that would be painfully observable to the reader. At each revolution the mold closes together, the matrix is thrown up against the end of the mold, the metal is injected by the pump, a pause of an instant for the metal to cool, the mold slightly opens, and out drops a type. To all appearances the machine has made a perfect type, but human hands must now complete the work and put on the finishing touches. Two boys break the “jet” or refuse from the end of the body, transfer the type to girls who rub the flat sides lightly on a stone, in order to remove the burr on the corners of the body, which cannot be avoided in a movable mold. When rubbed, they are passed to another set of hands, who set them all one way on sticks about a yard long. These sticks are transferred to the dresser table, to undergo the final operation of manufacture, that of dressing the sides and bottoms and examining the face of each type with a magnifying glass, all of the type having even the slightest imperfection being thrown out. The rapidity with which this entire process is done is truly surprising. Some idea may be

obtained from the following figures: The machines cast on an average 75,000 single type per day; each breaker boy will handle 37,500 type; each rubber will handle 50,000; and each setter will set up 37,500 type; or to sum it up, the production of two machines, with one man to attend them, two boys, five girls, and a dresser will turn out about two types in each second of time. Great credit is due to Messrs. Marder, Luse & Co., for thus enabling the thousands of visitors to the Exposition to witness the manufacture of type, a subject to which perhaps they had never before given a thought, save those of the "Art Preservative," but which they will undoubtedly now recall to mind every time they open a book or read a newspaper. This firm was established in 1855, and to them belongs the credit of being the first to manufacture type in an Exposition, although it is no more than what should have been expected from a house of their enterprise and magnitude.

15.—NATIONAL WATCH Co., Elgin, Ill. One of the chief attractions at the Exposition was that of the miniature watch factory erected by the above Company, where the process of manufacturing the most interesting parts of the watch by machinery was in process under the management of young lady operatives. Twenty-five machines were in operation, and pinion and wheel cutting, jewelery, screw making, plate drilling and other highly interesting and instructive processes shown. Inventions in watch making are of two sorts: the one an improvement in the mechanism itself; the other in the machinery by which some part of the watch is made. Watches have much to answer for, if indeed it is true that the worst railway accidents are attributable to errors in time-keepers. The Pennsylvania Railroad has set a good example in this regard. It owns the watches carried by its engineers, all of which are the Elgin, and supplied by the National Company. When a locomotive is sent out, the watch belonging to it is given to the engineer in charge. When he returns and reports, his watch is also returned and carefully regulated, so there is never any variation in the time-pieces carried by the employés of this great road. The Elgin watch has become as a household word, and their merits are well known. The "B. W. Raymond" is the famous railroad watch made by this Company, and now so generally in use among railroad men in this country where a correct time-keeper is required. The "H. L. Culver" is a companion piece to the "Raymond." Both these movements make 18,000 beats an hour. The movements made by this Company for

ladies' use consist of the "Lady Elgin," "Frances Rubie" and "Gail Borden;" the former being very extensively used, while all are elegant and correct time-keepers. A variety of movements made by this Company were exhibited, and were carefully examined by the thousands of visitors, whose interest was unbounded over this popular watch. The factory of this Company is at Elgin, and the principal office is located in Chicago. The capital invested in watch making by this Company is one million dollars.

16.—PAGE BROS. & CO., 59 and 61 Lake street, Chicago. The display of this firm was very attractive and interesting, and consisted of several Boot and Shoe Machines made by the Boot and Shoe Machinery and Manufacturing Co. of Boston, Mass. The "Champion" power pegging machine, driving 900 pegs per minute, making the pegs, holes, and driving in the pegs, all at the same time, was undoubtedly the most interesting machine among the many exhibited. All the machines necessary to make a boot or shoe, run by foot or steam power, were here in operation, giving an ample idea of their labor-saving qualities. Altogether, the display made by Messrs. Page Bros. & Co., who are sole western agents for the Boston Manufacturing Co.'s boot and shoe machinery, and also the Stimpson patents, was unique and interesting, and an hour could not have been more profitably spent than in examining the various machines exhibited by them, and in watching the skillful manipulations of those to whom were assigned the duty of practically demonstrating their efficiency.

17.—PLUMB, BURDICK & BARNARD, Buffalo, N. Y. Bolt Forging Machine. This machine is particularly adapted to the manufacturing of square and hexagon heads, but is also capable of making any desired style. They are put up in the best manner, free from gear or complication, take little power, are quickly adjusted from one size to another, and can head bolts of any length. Unlike other machines, where the blank is horizontal, it remains stationary until the head is completed. Other machines clamp the blanks tightly with the holding dies, and turn it one-quarter or one-half around with each revolution, thereby reducing the size of the rod directly under the head where the die strikes it. In this machine the end of the blank rests against a stop, and the holding dies simply close on the iron and remain so until completed. The stock for the head is upset by a plunger which recedes, and the forging dies, acting simultaneously on the four sides, form the head to the required size and shape, thus

producing heads uniform in size and retaining the full strength of the iron. It is so arranged that it will make four, six or eight revolutions, thus giving each head twenty, thirty, or forty blows, according to the finish desired; then stops to discharge the bolt, and is ready to receive another blank. The working parts of the machine are operated only while the blank is being headed, thus reducing the wear in proportion to the work done.

18.—ROPER CALORIC ENGINE COMPANY, 124 Chambers street, N. Y. Ledyard Colburn, Agent, 736 State street, Chicago. Caloric Engine. This engine is admirably adapted for all sorts of mechanical work where a moderate power is required, and possesses many superior advantages, among which may be named that no water is used, hence it cannot explode. No extra insurance is required where these engines are used. It requires no skilled engineer, and is not liable to get out of order and costs to run 20 cents per day per horse power. *The destruction of life and property from the use of steam* is well known and shows the importance of supplying a motive power free from danger. Small steam engines require the closest watching and greatest care, and therefore, when power is needed, *safety* alone should be the turning point in favor of the Roper engine—for neglect of this engine can only result in its stoppage after the fire gets low.

19.—VANT, COOK & COMPANY, 125 West Randolph street, Chicago. This firm exhibited one of their new style Centrifugal Corn Sheller and Cleaner Machine. This machine possesses four improvements upon those first made by this Company, and now ranks one of the best in the market. The one on exhibition was No 1 in size, and performed its work in a satisfactory manner to all interested. This firm are also dealers in mowing and reaping machines, sickles and sections, and made a fine display of these implements which were made by the Whitman & Miles Manufacturing Company, of Akron, Ohio.

20.—WALWORTH, BROOKS & Co., 243 and 245 Lake street, Chicago. Steam Pumps, Machinery, Tools, etc. The display made by this old establishment, whose business career dates back over *thirty-four* years, was in every way commendable, comprising every known article of fittings, valves, etc., for steam, gas and water, engines, boilers, belting, hose, gas and steam fitters' tools, steam pumps, steam heating apparatus. A very fine display was made by this firm of Blake's celebrated patent steam pumps. The simplicity of the valve

gear and positiveness of action of these steam pumps render them a most desirable article, comparing favorably with any other pump in the market. A few interesting facts are here recorded, illustrating the progress of this leading firm. In 1840, James J. Walworth was engaged in New York in importing wrought iron gas and steam pipe, of English manufacture. In 1842 he admitted as partner Joseph Nason, since so widely known in the trade. At this time the only attempt at steam heating was in manufactories, by carrying the cast iron exhaust pipe from the engine directly through the building, under the ceiling. The new firm soon perfected and commenced the erection of improved apparatus, using either exhaust or live steam from the boiler, through wrought iron pipes. They not only introduced the system of *direct radiation*, but also that of *indirect radiation* and ventilating by the use of fan-blowers, now commonly used in large public buildings, hospitals, etc. The first apparatus of this kind they erected in the Boston Custom House, about 1846, in which city they also had a manufactory and store. At the outset they encountered the necessity of improved fittings and valves, the elbows, etc., then in use being expensively made of wrought iron, and the present globe valve, angle, check and other valves, cast iron and malleable fittings, etc., being unknown. All these articles were invented and manufactured by Walworth & Nason, and the manufacturers of every country have freely copied their patterns, but at this day they remain substantially the same as when originated. Unlike many inventors, neither Mr. W. nor his coadjutors have received any reasonable emolument in royalties from these valuable inventions, but by the energetic introduction of their productions the firms in Boston and Chicago have secured a leading position in the trade. Mr. Walworth is now, and has been from the first, actively engaged in the iron pipe business, having commenced in Chicago in 1853, and being at present the senior partner of the firm of Walworth, Brooks, & Co., of Chicago, who are also the exclusive manufacturers for this part of the country of the Nason vertical tube radiator, the acknowledged standard apparatus, as well as of all other goods used in the pipe-fitting trade. The practical experience obtained in heating and ventilating over 3,000 buildings, such as hotels, hospitals, stores, dwellings, etc., in all parts of the Union, must prove valuable to the patrons of the firm. This firm also represent Messrs. Otis Bros. & Co., of New York, who are the largest builders in the country of patent steam safety elevators, for hotels, stores, office buildings, mines, etc.

The Otis machines have, on account of their superiority in design, material and workmanship, become so largely introduced in all the leading cities during the past twenty years, as to require no description here.

21.—SILSBY MANUFACTURING COMPANY, Seneca Falls, New York, S. McDowell, General Western Agent, 156 and 158 LaSalle street, Chicago. This Company was well represented, having one of their third size rotary steam fire engines, a power pump, a hand pump and a hose cart, besides a working model steam fire engine. The model attracted more than ordinary interest, from the fact that it was made by a one-armed engineer belonging to one of their engines, during his leisure time, covering a space of about three years. These machines are all made on the rotary principle, and are, without doubt, the most effective and serviceable fire engines made; their widespread popularity and rapid introduction going to prove the assertion.

22.—CHICAGO PORTABLE TRACK AND CAR COMPANY; Office, Bryant block, 57 Dearborn street, Chicago. Portable Cars and track; A. Beteler's patent. This invention is intended for use in grading railroads, in place of carts or wagons, and in coal and iron mines, unloading coal or ore from vessels; peat meadows, stone quarries, public works, brick yards, etc. It consists of a railroad track, complete in itself, of from twenty to thirty-inch gauge, made in sections of twenty-five feet. The rails are a combination of wood and iron, held in place by cross-tie bolts, with suitable locks on the ends of rails, to connect the sections. Switches are also made in sections, as well as curves, to give the track any direction required. The great advantage claimed is lightness and portability, allowing the track to be readily moved as the work progresses, and easily transported on wagons, always complete and ready for use. On this track is used an ingeniously constructed car — which dumps on either side — less than four feet in height, and holding one cubic yard. When the track is laid, a span of horses draw a train of twelve loaded cars. There were several of these cars and about one hundred feet of track on exhibition; and, although not kept in operation, the cars were very often dumped and moved about by those interested in such business.

23.—CHICAGO TAYLOR PRESS COMPANY, S. P. Rounds, President; Office, 175 Monroe street, Chicago. This Company had on exhibition one of their machines, known as the Taylor Combination Drum Cylinder press. This machine was in daily operation, and attracted much attention, particularly among printers; and it was their

unanimous opinion that this machine, combining, as it does, great strength, simplicity, ease of running, perfect register, and complete distribution, beautiful finish and handsome appearance, was the *ne plus ultra* in this line, and reflected great credit on the Company, as well as upon Chicago, who now possesses one of the best machines in use, and represents the only printing press manufactory in the West. Hundreds of these machines are already in operation throughout the west, north and south, although it is scarcely six years since they were first introduced. Mr. Rounds, the President of this Company, is largely engaged in the printers' furnishing business, having one of the largest depots and most complete assortment of such goods to be found in the country. His house was established in 1848, went through the crisis of 1857, the bank failures of 1861, was entirely destroyed by the great fire, and is to-day one of the finest and most extensive printers' warehouses in the United States. Mr. Rounds has fitted up over eight hundred different newspapers entire during the last quarter of a century, and his business is constantly increasing, and is a deserved favorite among the entire craft of the great northwest.

24.—INVISIBLE WEATHER STRIP CO., F. Barhydt, Manager, 163 LaSalle street, Chicago. The specimens of the ingenuity of this Company consisted of two working models, which fully illustrated how easy it is to adapt their invention to windows and doors to most effectually exclude dust and rain in summer, and the cold winds and snow in winter, from otherwise comfortable homes. It is applied by inserting a thin piece of rubber about half an inch in width, into a groove made in the door or window, without using either nails or screws to hold it in place. It also avoids the rattling of the windows during high winds, without in the least interfering with opening or shutting the same by being attached to the meeting rail of the window.

25.—PERRY, MORRIS & SULTZER, Printers, State street, Chicago. This firm had within their enclosure a small printing office complete, and illustrated how easy it was to set up a book or newspaper and work it off to the admiring and wondering visitors of the Exposition. Two new printing presses were here exhibited, a "Yorkston Job Press," and a "Peck Automatic Job Printing Press." The "Yorkston is made in three sizes, by Oliver Crook & Co., of Dayton Ohio. The one on exhibition was a quarter medium, and it is claimed to be the most simple that has been placed in the market for the uses of the printer. The "Peck" press is intended to do card and envel-

ope work at a high rate of speed—about 8,000 per hour. The platen is stationary during work, but can be swung out into convenient position for adjusting the tympan or overlaying. The bed moves in slides, with a motion similar to that of a cross-head to an engine. It is actuated by a crank and pitman. Pulleys and fly-wheel are attached to the crank, and each revolution produces an impression. At the point of connection of the pitman with the bed is a piece of rubber of sufficient thickness to soften the pull and give a “dwell.” The card-box is adjustable to any size of envelope or card, and has a movable foot operated by a coiled spring, by which the stock to be printed is kept at the top and even with the platen. The “feeders” are flexible and can be set to any size or thickness. The nippers are adjustable, and have pressure enough to hold the margin of the stock down and prevent its being “sucked up” by the form. At the instant of separation the pressure is relieved. The distribution is by disk, and four rollers may be used if desired. The roller frame moves in slides, fastened to the bed, and has a “traverse” motion with it. The press has an odd appearance, the form being worked face down, requiring careful justification. This machine is the first one that has been made, the manufacturers, Messrs. Peck, Cella & Eaton, having but recently obtained the patent.

26.—WM. OWEN & SON, 59 Wells street, Chicago. C. H. Hall's Pulsometer or Magic Pump. This pump is one of the greatest inventions of the age. The steam is admitted by a pipe at the top of one of the two chambers of which the machine consists. A ball valve prevents the steam entering the other chamber. In this chamber the steam, after having forced the water previously contained in it out through the discharge-pipe, is condensed, forming a vacuum as nearly perfect as may be. As soon as the vacuum is formed, the ball-valve closes the orifice at the top and shuts off the steam, when the water from the suction-pipe rushes in and fills the chamber. In the meantime, while one chamber is filling a vacuum has been forming in the other, and the steam, being shut off from that, forces the water contained in the full chamber into the discharge-pipe. Thus the action is alternate, and similar to a succession of pulsations; the steadiness of the flow being secured by means of an air-chamber in the center of the machine. This machine, so cheaply operated and so indestructible in use, is excellently adapted for raising water from wells and streams for irrigating purposes, and for forcing it to any height desired; the height depending only upon the pressure of the steam

in the supplying boiler. The cost of a machine able to raise 110 gallons per minute is only \$200, and one able to raise 1,100 gallons per minute is \$800. This machine is made by C. H. Hall & Son, Cortland street, New York.

SECTION 5.

Sewing, Knitting, Spinning, and other Machines in Motion, not requiring Steam Power, etc.

1.—AMERICAN SEWING MACHINE CO., W. P. McCormick, manager, 76 State street, Chicago. Several styles of this company's machines were exhibited, together with a variety of specimens of its work, which were well done and reflected credit upon the capacity of the machine, and illustrated its great range of work. The four prominent features claimed for the American are, simplicity, durability, light running qualities, and efficiency. The machines were highly finished, and in every way as ornamental as any of the standard make.

2.—THOMAS BARROWS & Co., 381 West Madison street, Chicago, Agents Victor Sewing Machine. Several of these well known machines were exhibited, with well made folding cabinets of black walnut, inlaid with ebony and gold, having an elegant monogram on each panel of the doors. A show case contained several specimens of finely embroidered articles of silk and satin. With its recent improvements, this machine is claimed to be the simplest, most durable and complete, each movement being rendered positive, and at the same time light and easy, so as to attain the highest speed with little or no noise, and without injury to the machine. It has a self-setting needle, a perfect tension, and a new and greatly improved shuttle. It will sew from the most delicate texture to the heaviest material without change of tension, and uses with equal facility silk, linen, or cotton thread.

3.—CHAPIN & MITCHELL, 33 South Water street, Chicago. Bristol Washing Machine. These machines appear to be an important domestic invention; and of the various washing apparatus and general labor saving inventions for the relief of household drudgery exhibited, the Bristol Washer seems to have made the most impression. This admirable washing machine, manufactured and sold by the prominent commission house of the exhibitors, differs from

other industrial inventions in some important points of manifest superiority, which entitle it to popularity and general adoption. These points, as developed in the public examinations to which they are submitted are, that it is noiseless in operation, washes without wear to fabrics; washes lace fabrics, curtains, etc., without injury; washes woolen goods without fulling or shrinking; works without friction, works rapidly, and works efficiently. A great point of advantage is in the corrugated rollers, which have no unoccupied spaces for the retention of soiled water, and insure the cleanest washing without the common fault of shrinking the garment. The popular favor met with by the Bristol Washer was well illustrated by the sale of many machines to visitors, which demonstrated that this machine was all that was claimed for it.

4.—G. H. N. CUSHMAN & CO., Ottawa, Ill.; Office, 174 South Clark street, Chicago. Family Favorite Knitting Machine. This machine is of circular form, and is superior, not only in point of cost and lightness, but in the essentials of simplicity, durability, and rapidity of work, and possesses all the desirable features which a simple knitting machine can have. These are: Ability to knit back and forth over any desired number of needles, from one up to all but one carried by the needle cylinder; ability to pass any needle or any number of needles without forming stitches upon them, and without casting off the work carried by them; absence of mechanical complications of uncertain action, and low cost. As to mechanical construction, all the parts of this knitter are made to gauge; the utmost care is used in mixing metal for the cast iron work, and all the small parts are made either of steel, tempered and polished, or of Norway iron, case hardened, and all the screws are hardened and drawn to color. No machine of any kind for family use is more thoroughly good in workmanship than the Family Favorite knitter. Special tools have been designed and constructed in every needful instance, and in finish, outline, and ornament, this knitter seems to be unsurpassed.

5.—CALKINS' CHAMPION WASHER COMPANY, 191 and 193 South Clark street, Chicago. Champion Washing Machine. Labor-saving inventions are among the chief characteristics of the age. The work of the farmer and mechanic has been relieved of its most toilsome features by the inventive genius of the nineteenth century. But the work of woman, most dreaded, has remained without alleviation, and the weekly washing day has brought to every family its innu-

merable discomforts. This machine well and truly deserves its name, as it undoubtedly is the champion over all other machines. It is substantial in construction, does its work perfectly and quietly, and is universally indorsed, having taken many first premiums at various State Fairs for its superior qualities.

6.—DAVIS SEWING MACHING C.J., Watertown, N.Y. Branch office, 358 and 360 Wabash avenue, Chicago. J. B. Collins, Manager. The Davis sewing machine and specimens of its work were exhibited by this Company. Among the samples of work shown were several articles of children's clothing elegantly braided and stitched, demonstrating the perfection attained by the only vertical feed machine exhibited, and the only one of any reputation manufactured. One noticeable feature was that it not only does the fancy ornamental work as well, but that, with only a change of needle and thread, it sews—and fully as well—through a half inch of solid lead and block tin, and with the same tension. Among the many good points of this comparatively new candidate for favor are the facts that it is impossible for work to pull up; that no basting is required; that it sews over folds and plaits without touching at all. The arrangement for the vertical feed is above the shuttle plate, the goods resting upon a smooth surface, and are held firmly down by the presser foot *until* the needle has penetrated the fabric, at which time the pressure on the fabric is being transmitted from the pressure foot to the vertical feed-bar (which comes down on the goods close behind the needle) by means of a lever connecting the two, and also with the needle-bar, so that at the time the needle has reached its lowest point the full pressure is transmitted to the feed-bar, and at which time the needle-bar and feed-bar are both moved laterally the desired length of stitch, both moving in unison at their highest and lowest points. This Company was organized about five years ago, at Watertown, N. Y., and completely remodeléd and improved the machine during the first part of the present year. Among the improvements may be mentioned the "milled shanked needle," by which device all sized needles occupy precisely the same position in relation to the shuttle, and cannot be set wrong for use; also a new and patented "back-hanger," capable of easy adjustment in case of wear; a new "take-up" and an adjustable "needle-plate" for sewing with large or small needles.

7.—W. P. DAVIS & Co., 112 Dearborn street, Chicago. Sewing Machine Attachments. This well known firm exhibited specimens

of their manufactures, prominent among which was the "Peerless" tuck creaser, an attachment which really is, as its name indicates, without a rival; a fact conceded at once by all who witnessed it in operation. It is doubtless the most perfect working creaser in the market, making exactly the same crease for the widest as for the narrowest tuck, and so perfect for either that the goods fold over at once. The creasing is done by means of a long lever, and is therefore extremely easy on the machine. Sewing machine agents all over the country have been much perplexed by the continual coming to pieces of the old style tuck markers, put together with soft solder, and will be glad to know the fact that the Peerless has not one particle of solder about it, and that its working parts being made of the best steel, it is very durable, and only needs to be seen to be appreciated. The entire display was one which reflected much credit upon the firm, not only for the merits of the goods shown but for the good taste evinced in their arrangement, being contained in a handsome nickel plated show-case.

8.—FARRAR & WHEELER, 155 State street, Chicago. General Western Agents Wheeler & Wilson Sewing Machines. A sewing machine at this late day is no novelty; but comparatively few are acquainted with the great facility with which the finest work is executed by steam power. Therefore the interest manifested in the Wheeler & Wilson machines was largely due to four of them being run some 1,200 to 1,500 stitches per minute, manufacturing various articles. A shirt, with its many pieces, requiring to be hemmed, plaited and felled, turned out in forty minutes! Not a coarse, common article, but of fine material and perfect workmanship. The instantaneous starting and stopping, at this buzzing rate of speed, without breaking a thread or impairing the excellence of the work, seemed hardly possible, but such was the fact. The machines were run about six hours per day, and performed the following work: Eight dozen shirts, 12 dozen cuffs, 20 dozen bosoms, 22 dozen collars, 8 dozen roller towels, 400 sheets, 400 pillow slips, 180 yards tucking, 96 mattress ticks, 48 berth curtains and 100 window curtains. Another novelty was the new Wheeler & Wilson manufacturing machine No. 6. This heavy machine was run on patent leather saddle pads, and received many compliments from those whose experience fitted them to judge of such work, for the beauty of stitch and its quietness. It was speeded up to 1,200 stitches per minute, by steam, to show its capacity for speed, which is claimed to

be fully thirty per cent. faster than shuttle machines can be speeded. Although many attempts have been made, this is the first successful application of the rotary hook to machines for leather and other heavy work. It is not only a success, but has many novel and useful features, which must ensure a large sale for it. The needle is very short; the bobbin is large, and is placed instantly in the machine, without threading; the under tension is changed by a lever, which may be operated while the machine is in motion, and the take-up is entirely independent of the needle, allowing the thread to be drawn at exactly the right time. Its capacity is from the finest cambric, with No. 300 cotton, to a harness trace, with waxed thread, a range hitherto unknown in one machine. It is remarkably light running for its size, which is due to its rotary hook. A new combination sewing machine, secretary and book case, attracted much attention. A show case of elegant samples made by the machines, and a variety of beautifully painted machines and cases completed the display.

9.—H. C. GOODRICH, 205 State street, Chicago. Tuck Marker. This highly important and valuable sewing machine attachment was exhibited, and sustained the reputation already accorded it, that of being the best sewing machine attachment ever invented. It was patented in 1867, and although several years passed away with but little profit to the inventor, who being satisfied that the merits of his invention would at last be demonstrated, the tuck marker was kept in the market, and early in 1868, it having become somewhat known, a brisk trade began, and the year closed with sales amounting to about \$55,000. In 1869 sales run up to about \$76,000. Having now been in the market a little over two years, its utility was established, and its value and importance to the sewing machine trade could hardly be estimated. At the close of 1870 the sales amounted to \$125,000; in 1871 they reached \$135,000, and in 1872 the sales amounted to the enormous sum of \$180,000; thus in the aggregate, \$571,000 worth of these markers were disposed of in five years at wholesale prices alone, and remembering that this now indispensable article was retailed at three dollars each, the amount paid out by the consumers foots up to the handsome sum of \$1,380,000. In no period of equal duration since the invention of the sewing machine, was there ever any one article belonging or pertaining thereto that has been so popular or had such an enormous sale.

10.—GROVER & BAKER SEWING MACHINE COMPANY, F. A. Butler,

City Agent, 150 State street, Chicago. The representative of this well known Company exhibited ten of their popular machines of various styles, all elegantly finished. The praises of this machine have long been sung by many thousands, and being one of the oldest machines before the public, its qualities are well and favorably known, and needs no description here.

11.—HOME SEWING MACHINE COMPANY, Johnson, Clark & Co., Agents, 157 State street, Chicago. Sewing Machines. A number of these popular machines were exhibited, some of which were elegantly finished; but the beauty of a sewing machine is the quality of its work. The "Home" is undoubtedly an excellent machine, judging from the specimens of its work exhibited, and taking into consideration the price compared with others, and it seems superior in many respects, the "Home" being sold for only fifty dollars, while other machines capable of doing no more or better work, (and in many cases not so good,) are sold for seventy-five and one hundred dollars. This machine is lock stitch, light running and claimed to be the cheapest machine in the United States. The work it does and the price it is sold for commend it highly.

12.—HOWE SEWING MACHINE COMPANY, New York; Chicago office, corner of State and Jackson streets; J. O. Bryant, Manager. Sewing Machines and Samples of Work. The Howe machine, which is known in almost every household throughout this country and Europe, and which has been awarded hundreds of premiums for superior excellence, needs no comment in this volume. That the Howe machine is all that it is claimed to be there can be no doubt, so fully has the fact been demonstrated. Elias Howe, Jr., the inventor, who is well known to the world, laid the corner stone for the immense structure he has since built in 1845, when he completed his first machine, after years of patient toil for the benefit of the sewing fraternity, and his name will always be venerated and revered by that class he has so greatly benefited.

13.—J. H. LEROW & CO., 256 State street, Chicago. Bles Sewing Machines and Samples of Work. Among the specimens of work were a scarlet corset, beautifully embroidered and stitched; a misses' white dress, finely ruffled and puffed; an infant's robe, with puffing, insertion and tucking, and a set of pillow shams, beautifully braided and puffed. As early as 1832, Walter Hunt, a citizen of New York, one of nature's noblemen, an American, was the geniuistic parent that made and perfected the machine whose stitch to-day stands so pre-

eminent for strength, beauty and durability, and which is so fully developed in the Bles noiseless, lock-stitch sewing machine. The main point of excellence of this machine is its link-motion, a most ingenious invention of distributing and equalizing the wearing points and joints, to make it last a life-time. There are many other points of excellence claimed, all of which are just what is wanted in a first-class machine. The many varieties of work performed by it, and the excellent manner in which the work was done, all prove that it would take rank among the best, and receives the patronage it so richly deserves.

14.—REMINGTON EMPIRE SEWING MACHINE CO., Illion, N. Y. Chicago Office, 285 State street. E. Lathrop, Manager. Empire Sewing Machines and Samples of work. Third in order from the head of sewing machines will be found the Remington. This is a new machine, but it is rapidly becoming a general favorite, and is gaining favor in every household where it has been introduced. The manufacturers, who are the makers of the famous Remington fire-arms, claim that their machine is so complete as to overcome all the principal objections that are found in shuttle sewing machines. That which has long been sought after, by probably every sewing machine company in the land, has been obtained in these machines, that is, an even, round bird's-eye stitch on all kinds of goods, coarse or fine, without the use of cog-wheel gears, rotary cams, or levers, working silent and smooth while in motion, is positive proof that it will continue to run well for years without expense. A discriminating public must, and will soon determine the merit of these machines for themselves. The Remington sewing machines were invented by J. T. Jones, of the Company, who is well known in the trade throughout the world as one of the pioneer inventors of the practical sewing machine, and are fully secured by recent patents. All these machines are manufactured at the Remington Works, Illion, N. Y., where they have ample facilities for manufacturing in large quantities, employing the most skillful mechanics, and the latest improved machinery. Much of this machinery has been specially invented for these machines.

15.—SHERRAR & MCGARIGAL, 145 Clark street, Chicago. The Unique Washing Machine. This machine is of recent invention, and appears to be one of considerable merit, and is of that class of washing machines in which the garments to be washed are passed between fluted rollers. The present invention consists in employing a cen-

tral roller, to which is applied the power, and a series of overlying rollers surrounding the central, said overlying rollers being pivoted in a hinged weighted frame-work, and adapted to slide up and down in a slide-way, to adapt them to various thicknesses of goods or garments. The advantage of having rollers swing in a weighted frame-work, over the use of springs, consists in the fact that when springs are compressed the pressure they exert increases so that when a thick or folded piece of cloth or garment passes through between spring-compressed rollers it receives a greater pressure than a thin or unfolded piece; while the weighted frame always exerts the same pressure, which pressure may be gauged exactly to the required amount, to allow the cloth to remain saturated with suds, no matter how thick or thin.

16.—SEWING MACHINE POWER CO., B. W. Robinson, General Manager, 174 Clark street, Chicago. With this power a uniform motion is obtained, at all times and at all rates of speed, from one to one thousand stitches per minute. The ease with which this power propels a sewing machine is surprising to those not familiar with it. The reason of this is found in its peculiar mechanism, which can only be understood by a personal examination. The old treadle, which requires the unnatural spring of both feet at the same time, has the effect to irritate the side of the operator, while the motion with this power, requiring only the alternate tapping of the toes, is so easy and natural that one gains strength by its use. The power is applied and controlled by the feet alone, leaving the hands free to handle the work at all times, so that all the heretofore difficult kinds of work can be done with ease by its use, and the value of any sewing machine is doubled.

17.—STAR TUCKER COMPANY, W. J. Faulkner, Proprietor, 180 East Adams street, Chicago. Star Tuck Marker. An interesting display was made by this Company, of their Star tucker, which, although a recent invention, has already extended its popularity over the entire United States, owing to its superiority. It is a neat little invention, and adapted to all sewing machines, and is pronounced by experts the most practical tucker made.

18.—SINGER SEWING MACHINE CO., 111 State street, Chicago. Singer Sewing Machines and Specimens of Work. Among the many machines before the public for patronage and favor, the one manufactured by this Company still stands pre-eminently forth at the head of all the list, which position it has maintained for the past

twenty years, and its many qualities are daily made manifest by the *one million* of these machines now in use. From this, it would seem that the demand must soon abate in the sewing machine trade, but on the contrary, each year the demand increases, and the Company of these exhibitors expect, the coming year, to double the number sold by them the past year, which was near 300,000. The specimens of work exhibited, done by the "Singer," were perhaps the finest display of samples made by any machine.

19.—WM. H. SHARP & CO., Agents for the Florence Sewing Machine, 204 State street, Chicago. Eight of these machines were on exhibition, together with a fine display of embroidery, puffing, and plaiting, which were executed with care, and showed the great capacity of this well-known machine. The reduction in the price of these well-known machines, coupled with the announcement that great improvements have been and are still being made, will certainly strengthen its already strong position, and cause it to continue to increase in popular favor.

20.—WILSON SEWING MACHINE COMPANY, Cleveland, Ohio; main office for the northwest, 197 State street, Chicago. This Company made a fine representation of a number of their popular machines, the workmanship of which was highly commendable. The display consisted of one gold plated machine, pearl inlaid, cabinet case, French walnut paneled; also, one fine cabinet case machine, gold lined; another machine shown was one intended for manufacturing purposes, highly ornamented, with extension leaf table; three other machines, for family use, completed the display of this Company. Many articles of work done by the Wilson were also exhibited, and although the names of the various sewing machines now before the public for favor are legion, yet it would seem that a *better* machine than the Wilson would be hard to obtain anywhere. The specimens of work exhibited showed that this machine quilted, braided, tucked, puffed, hemmed and embroidered beautifully. The most noticeable sample of work shown was a child's white merino cape, heavily embroidered with chenille, in colors, and valued at \$250. This magnificent piece of work was done by Miss DeLussey, an operator of the Wilson Company in the St. Louis office, and took the first premium at the Fair recently held in that city. The Company's original advertising poster, conspicuously displayed, was a prominent feature of their exhibition, and represented an old grandmother expressing surprise at a "Wilson for fifty dollars." These machines took the grand prize

medal of honor at the Vienna Exposition, and also three co-operative medals for specimens of work, of both cloth and leather. The display made by this Company is deserving of special mention, and reflects credit alike upon them and Mr. W. C. Shaw, of the home office, by whom the exhibition was arranged, and under whose management the goods were shown.

21.—LAMB KNITTING MACHINE COMPANY, Chicopee Falls, Mass.; J. E. Woodhead, Agent, 346 Madison street, Chicago. Lamb Knitting Machine, Knitting Machine Work, and Plain and Fancy Knit Products of Lamb Machine. This renowned invention is constructed upon the novel and simple principle of employing two straight rows of needles parallel to each other and sufficiently near to connect the two rows of knitting at either end, but far enough apart to allow the fabric to pass down between them as knitted. The needles are placed in grooves on the opposite side of a needle-bed, the two sides of which slope from each other like the roof of a house, and between which, at the ridge or center, the needles form the stitches. Over the needle-bed a carriage travels, which is propelled by a crank. This carriage carries a yarn guide that delivers the yarn from the bobbin or ball into the hooks of the needles; and the needles are taken up to receive the yarn by means of a cam attached under each side of the carriage—one cam for each row of needles—which, acting upon the shank or lower end of the needles, operates them up and down in the grooves. These needles only are used that are moved up within range of the cam. The needle is self-knitting, its principle being such that when fed by yarn, and moved an inch forward and back, it forms the stitch by its own action. As the carriage to which the cam is attached is driven back and forth over the needle-bed by the crank, the needles are carried up to be fed by the yarn-guide, and then drawn down, thus forming the stitches. The machine is capable of producing four distinct webs. As any number of needles in one or both rows can be moved up within range of the cams at the start, and the number be increased or diminished at any time, so any size of web, tubular or flat, can be set up, and widened or narrowed to any extent. The machine sets up its own work. It knits hosiery of all sizes, narrows off the toe completely, and by simply knitting the length of the heel on one row of needles whilst the other row ceases to operate, it forms and unites the heel of the stocking as it goes along. The toe is formed first, the foot and “gore” next; then the heel is knit, the calf is widened,

and the stocking is substantially complete as it comes from the machine, the only hand finishing to be done being simply to knit once around the top, bind off the heel, and unite it to the bottom of the foot—while in evenness and elasticity, symmetry of form and beauty of finish, it is far superior to the best hand-knitting. The stitches being the same as made by hand, with no tension on the arm, the fabric is equally durable. The stitches can be adjusted to any desired length by turning a thumb-screw so as to knit all kinds and sizes of yarn, woolen, cotton, or linen, home-spun or machine-spun, rendering the fabric tight or loose as desired. By thus knitting the fabric either circular or flat, single, double, or ribbed, in any desired shape, it will produce every variety of staple and fancy knit goods. This machine has taken ten gold medals, fifteen silver medals (including one from the Vienna Exposition), and bronze medals and diplomas in great numbers.

22.—THE WEED SEWING MACHINE COMPANY, of Hartford, Conn.; G. C. Thomas, General Agent, 152 State street, Chicago. Among the specimens of work exhibited were a ladies' merino cloak, trimmed with scarlet satin, quilted; a doll's pink silk dress, with ruffled and puffed lace; a white satin chair seat and back, quilted, and trimmed with rare colored silk, all the work of the machine, eleven of which were shown, being all finely finished. The machine made by this Company, and known as the "General Favorite," has what is called a "stop motion," by whose action the work is arrested instantaneously, with the shuttle in the loop of the upper thread, so that a mis-stitch is impossible. The direction of the work can then be changed at will, without losing time or stopping the momentum of the machine. Its economy and usefulness in "flowering," or short work, is manifest. The patent for this novel attachment is the exclusive property of the Weed Company, and has been but recently introduced.

23.—WILCOX & GIBBS SEWING MACHINE COMPANY, 200 and 202 Wabash avenue, Chicago; W. B. Needham, manager. A variety of styles of these popular machines were exhibited, and attracted much attention. The original patent for the Wilcox & Gibbs Sewing Machine was taken out in June, 1857, by the inventor, James D. Gibbs, of Millpoint, Va. The head-quarters of the Company are at 658 Broadway, New York, and it has leading agencies in all the principal cities on this continent, and in all the capitals of the old world. The machine has attained to great popularity, owing in part

to the mechanical skill displayed in its construction, and the consequent ease and rapidity of its working, but in part, also, to the exceeding beauty, strength and elasticity of the twisted loop stitch, which it alone of all the many varieties of sewing machines makes. It is now demonstrated that this stitch is, upon the whole, the best adapted for family sewing, and many kinds of manufacture. The *Mercantile Agency Annual*, for 1872, in an article on sewing machines, says: "The peculiar excellence of the twisted loop stitch is the twist or bind of the two sides of the loop at the point of their crossing. This stitch, is often confounded by ignorant or designing parties with the 'chain stitch.' The public, however, by this time are beginning to understand the difference between the old, unreliable, and easily raveled chain stitch, and the secure and elastic stitch of the twisted loop arrangement peculiar to the Wilcox & Gibbs machine. During the year 1871, more than six thousand double thread machines of all the well known makes were exchanged in the vicinity of New York for the Wilcox & Gibbs machine, and on the 17th of April, 1872, a great auction sale of a portion of those machines was held in New York, and attracted considerable public attention, adding not a little to the *éclat* of the Wilcox & Gibbs machine."

24.—FRANK O. WEARY, 95 LaSalle street, Chicago. Patent Sewing Machine Casters. These articles are adapted for all styles of machines, and are really a novel and meritorious invention. To move the machine, a lever is pressed by the foot, which raises the machine off the floor, and rests securely upon four swivel casters. To replace it, the lever is again pressed by the foot, and the machine drops again upon the floor and stands firm for sewing. All that can be required of casters for sewing machines, is now attained by this invention.

DEPARTMENT "F."

Products of the Farm, Orchard, Nursery, Garden and Green House.

SECTION I.

Fruits and Vegetables, etc.

I.—ATCHISON, TOPEKA & SANTA FE RAILROAD, Topeka, Kansas. A. E. Touzalin, Land Commissioner. Products of the Arkansas Valley, in Kansas. The display of Kansas products from along the line of the Atchison, Topeka & Santa Fe Railroad, occupied a large space. This road has three million acres of lands for sale, situated in the upper Arkansas Valley, the finest portion of Kansas. The display is admitted to be the best of all the roads, and consists of grain, grasses, brick, stone and minerals, which are evidence of a rich and fertile country — the farmers' paradise. A noticeable object that met the eye of the visitor was a rustic ticket office, trimmed in cedar and wheat, with thatched roof, from the door of which was distributed circulars and bills of the road. From the front of the display a magnificent spectacle was presented. A sign above, and running the length of both sections, was wrought in cedar with a cedar border, and was conspicuous to all parts of the southern portion of the Exposition. First in front comes a magnificent specimen of Tumble weed, commonly called Kansas moss. It is five feet broad, and comes from a seed not much larger than that of mustard. The first department of the double section was devoted to grains in sheaves, ear and threshed. The second was a field of wheat, a very artistically arranged affair, with Osage fence and rustic gate; also shock of wheat with the familiar partridge among the grain. In the third department was seen an exhibition of Kansas fruits, of the varieties which took the gold medal over displays from all parts of the country at the great fruit fair at Philadelphia two years ago. Then there was a beautifully framed representation of the seal of the State, "*Ad Astra per Aspera*:" "To the Stars through Difficulties," a motto peculiarly appropriate to wounded and sorely-

tried Kansas. An attractive display of minerals, with specimens of the purest gypsum that the world affords, was also shown. This grows in large bluffs along the line of the road, and when the country is fully developed will be one of the chief commodities of commerce of that rich section. The ochre brick were of a beautiful red, while a column of stone contained ten different kinds of the finest building material. The vegetables gave promise of a farming soil unsurpassed. This display of vegetables secured the premium over all competitors at the recent Kansas City Exposition. A watermelon weighing fifty-eight pounds, one of the average productions of the State, was also shown. There was also cotton, salt and tobacco of the finest qualities. Altogether, this display presented an invitation to the agriculturalist full of promise in the yielding fullness of its soil, its genial climate and its cheap lands, that will attract an industrious population to the lands along the line of the road, which is already completed to Grenada, Colorado, and is projected to the Pacific coast. Some of the advantages offered by this over that of other companies is, that it gives a reduction of one-fifth of purchase price for improvements. There is an abundance of coal immediately on the line of the road; pine lumber is transported from the Mississippi at low rates; they give eleven years credit; water, when not found in running streams, can be secured by digging to a depth varying from six to thirty feet; the climate is infinitely superior to that of any other land-grant road, and the altitude (being 2,000 feet above the level of the sea) at once guarantees a vigorous and bracing atmosphere. Here is an attractive home for the farmer.

2.—BURLINGTON AND MISSOURI RIVER RAILROAD LAND DEPARTMENT; George S. Harris, Land Commissioner, W. H. Wisner, Agent, 59 Clark street, Chicago. A number of glass jars, neatly labeled, containing specimens of corn, oats, rye, and other cereals, constituted the principal feature of display in this department, although many other articles, all the products of the soil along the line of this road, helped materially to make a large and interesting exhibition. The lands which produced these cereals are located principally in the southwesterly part of Iowa and the southerly portion of Nebraska, along the Platte, the Big Blue, and other valleys. They are not exceeded in fertility, beauty, and any attractions or advantages of locality and soil, which are essential in the estimation of farmers, to any region in the world. The crops are principally corn, wheat, rye,

oats, barley, sorghum, broom corn, and flax, all of which yield bountifully. Root crops, pumpkins, squashes, melons, grapes, fruits, and vegetables in great variety, are of the most prolific order. The Irish potato, sugar beet, turnips, carrots, rutabagas, parsnips, and sweet potatoes grow to an enormous size (as was evidenced by those on exhibition), and yield surprising quantities. The climate is temperate, healthful above most regions on the continent, epidemics are unheard of, winters are short and mild. The atmosphere is dry, clear, and bracing.

3.—IOWA RAILROAD LAND CO., John B. Calhoun, Land Commissioner; office, 90 Randolph street, Chicago. One of the most prominent features in the Exposition was the display of this Company. The middle region of Western Iowa was indeed well and truthfully represented by the productions exhibited. There were samples of wheat, barley and oats of different varieties; stalks of corn of immense length, bundles of flax, wild sunflowers from the Missouri bottom fourteen feet high, wild blue-joint and red-top grass, hops from Iola county, peanuts on the stalk from Buena Vista county, threshed wheat and other grains from different sections, and fine samples of vegetables, including sweet potatoes, from Plymouth and Woodbury counties. There were other productions equally as creditable to the State, such as specimens of potter's clay, pottery, brick and fire clay from Sargeant's Bluffs, Woodbury county; specimens from the Monigona Pottery Works, Boone county; brick from Storm Lake; also plaster from the Fort Dodge mills, and specimens of the native stones from which it is ground, and a specimen showing how it can be molded for stucco. The lands of this Company, in all 1,736,000 acres, were granted by the United States Government to aid in the construction of the Cedar Rapids & Missouri River and the Iowa Falls & Sioux City railroads, now leased by and known respectively, the former, as the Iowa Division of the Chicago & Northwestern, and the latter as the Iowa Division of the Illinois Central railways. A grant was subsequently made to the Sioux City & Pacific railway; and still later, a considerable donation of lands was made by the State of Nebraska to aid in building the Fremont & Elkhorn Valley railroad, now complete from Fremont north fifty miles. The lands remaining unsold by the Iowa Railroad Land Company, from whom the party buying receives a title free from all incumbrance, and with but a single remove from the United States Government, comprise 875,000 acres on the line of the Chicago & Northwestern

railway; 560,000 acres on the line of the Illinois Central railway; and 55,000 acres on the Sioux City & Pacific railway, all in the State of Iowa, at prices averaging at from \$5 to \$6 per acre.

4.—STATE OF KANSAS, R. D. Lender, Superintendent at Large. Agricultural Products and Minerals. This display was composed of productions from along the lines of the Leavenworth, Lawrence & Galveston R. R., Missouri, Kansas & Texas R. R., and from the State of Kansas generally. The productions from the line of the L. L. & G. road were forwarded by John W. Scott, Land Commissioner at Lawrence, Kansas, while those from the M. K. & T. R. R. were forwarded by Isaac T. Goodnow, Land Commissioner at Neosho Falls, Kansas. Gov. Osborn was determined that his State, the thirty-fourth in order of admission into the Union, should be well and ably represented at Chicago's grand Exposition, and with that determination appointed Capt. R. D. Lender to superintend the arrangements and display, who, together with the two railroads above named, was instrumental in making one of the finest displays of agricultural products and minerals to be found in the building. From the lands along the line of the L. L. & G. railroad, were specimens of cotton, tobacco, hemp, flax, castor beans, barley, grapes, etc., while the M. K. & T. road also furnished castor beans, the stalks being fourteen feet high; specimens of corn, oats, peas, rye and barley, and a collection of fruits unsurpassed for size, beauty and flavor. Properly the entire display should be classed as coming from the State of Kansas, as before stated, both roads and the State combined to make the exhibition. Specimens of flagging stone, with a surface smooth and regular, almost like marble, from Richmond county; sandstone of a superior quality from near Ottawa, Franklin county; magnesian limestone, from Franklin county, of a handsome whitish color, and highly polishable nature, which when first quarried is almost as soft as chalk, but which becomes as hard as granite when exposed to the air; red ochre, mineral paint and fire-clay; also a large collection of fossils and other petrifications from the Marias Des Ceygues bottoms, were exhibited in a case, and formed quite an attractive feature. The State of Kansas, as is well known, was admitted into the Union January 29, 1861. Its dimensions are 208 miles north and south and nearly 400 miles from east to west, including an area of 78,418 square miles. The face of the country is nearly uniform, being one continued succession of gently undulating ridges and valleys. The southeastern portion has a limestone basis, and is superior to Missouri in

the value and extent of its coal deposits. Lead is found in the southeastern portion of the State, and salt exists in great abundance. Timber is found skirting the streams, which are numerous. The climate is mild, the winters being short, with but little snow. Stock pastures are found through the entire winter on the river bottoms. The summers, though warm, are not oppressive, for the nights are always cool and pleasant.

5.—UNION PACIFIC RAILROAD LAND DEPARTMENT. O. F. Davis, Commissioner, Omaha, Neb.; O. W. Herrick, Agent, 57 Clark street, Chicago. The display here was large and varied, consisting in part of apples, of many varieties, pears, quinces, plums, grapes, corn-oats, rye, barley, potatoes, beets, and several specimens of cabbages, all of which were of large size, denoting rich land and a genial and salubrious climate. The fruit displayed was remarkable for size, excellent quality and healthy appearance, the freedom from severe frosts during the months of May and September, in connection with the dry winters and warm, quick soil rendering the State of Nebraska eminently adapted to their cultivation. About twenty-five large photographic views of different scenes along the line of this road were exhibited, representing thriving farms and busy towns, besides others of a more romantic nature. The pictures were arranged in a continuous line on the wall, and, with their bright, gilt frames, formed a very attractive feature of the display. The specimens of minerals were numerous, and included coal, copper, silver and iron. There was also a case of curiosities, which attracted considerable attention. Nebraska was admitted into the Union as the thirty-seventh State in the spring of 1867. Since its admission its progress in population and material prosperity has been rapid and substantial. The climate is the most healthful and delightful in the temperate zone. It is milder than in the same latitude in the Eastern States, and the atmosphere is dry and pure. The heat of summer is tempered by the prairie winds, and the nights are cool and comfortable. The autumns are like a long Indian summer, reaching into the latter part of December. Cold weather seldom lasts beyond three months, with frequent intervals of mild, sunny days. The greatest amount of rain occurs during the agricultural months, affording sufficient moisture for the growths of the soil. Among the most attractive characteristics of Nebraska is the wonderful salubrity of its climate. The high altitude, the dry and bracing character of the atmosphere and the universal purity of

the water render this State peculiarly favorable to persons predisposed to pulmonary and rheumatic diseases.

SECTION 2.

Flowers, Plants, Aquaria, Ferneries, etc.

1.—WILLIAM DESMOND, 755 Cottage Grove avenue, Chicago. A very attractive display of Ornamental Plants and Flowers, embracing every variety.

2.—HOVEY & Co., 141 State street, Chicago. Garden Seeds, Plants, etc. In the exhibition made by this exhibitor was found one of the most complete and attractive displays in florists' goods in the building, among which was noticeable a variety of flower pots, from the common earthen to the imported lava, majolica and wedgwood, rustic and wire work, birds' cages, etc. Flower seeds of choice kinds, and many other minor attractions were offered, all of which reflected upon this house as the leading florists of Chicago.

3.—D. S. HEFFRON, 250 State street, Chicago. Flowers, Seeds, etc. An extensive display was made by this well-known florist of choice plants, rustic work, aquariums, bulbs and wax work. An exhibition was also made of a large collection of choice garden and flower seeds. The arrangement of the display was commendable.

4.—EDGAR SANDERS, 92 Dearborn street, Chicago. The greenhouse of this exhibitor is in the town of Lake View, a few miles north of Chicago, where he located in 1837. The class of plants exhibited by him consisted largely in such as are used for summer decoration in the flower garden, which class has always been his specialty. It would be curious to note the changes that have taken place in the florist business within seventeen years. In that time all our present showy-leaved bedding plants, such as the coleus, achyranthus, centaureas, tri-color geraniums, etc., have come into existence. Indeed, the change in this department of gardening is very marked during that time. The most conspicuous plants on exhibition were the coleus, in many varieties, chief among which were the Favorite, with its intense crimson-scarlet leaves, edged with a gold shade; Setting Sun, of a bronzy crimson, tipped with golden edges; and a kind called Golden Beauty, peculiar from its scalloped edges and rich coloring; but the most singular variety, perhaps, of all, was called Chamelion, and apparently rightly named, as no two shoots would seem

to be alike, while the color was of the richest description imaginable, almost vying with the rainbow in its hues. A class of plants very suitable to go with these stood in close juxtaposition, commonly called Silver Foliaged plants, from their extreme whiteness and foliage, used as a contrast to the Chamelion. The most conspicuous kinds are Centaurea, Candidissima and Gymnœarpa. The Aremdo Louax, a striped leaved cane, was also noticeable.

5.—WILLIAM T. SHEPPARD, cor. State and Washington streets, Chicago. Flowers, etc. One of the finest displays in the floral line was presented in this exhibition, the arrangement being exceedingly commendable, and the collection of plants, aquaria, and ferneries very choice. Only the finest of plants are dealt in by this exhibitor, and those shown fully demonstrated the fact.

6.—ISAIAH TREFRY, 519 Cottage Grove avenue, Chicago. Flowers, Plants, Bouquets, and Greenhouse productions were displayed by this exhibitor, in rich profusion.

7.—JAMES VICKS, Rochester, N. Y. The great English florist exhibited some splendid Gladiolas.

SECTION 3.

Grain, Seed, Vegetables, and Dairy Products, etc.

1.—ELGIN BOARD OF TRADE, Elgin, Ill., Joseph Tefft, President. Dairy Products and Cheese.

2.—W. J. ELLINWOOD, 110 South Clark street, Chicago. Exhibited Seeds and Grain.

3.—RICHARDS & GOOCH, 181 South Water street, Chicago. This well known commission house made an attractive display of Dairy Products, including cheese from celebrated dairies.

4.—PORTER BROTHERS, 171 South Halsted street, Chicago. Display consisting of California Fruits in great variety and of extra large size.

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CYPER-STATE INDUSTRIAL PROTECTION.

DEPARTMENT "G."

Food, Drinks, Tobaccos, etc.

SECTION I.

All Articles of Food of Easy Preservation — Canned, Dried or Preserved Meat, Fish, Fruit and Vegetables, Sauces, Condiments, Pickles, Relishes, Condensed Milk, etc.

1.—THE ALDEN FRUIT PRESERVING CO., Chas. C. Keeler, Secretary, 45 Michigan avenue, Chicago. Fruits and Vegetables preserved by pneumatic evaporation, by which process fruits and vegetables are rendered imperishable. The specimens shown were fully equal to the claims made for them.

2.—AMERICAN SARDINE CO., 31 Broad street, New York. Specimens of the celebrated Boneless Sardines.

3.—WILLIAM ARCHDEACON, 11 South Franklin street, Chicago. Pickles, Preserves, Jellies, Sauces, Milk, Meats and Fish in Cans, etc. The great pickling and canning institution of this exhibitor is certainly one of the marvels of this truly marvelous city, and a few facts regarding the two immense factories of this business establishment will prove interesting and instructive. The factory and depot in Chicago occupy four large floors in the new and substantial brick building Nos. 229, 231, 233, 235, 237 and 239 South Water street, and No. 11 Franklin street. The magnitude will be better understood when it is said that each floor is 120 x 155 feet in lateral measurement, and the whole combined gives Mr. Archdeacon 62,000 square feet of flooring, equal to five acres of room, in which to carry on the various processes of canning, preserving, packing and storing the products of his vast industry. This immense space, one would think, would be difficult to occupy with any one branch of manufacture, but in a business of the character and extent of Mr. Archdeacon's there is none to spare, and every inch is made available. Two powerful steam elevators are employed constantly in transferring goods from floor to floor, to be packed, stored or shipped as the case may require. There is also a hand elevator in the building, to facilitate matters in case an accident shall disable the steam apparatus at

any time. The whole building is heated by steam, and is in all respects fitted up in the most convenient manner for the accommodation of the business to which it is devoted. Several scores of men, women and girls are employed in the establishment, canning and packing, to meet the demand, which is constantly pushing, notwithstanding the immense product of these goods during the regular season.

In addition to the factory already described, another is also running to meet the requirements of the great trade of this establishment, and is situated at Crystal Lake. Out on the Wisconsin finger of the great iron gauntlet, with which the Northwestern railroad company clasps the most fertile region of the country, between twenty and thirty miles from Chicago, is situated the village of Crystal Lake. In winter it yields a vast crop of ice, and in summer, while its winter crop is refrigerating our cobblers and creams, its surrounding fields are teeming with all species of vegetables and fruits. It is in the midst of these prolific surroundings that the country branch of Mr. Archdeacon's great canning and pickling establishment is located. Here are a series of buildings, covering acres of ground, having a side-track of the Northwestern running alongside, which, for eight months in the year, form a perfect hive of industry; consuming the varied products of thousands of acres of adjacent lands; employing hundreds of men, women, and children, and preparing, fresh from the fields, millions of cans of fruit for the markets of the world. The catalogue embraces sweet corn—a celebrated variety, known in this region as the "Trophy," being the principal one used,—peas, beans, tomatoes, strawberries, gooseberries, cherries, cucumbers, horse-radish, peaches, pears, and in fact everything susceptible of preservation is here subjected to the processes of pickling, canning and packing. In addition to all the essential machinery and paraphernalia of the Crystal Lake branch, Mr. Archdeacon has recently added a coopering department, in which are employed twenty-four men. These turn out 35,000 barrels, half-barrels, and kits per annum. Also, a vinegar factory, with a capacity of producing 2,000 gallons of the best white wine vinegar per day. The display of canned goods made by this exhibitor embraced a great variety, and formed one of the most imposing displays in the building.

4.—BLAKE, WALKER & CO., 24 and 26 North Clinton street, Chicago. Crackers and Cakes.

5.—BELL, CONRAD & WEBSTER, 43 River street, Chicago. Samples of Ground Coffee and Spices.

6.—ALFRED BOOTH, 124 Michigan avenue, Chicago. Canned Goods of the celebrated Oval brand.

7.—CENTRAL YEAST CO., Clinton, Iowa. A display of Dry Hop Yeast Cakes, which are claimed to be purely vegetable, and warranted equal to any yeast now made.

8.—CORBETT, SCOVILLE & CO., 14 North Clinton street, Chicago. Garden State Washing Powder. A practical display was made by this firm, of their washing powder, samples of which were given away, to the amount of several tons, during the continuance of the Exposition. As so much has been claimed for this powder, no better way could have been adopted to demonstrate the correctness of such claims, and prove its excellent qualities. This powder is a pure white pulverized soap, containing no adulteration whatever, and combining the most harmless detergent and cleansing chemical agent known. It is claimed this powder will not injure the clothes, and by its use much labor is saved as well as the clothes themselves from being rubbed to pieces to get clean. This appears to be a valuable invention, and its merits certainly can soon be ascertained, by the profuse distribution of samples indulged in by the firm during the Exposition.

9.—CHICAGO AND PEORIA YEAST CO., 6 and 7 Wabash avenue, Chicago. Joyes & Stratton's Dry Hop Yeast Cakes, in tin-foil, air-tight wrappers.

10.—FLEISCHMANN & CO., 387 West Randolph street, Chicago, exhibited the results of Compressed Yeast, which is the pure extract from selected grain. Bread, etc., was made and baked in the Exposition, for the purpose of practically demonstrating the qualities of this justly celebrated yeast; and, from personal observation, it must be said Fleischmann's Compressed Yeast is an unrivaled article, and, although introduced but a short time, the demand is unprecedented.

11.—C. S. HUTCHINS & CO., 65 and 67 South Water street, Chicago. Starch. A large and imposing display was made by these exhibitors of Kingsford's Oswego Starch, which is said to be unequalled in the world. And, as a further evidence of the fact, this starch has been before the public for the past *forty years*, and has been exhibited at *every* exposition and fair in this country and Europe during that time, and has always obtained the highest prize medal over all other competitors.

12.—LUDLAM & Co., Nos. 121 and 123 South Water street, Chicago. This firm made an attractive display of their celebrated Rival Cream Baking Powder, put up in various sized packages, from a small 4 oz. box to 25 lb. cans, the whole making a pyramid of some twelve feet in height. This powder receives the highest commendation from all those who have ever used it; and the facilities of the firm, although now extensive, are severely taxed to supply the constantly increasing demand.

13.—N. SHERWOOD & Co., 39 Wabash avenue, Chicago. Teas. This well known importing house made a fine display of teas, of all kinds and grades. Being so favorably known to the trade, it is needless to say that the display made by these exhibitors was but a fair representation of their standard goods, which are unrivaled in the west. This firm are large importers, and hence have the advantage over dealers who do not import their own goods.

14.—STAR CHEMICAL WORKS, 4, 6 and 8 Lake street, Chicago, S. P. Richards, Secretary. This well known chemical house made a fine display of their manufactures, consisting of baking powder, extracts, inks, etc., the whole forming an imposing exhibition, and one, from the superior quality of the goods shown, of which the exhibitors may feel justly proud.

SECTION 2.

Confectionery, Sweetmeats and Sugars.

1.—M. E. PAGE & Co., 211 and 213 Lake street, Chicago. Candies and Confectionery. This old established and favorably known firm of manufacturing confectioners made an elegant display of their goods. The beauty of candy is its purity, and the goods of this firm are justly celebrated for containing nothing but the purest and best of materials, and the goods exhibited were fair samples of their ordinary productions.

2.—C. F. GUNTHER, 78 Madison street, Chicago. Display of Confectionery and Soda Fountain, of which more particular mention is made elsewhere.

SECTION 3.

Mineral Waters, Fermented and Spirituous Liquors, etc.

1.—DEWILDE & Co., 33 and 35 Madison street, Chicago, exhibit many different brands of Rhine and Moselle wines, arranged in a

pleasing and attractive manner. This Company import their own wines and liquors direct from France and Germany.

2.—A. & W. W. STRICKLAND, 174 and 178 Adams street, Chicago. Samples of their celebrated brands of Liquors, etc., displayed in attractive form, comprising specimens of all their various goods which are so justly popular for purity and excellence.

3.—WHITE ELK VINEYARDS, Keokuk, Iowa. Wines in cases.

4.—BEASELEY'S WAUKEGAN BREWING COMPANY, Waukegan, Ill. Samples of Pale Stock Ale.

5.—DR. CHAS. W. ZAREMBA, 9, 11 and 13 Wabash avenue, Chicago. Chilian Wine of Boldo. This is a preparation made from the fragrant prune tree of Chili, South America, called boldo, or boldoa, and its valuable medical properties were first discovered by the exhibitor, and by whom it is now extensively imported and placed in the market for sale, and the immense quantity which is disposed of shows the favor it must have met with. Unlike many medicines of a similar character (which are claimed to cure every known disease), the boldo is claimed to cure only certain complaints, such as dyspepsia, etc., the modest pretensions of which at once places it upon a basis of confidence with the masses, and readily accounts for its popularity.

SECTION 4.

Tobacco and its Manufactured Products.

1.—BROCKWAY & SCHAFFNER, Grand Pacific Hotel, Chicago. Cigars and Tobacco. This firm, who are direct importers, made a fine display of celebrated imported brands.

2.—R. W. TANSILL & CO., 29 and 31 Wabash avenue, Chicago. Cigars. A large case contained several brands of cigars made by this house. Among those with full Havana filling were the Fannie Otis, Les Esponala, Figaro, Artista, Les Floresta, Le Bouquet, and Young America, all of which they make their specialty. There were also La Tubarosa, Club House, the Queen, and Les Fleurs; while the samples of selected Connecticut consisted of Partagas and Magnolia, the whole making a large and creditable display.

3.—J. M. LYON & Co., 120 Randolph street, Chicago, made a fine and creditable display of popular brands of Cigars and Tobaccos.

4.—A. WEHLE & Co., 53 South Water street, Chicago. Cigars

and Cheroots. A very attractive display of cigars and cheroots was made by this well-known firm, artistically arranged in a plate glass case, and consisted of samples of the various popular brands of fine cigars, such as are always handled by this house. They also displayed samples of cheroots and tobaccos.

DEPARTMENT "H."

Natural History.

SECTION I.

Collections and Specimens, Models and Drawings, Illustrative of the Natural Sciences.

1.—J. M. REYNOLDS' CONCHO CO., 199 LaSalle street, Chicago. Shells and Corals of every imaginable size and description, imported from China, Japan and all parts of the globe, were here displayed by this gentleman, a full description of which would occupy a book twice the size of this volume.

2.—J. STRICKLAND, 212 West Madison street, Chicago. Birds, etc. This exhibition of natural history was very attractive, and displayed some choice specimens: South American birds, squirrels, etc.; while were also shown white mice, bird cages, gold fish, aquaria, monkeys and all the minor articles to be found in a thoroughly appointed bird establishment, as is the one of this exhibitor.

3.—F. KÆMPFER, 127 Clark street, Chicago. The variety of Birds and Animals exhibited by Mr. Kæmpfer, although not so large numerically as he might have shown, yet represented every clime. There was the mino bird, with his outlandish yet plaintive notes, all the way from Java; the cock of the rock, from Central America; the king lorey, from Australia; a white squirrel and a red one, from Germany; seven-colored finches, the first live ones ever brought to the United States; love birds, or inseparables, called so from the fact that they do not live when separated, and a host of other birds too numerous to describe, yet worthy of a more extended notice. A beautiful aquarium adorned the space, while fancy bird cages and plants helped to complete the attraction so generously bestowed.

4.—O. N. HARTSHORN, President Mt. Union College, exhibited

specimens of Natural History: The gorilla, chimpanzee, ruffed lemur, flying squirrel, giant ant eater, Australian squirrel, scaly manis, echidna, ornthorynchus, armadillo, hedge hog, gaival, Java musk keer, iquana double fish, black panther, wolverine, Egyptian mummy were among the collection; but the most valuable specimen was the gorilla, which measures four feet around the chest, and has a breadth of arms of eight feet. He comes from the Gaboon river, West Africa, and those who have seen the half-human creature in his home pronounce him as fine a specimen as they have ever seen.

MISCELLANEOUS.

JOHN J. McGRATH, 174 and 176 State street, Chicago. At either entrance leading to the art room was a large screen, representing the wall of a room from ceiling to floor, and were acknowledged to be, by all the eastern decorators and students of design who have seen them, the finest specimens of workmanship, classic drawing and arrangement of color produced in this or the old world. That of the south door was fitted for dining rooms, entrance halls, libraries and rooms where rich effect is required, and is a perfect carrying out of the conceded order of mural decorating. The materials were the flock or velvet paper, of different colors, broken by gold moldings around the varied classic figures which form the pattern. The frieze of blue ground has a wire introducing the leaf made with the gold moldings, and colored red, green and brown alternately. The ground of the body of the room is the dark, rich maroon, accepted by all artists as the proper background for colors of a decided character, either primary or secondary. Burges, Pugin, Dresser, Eastlake or Godwin would find here their theories fully carried out in the treatment of the patterns upon this screen, and the balance of color might gladden even the fastidious Chevrueil. The dado or base was about two feet six inches high, of black velvet. A four inch border of maroon, at top and bottom, divided by gold rods, and in the center, produced by molding of fantastic shape, could be distinctly read the monogram, "J. J. McG." The screen was a little overdone, particularly in the amount of gold molding used upon it; but that did not detract from the merit, as

this work may be softened by black or some color introduced instead of gold to tone down the glare where it is required. Opposite the north door was quite another picture. It was a simple modern drawing room, after the celebrated Chas. L. Eastlake. The tapestry wall paper proper, the upper third, was well selected, in both drawing and tint, and the picture panel or center section was shown to perfection. The pattern of this was simple and chaste, reflecting great credit on the designer, Mr. Joseph Twyman, manager of the retail department of this house. Below was the rich, coffee-colored dado, with its Grecian border and gold figures, making the *tout ensemble* of the screen perfect when seen at sufficient distance to embrace the whole in one view, and reflects the greatest credit upon the exhibitor, not alone for the artistic work, but for taking such pains to educate those who give little attention to these things, to this pitch of perfection. The small book of specials, patterns for churches, public rooms, halls, etc., representing nearly a quarter of a million of dollars, are the goods which Mr. McGrath is importing for the spring of 1874. Each pattern has a border made to match it, and in this one feature lies a great success in the art, and completed the display which was in every way creditable.

ANDERSON'S EUROPEAN HOTEL, 143 & 145 Madison street, Chicago. Although the display made by the proprietors of this hotel was not entered upon the catalogue as an object of optical attraction, yet the exhibition was one not excelled in the entire Exposition; in fact, a hotel in running order was a decided novelty, as well as of great advantage to visitors from abroad, who, by the accommodations thus afforded were enabled to dine as sumptuously as at any of the grand caravansaries of the city. The kitchen of this exhibition hotel was a model and fitted up with all the most approved articles of a first-class culinary department, and cost \$5,000, and being open for inspection at all times, was an object of much attraction to many who are ever desirous to see "high life below stairs." During the Exposition this hotel catered to the appetites of over *fifty thousand* people, and the endorsement given the proprietors for the excellent and substantial fare furnished and the moderate and popular prices charged was one of commendation. It may not be out of place to here remark that the hotel management at the Exposition did not devolve upon amateur "hosts," as the Anderson Brothers are the proprietors of the popular little European hotel bearing their name, located at 143 and 145 Madison street, Chicago, which like the hotel department at the

Exposition, under their able management, is also a model hotel, with 125 guest rooms, and every accommodation that pertains to a well appointed hotel. Upon the closing night of the Exposition, the Board of Directors and officers enjoyed the hospitality extended them by the worthy proprietors, and partook of an elegant banquet spread for their benefit, for which act a vote of thanks and the best wishes of all present amply repaid the proprietors, who are entitled to great credit for the able manner their department was conducted in, and the splendid display made of one of the most complete kitchen outfits the country affords.

BRADLEY MANUFACTURING COMPANY, Syracuse, N. Y. George C. Morgan, 16 Major block, Chicago, Agent for the Northwest. Bradley's Cushioned Hammer. This machine is adjustable in line of action, length of stroke, rapidity of motion, weight and force of blows, all of which may be varied and most perfectly controlled at the will of the operator. This hammer is not only admired by manufacturers and hammersmen for common kinds of work, requiring a variety of stroke, controllable to the circumstances, but is being used and is found peculiarly adapted to the exceeding difficult swedging of cotton spindles, which requires a continuous, exact, positive, forcible, and yet an elastic stroke. There can be no more difficult or exacting work than this, and no other hammer has been able to turn out this kind of work in quantity and quality as satisfactory as this. While the capacity is largely increased, it is not at the expense of its durability, nor its convenience for size, etc. It is compact, portable, and has but little of the friction and none of the stubborn jar of other hammers; hence it will endure more hardships at less expense for repairs, and outlast any other hammer. This hammer is made of iron, except the helve. The anvil and anvil block are cast iron, made separate and adjustable. The anvil block has a separate foundation, independent of that of the main bed, but each is so united as to transmit nearly the entire jar from the stroke of the hammer to that of the anvil alone. The main bed and its uprights resting upon a foundation separate from that of the anvil, relieves it materially from the concussion of the hammer. The helve is nicely balanced, and swings upon two adjustable hardened steel centers, and is put in motion by the use of an adjustable broad steel eccentric, operating in connection with the yoke and rubber cushions, the length of stroke being governed by the adjustable eccentric. The force and power of the blow is greatly influenced by the reactive and united action of

the cushions. So harmonious and perfect is this combined action upon the motion of the helve, that an observer, holding his hand upon the working parts when under the most rapid and violent motion, can scarcely feel to identify the strokes of the hammer; the action of the helve in the use of the yoke and cushions is as flexible and near like that of the smith's arm as the results of any artificial method can produce. Such a thing as breaking of the helve never occurs, and by using a broad steel eccentric, it does away with friction and heat. The adjustable cushion, at the apex of the standard, is to assist the lower rear cushion in heavy work, and also check the upward motion. On giving tension to the cushion in the yoke, care should be observed to have equal adjustment by the set-screws on the top of the yoke; but should one screw be run down lower than the other, thereby twisting the yoke, there can be no bind or friction, as the universal joint connection regulates the result upon the broad eccentric below, leaving it to work free of the incumbrance. The power is applied and regulated in the use of a foot-treadle running around the bed of the hammer in such a manner that the operator can stand in front or on either side. A gentle pressure of the foot upon the treadle brings the tightener in connection with the belt upon the pulley, and thus varies the stroke in proportion to the pressure applied. On removing the foot the treadle flies up, bringing the break upon the balance wheel, stopping it instantly, leaving the hammer up, as it cannot stop with the dies closed, and which is a feature that every hammersman admires.

COAN & TEN BROEKE CARRIAGE MANUFACTURING CO., West Randolph and Ann streets, Chicago. The following Carriages, manufactured by this Company, are made in accordance with the latest styles and in the most artistic manner. The proportions are worthy of especial notice. These carriages all have the best cast steel axles with composition boxes.—1. Square glass-front landaulette, or landau and landaulette in one. Front movable, to admit of landau front being put in its place. This carriage is of the English style of body, is handsomely trimmed with green morocco; mountings are of silver. Price \$1,800 Made by H. Killam & Co., New Haven, Conn.—2. T cart, for four passengers, with back seat reversible, the back panel then dropping and becoming foot-board. Carriage for 1, 2 or 4 horses. Price \$900.—3. C. & T. B. phaeton. The most sensible buggy built, combining, as it does, comfort and elegance. This carriage is trimmed with the best green cloth and broad lace; gear being

striped green to accord with trimming. A buggy suitable for one horse. Price \$500.—4. Whitechapel buggy. This is one of the latest styles, and one destined to be popular, the low front rendering it easy of access, while, at the same time it is sufficient to hold the robes. The proportions are most graceful. Price \$450.—5. Square box road wagon, with top. The body is hung on side spars and is of the finest proportions. This buggy, though very light, is intended to carry two persons, and is constructed for light and fast driving. The one on exhibiton was made to order, and was painted and trimmed to suit a particular taste. It is trimmed with drab corded goods, and gear is painted Munich lake, striped with gold. Price \$450.—6. Open road wagon. Intended to carry one person and for speeding horses. Similar in style to 5. Painted plain black throughout. Price \$350.—7. Six-seat park phaeton, with half top. Driver's seat is elevated, lid to close over front seat, and book steps. The lines of this carriage are perfectly symmetrical, and are in fine proportion. This carriage is trimmed with maroon morocco, and throughout is one of the most stylish. Price \$1,350.—8. Surrey cart. This is of an entirely new design, and, as far as style is concerned, is "the thing." Hung on side spars. Price \$500. Made by Bradley, Prag & Co., New York City.

CHAMPION FIRE EXTINGUISHER COMPANY, Geo. S. Essex, 56 and 58 Fifth avenue, Chicago, General Agent for Illinois. The mechanical merits of this form of extinguisher are: That it is a simple, plain cylinder of metal, closed at both ends, with a cock on the exterior to turn the water on the hose, and which never comes in contact with any acid liquid. There is a cap on one end that can be easily unscrewed from the head by means of two small handles attached to it; at the lower side of this cap is a small brass cage, in which there is a stout glass vessel, into which a certain quantity of sulphuric acid can be poured. This is covered with a loose lead stopper. (A peculiar advantage of using the glass and lead is that they cannot adhere and prevent the ready flow of the acid when required.) These two particulars embrace the entire mechanism of the machine.

NORTHWESTERN INVENTOR'S EXCHANGE, H. Niles, Manager, 127 Clark street, Chicago. Exhibited a model of Revolving Show-Case, containing various patented articles. Also, a model of Mayo's Excelsior machine for cutting excelsion, which is so extensively used in the manufacture of mattresses and by upholsterers.

ARMORY BIGELOW, Commission Merchant, 101 South Water street,

Chicago. Mr. Bigelow is the representative of the Elgin Board of Trade, and for them made a large display of butter and cheese, the qualities of which are well known to many residents of Chicago. He is also the agent for the Boston Harbor Packing Company, and exhibited a large variety of canned fruits and vegetables. Having ample space, he placed the goods consigned to him "where they would do the most good," and succeeded in attracting a great deal of attention.

WM. M. MILLER & Co., 151 and 153 Michigan avenue, Chicago. Wool. This firm had on exhibition samples of wool from all parts of the world. A collection showing all the classes and kinds of wool grown, and interesting alike to the wool grower, the manufacturer and the general visitor. Under the class of worsted wools were samples of hogs and weathers from England, Scotland and Ireland; coarse combing from Canada, Oregon, Wisconsin, and other States; fine combing and delaine from Ohio and New Zealand. The finest sample of this class was a lot of fine cross-breed Australian combing. The staple of this wool is very fine, long and elastic, and much superior to anything of the kind grown in this country. There were carpet wools from the Crimea, East India, Africa, South America, Mexico and Colorado, and clothing wools from Australia, Cape of Good Hope, South America, Texas, California, and many other States. Among the most notable of this class were the Port Phillip, Banda, Oriental, and a very fine Saxony fleece grown in Ohio. It must be difficult to grow wool with a staple finer than this, and such wool is undoubtedly grown for pleasure rather than mere profit. There was also a sample of vegetable wool, a new staple that is beginning to attract attention. It is made from ramic, a plant that grows in the Gulf States. It is destined to become a staple article of commerce. A sample of camels' hair caused the ladies to think of a high-priced shawl they have always wanted, while samples of shoddy and "Tennessee wool" reminded the farmer of what he is sure to find in his cloth when he receives an extreme price for his wool. Many of these wools are not used to any great extent in this country, and had to be imported for exhibition.

ROCHESTER MACHINERY MANUFACTURING COMPANY, 38 and 40 South Canal street, Chicago — H. G. Wormer, Treasurer and Manager. Wood and Iron Working Machinery. A large and interesting display was made by this popular Company, prominent among which may be noticed the Woodworth planers. These surfacing

machines are well adapted for shop work — for carpenters, box makers, and cabinet makers, or any kind of light planing. The frame is made of cast iron, heavy and substantial. The cutter cylinder is solid cast steel, and the rolls are weighted in a very convenient manner, and will plane stuff to $3\frac{1}{2}$ inches thick and 24 inches wide. The tight and loose pulleys are 12 inches in diameter, 6 inch face, and should make 800 revolutions per minute. These machines have the benefit of Burley's patent expansion feed gears. Also, improved weighted feed rolls. The rolls are weighted so that the lumber passes through before it reaches the cutter head, giving at all times an equal pressure in all inequalities of the lumber, which cannot be obtained by rubber springs. These machines are built under the immediate care and supervision of the Company, in the most thorough manner, from the best of stock.

THE GREAT AMERICAN BRICK MACHINE COMPANY, 15 to 21 North Clinton street, Chicago. E. R. Gard, President. Brick Machines. The old method of making bricks is now universally conceded, by practical brickmakers, to be a slow, tedious and expensive process. It is a roundabout way of doing and then undoing. The clay is mixed with a superabundance of water, then ground to the consistency of soft clay, then re-handled, moulded in sanded wooden moulds, and the soft brick spread out upon a sanded yard, where the superfluous water is slowly parted with by evaporation. The attempt to dispense with this roundabout process by making a brick from dry clay, using only mechanical pressure to cause the particles to adhere, is now fully acknowledged by brickmakers to be unsound in theory and a total failure in practice. The true principle of brick making has been discovered in a happy medium between these two extremes. The Great American Brick Machine makes a smooth and durable brick, at a greatly reduced cost of production. It is neither a "soft mud" nor a "dry clay" machine; but it takes the clay directly from its natural bed, containing only enough moisture for thorough tempering, and permits the brick to be put into the hack immediately after leaving the mould. The essential parts of the machine are: The pug-mill, in which the clay is thoroughly tempered, and then forced into the moulds; the mould-wheel, containing twenty-four permanent metal moulds, arranged in groups of three; and the movable bottom, or follower, of these moulds, provided with a roller, and traveling upon a circular track, which raises or depresses the follower at proper points in the

revolution of the mould-wheel. The operation of the machine is very simple and easily understood. The clay is taken directly from its native bed (if too dry, a little water is thrown upon it) and shoveled or dumped into the pug-mill, where it is thoroughly ground and tempered, and reduced to a uniform, homogeneous mass, about the consistency of stiff putty. From the pug-mill it is forced into an open group of moulds, which are carried under it by the revolution of the mould-wheel—a polished metal surface giving the proper smoothness and finish to the top edges of the brick. The follower now travels up an incline in the track, raising the group of bricks from the moulds, all the angles and faces being preserved sharp, smooth and perfect in every respect. As the bricks leave the moulds they are taken up, three at a time, by means of a clamp and placed upon a truck having double decks and capable of holding one hundred bricks. When filled, the truck is easily wheeled by a man or a stout boy to the hack, where two boys, who are also provided with the above noted clamp, place them in hacks, eight or ten bricks high. Of course the operation is continuous. Each revolution of the mould-wheel turns out twenty-four bricks, and the machine can easily produce sixty-five per minute, or thirty-nine thousand in a working day of ten hours; while a greater capacity can be obtained, if desired. At one operation the crude clay is transformed into a far better and more durable brick than those made by the old process, and at much less cost.

FRANK DOUGLASS MACHINERY CO., 253 and 255 South Canal street, Chicago. Wood and Iron Working Machinery. A large showing was made by this well-known Company, whose wares are as standard as their reputation. As the display of machinery of all kinds was the largest in the Exposition, to describe each article would be to devote a large space of this volume, hence a favorable mention must suffice, as *all* the articles shown were thoroughly well known to the manufacturing classes. Among the wares displayed, mention may be made of Cameron's special steam-pump, a pump of decided merit; also of J. A. Fay & Co.'s patent self-feed blind slat tenoning machine, manufactured by J. A. Fay & Co., Cincinnati, O., for which house this Company are exclusive agents. This is an entirely new machine for making tenons on slats for rolling blinds, and combines the Ellis and Bickford patents. The stuff to be worked may be of any length desired; it is fed endwise into the revolving discs, and by simply depressing the lever the slat is rotated on the

revolving cutting tools, which make and divide simultaneously two tenons at one operation. The machine will work any length of slat, from $1\frac{3}{4}$ inch to 24 inches long, and makes any size tenon desired. It will work about 20,000 per day. The tight and loose pulleys are $5\frac{1}{2}$ inch diameter, $2\frac{1}{4}$ inch face, and should make 700 revolutions per minute. Weight of machine, 200 lbs. The entire exhibition of this Company was one of interest, and one for which they are entitled to great credit. A large portion of the machinery shown was in motion, the Company furnishing their own power from one of the Baxter portable steam engines, which is the most safe, simple, durable and economical engine in the world.





RESUME AND CLOSING

OF THE EXPOSITION OF 1873.



ON the 12th day of November, 1873, the great Exposition was brought to a glorious close, after an unprecedented successful term of seven weeks, and up to the closing day the same enthusiastic interest was manifest as upon the day of opening. Had the weather remained propitious, it is highly probable that the Exposition would have continued several weeks longer. When it is remembered that the Exposition opened amid a financial panic, which continued as long as it was in operation, it is a matter of conjecture as to how much greater would have been the Exposition financially, if no panic had occurred; but be it as it may, the gratification is experienced that Chicago has had one of the greatest fairs on record, which has been in every way one grand success, and it must here be stated that a large share of this success is attributable to the sterling qualities of the honored Secretary and his earnest supporters, the Executive Committee. The gentlemen who composed this committee, as has already been stated, were men of unquestionable integrity and ability, in whom every confidence was reposed, that if it were possible for so gigantic an enterprise as the Exposition to be a success, it was in the hands of those in every way qualified to make it so, and no fears were entertained as to the result; and in such citizens as this committee was composed

RESUME AND CLOSING.

of Chicago is favored beyond many of her sister cities, and the able position she to-day occupies is due to the indomitable energy of her business men. With the true Chicagoan no such word is known, and whatever is attempted is pre-ordained to be a success from its inception. No matter how improbable it may seem to those not interested, and although the doors of the great building have but scarcely closed, yet, like Alexander the Great, who conquered the world, the energetic Committee have met in council to discuss the feasibility of enlarging the present noble structure to double its capacity, thereby to better accommodate all in the future, who may desire to become exhibitors at the Exposition of 1874. This subject is now the all-absorbing topic, and bids fair to be realized, and work commenced at an early day, in which event the present building will only constitute a wing of the huge palace contemplated. A more detailed description of this enterprise will be found in the report of the meeting of the Board of Directors, held on Tuesday, November 19th, which is herein given.

During the continuance of the Exposition fully 600,000 people visited it, or averaging 15,000 daily, and the receipts from all sources (as will hereafter be seen from the official statement) were \$137,413.24. In the enjoyment of her grandest enterprise, Chicago was not oblivious to the distress and suffering of her sister city, Memphis, and the receipts of the Exposition for one day were set apart by the Executive Committee for her relief, and near \$5,000 was forwarded to Memphis, being the proceeds of the day set apart. The combined Charitable Institutions of Chicago were also remembered, the proceeds of November 8th and 9th being given for that purpose. Thus it will be seen that Chicago, in all her glory and prosperity, is ever watchful for the good and benefit of suffering humanity, both at home and abroad. There were near six hundred exhibitors represented, and the money value of the goods exhibited was two and three-quarter millions dollars.

As a further illustration of the perfect and harmonious workings of the Exposition, which closed its doors on November 12th, the entire accounts were audited and ready for the inspection of the Board of Directors on November 18th, upon which day the Board met, pursuant to call, and Hon. N. K. Fairbank, Vice-president, occupied the chair. Secretary Reynolds then presented his report of Profit and Loss, since the opening, which was as follows :

EXPOSITION SOUVENIR.

Officers	\$ 1,416.50	
.....	10,144.99	
.....	116.77	
.....	1,350.00	
advertising	8,884.75	
.....	16,661.88	
.....	5,408.00	
.....	250.00	
.....	981.60	
Memphis sufferers	4,922.22	
Floating bills	4,930.07	
Ticket sales		\$128,750.17
Elevator receipts		1,995.20
Restaurant		3,160.37
Rents and commission		3,507.50
Profit and loss	82,346.46	
	\$137,413.24	\$137,413.24

BALANCE SHEET.

	Assets.	Liabilities.
Capital stock		\$169,125.00
Profit and loss		82,346.46
Accounts payable contractors		28,321.20
Floating bills		4,930.47
Building	\$278,791.04	
Furniture	3,077.25	
Cash in Secretary's office	15.91	
Cash in Treasurer's office	2,838.52	
	\$284,722.73	\$284,722.73

The following resolutions were introduced by Mr. H. H. Taylor, and read by Secretary Reynolds :

WHEREAS, The success of the Inter-State Industrial Exposition of Chicago was made feasible by the act of the city government granting the use of the public grounds ; and,

WHEREAS, It is deemed desirable to disabuse the public mind of any suspicion that the Exposition Association aims to conduct the enterprise for private gain, as well as to free its officers from the possibility of being placed in the attitude of speculators and showmen ; and,

WHEREAS, Only considerations of the public good and the honor of our city have instigated those who have thus far shaped and conducted the enterprise ; and

WHEREAS, It is the opinion of this Board that the marvelous success of the undertaking, in spite of the unexampled rapidity of its fruition, and in the face of a depressing financial panic, affords a guarantee that it may be made, through the adoption of a liberal policy, not only a means of attracting to Chicago millions of dollars and hundreds of thousands of people every year ; not only an inexpensive resort, instructive amusement, and efficient educator for all classes of people ; not only a promoter of trade, art, science, invention, manufactures, agriculture, mining, and kindred industries ; not only a source of direct or indirect pecuniary advantage to every citizen, but, in addition thereto, it may in the near future be the means of founding and sustaining one or more great public educational or other institutions, which shall shed enduring luster upon Chicago ; therefore, be it

Resolved, That a special meeting of the stockholders of the Inter-State Industrial Exposition of Chicago be, and the same is hereby, called, to be held at the Exposition building on Tuesday, the 23d day of December, A. D. 1873, at the hour of 2 o'clock p. m., for the purpose of submitting to a vote of such stockhold-

RESUME AND CLOSING.

ers the question of authorizing and instructing this Board to negotiate, if possible, with the competent authorities of the city of Chicago for the purchase by this association of all that part of Lake Park lying between the Monroe street and the north line of Congress street, free of charge, for a period of ten years from and after May 1, 1874. Conditioned:

1. That the said Exposition Association may capitalize any portion of its present actual net earnings deemed reasonable and just by its Board of Directors; so as to give present stockholders the benefit of their investment up to this time, not exceeding net cash cost.

2. That the said Exposition Association may, at its option, further increase its capital stock to any sum not exceeding \$600,000, as may be found expedient, by *bona fide* subscriptions to be paid in cash.

3. That it shall expend such increased capital, if secured, in erecting additions to the present building in equally as good a style of architecture, in beautifying the grounds, or in otherwise adding to the convenience, attraction, or success of the Exposition.

4. That after its stockholders shall have received back in dividends out of the first future net earnings an amount equal to their paid-up stock, and twelve per cent. annual interest thereon for the time invested, all further earnings, and finally the residuary assets of the association shall be devoted to aiding, establishing or endowing a polytechnic school, bureau of arts and trades, botanical garden, permanent industrial exposition, or such other institutions or projects for the public instruction, amusement, or good, as the stockholders may determine upon at the time.

5. That such beneficiary institutions or projects, of whatever character, shall be for the general public benefit; open to all citizens on equal terms, and free from religious, sectarian, or political bias.

6. That the building, when not in use for the Exposition proper, shall not be used for any purpose injurious to the legitimate trade of the city; and when rented for conventions, festivals, or other purposes, no distinction whatever shall be made on account of sect, creed, nativity or politics.

Resolved, That notice of such special meeting be given to the stockholders in the manner provided by law.

Resolved, That pending the action of the stockholders, and other negotiations for putting the Exposition upon a more permanent basis, and enlarging its scope, as indicated in the foregoing resolutions, which should properly be acted upon by the recently elected Council, the Executive Committee be instructed to urge upon the present City Council the great importance of taking favorable action as early as next Monday night on our recent petition, for only a short extension of time, so that our officers may at once announce that there will be an Exposition next year — and more vigorously work to secure special attractions at once.

Mr. Taylor moved the adoption of the resolutions, which was seconded by Mr. Brown.

Mr. Taylor then rose to explain them more fully. He said:

In drafting this plan to give shape and permanence to the enterprise so happily inaugurated, it has been aimed to keep in view the rights and reasonable wishes of the stockholders, as well as the interests of the city, and at the same time to leave ample range and scope for future action.

The particular character of the institutions or projects to be aided, endowed, or inaugurated, may, with propriety, be determined by the stockholders three or five years hence, when the means have accumulated and the necessity has arisen. It is simply stipulated that whatever they are, they shall be for the general "public instruction, amusement, or good," and "free from religious, sectarian or political bias." This much is due alike to the stockholders who may furnish the means to

EXPOSITION SOUVENIR.

and the enterprise and to the public, without whose consent the ground could not be used, and without whose cordial favor and patronage the enterprise cannot reach the best results.

Provision has been made for the capitalization of a portion or all of the actual net earnings up to this time, because it seems not unreasonable that those who ventured their money last spring should have the benefit of it. Yet they are asked to leave it discretionary with their Board of Directors whether all or a portion only of the nominal earnings shall thus be capitalized, as contingencies may arise requiring mutual concessions, in order to secure to present stockholders even the return of their capital paid in, for if compelled to remove the building next May it would yield but a small percentage of its cost.

Whether, in the event of the favorable action of the stockholders on the resolutions, and the granting of the use of the ground by the city authorities, the Exposition building shall be increased one-third or doubled in size, or not increased at all, is left to future action. The present object is to obtain from the stockholders authority for, and the indorsement of, a liberal and comprehensive policy, and secure a basis for future operations. Money may or may not be obtainable for so grand a project as some of us contemplate.

The northern limit of the ground asked for has been put at the north line of Monroe street, because it may be thought best to enlarge the building by simply extending the one-story portions, so as to include all, or more than all, of the area contained within the present fences and "annexes" at both ends of the structure, thus adding a third or a half to the area of the main floor, and providing suitable room for an increased display of machinery at the north end and a horticultural or other display at the south end. This enlargement can probably be effected at a cost of \$40,000 to \$60,000, and can be compassed by anticipating next years' earnings, even if the capital is not increased.

On the other hand, the southern limit of the ground asked for has been fixed at Congress street, because it is thought entirely feasible by some among us to raise the money and build here on this ground, within the next year, a grand central rotunda, 225 or 250 feet in diameter, with a dome towering up 200 feet, and with wings 700 or 800 feet in length and 200 feet in width, the present structure, of which we are all so proud, forming only one of the wings of the proposed Palace. Chicago would then have a permanent annual industrial Exposition grander in its proportions than anything this country has ever seen. It would become "Inter-State" indeed, and be from the very start the objective point for exhibitors and sight-seers. Manufacturers, tired of the trouble and expense of exhibiting at numerous places, will gradually withdraw from other fairs and center here, where they can once a year meet their old and make new customers from all parts of the Union. Visitors will flock where they can get the most amusement and instruction for their money and time. In our midst we will have yearly a large collection in all departments of art, science, mechanics, mining, agriculture and manufacture, which cannot but be a grand educator for all. Millions of dollars will be annually spent in Chicago that would not otherwise be. Beyond all, within five years the foundations can be laid through this instrumentality for one or more other institutions, which will in time shed luster upon Chicago and profit its people.

Is this plan feasible? I believe it is. There are but two real obstacles. First, the

procuring of the ground from the city; and second, the raising of the money among our citizens.

As to the first obstacle, what better use can be made of this small portion of the Lake Park? Is not the use of it proposed so nearly in accordance with the purpose to which it is dedicated as to be void of objection? Will not our citizens unanimously favor and the Council cheerfully grant the request?

As to the money obstacle, I cannot doubt but it is far from serious. Given a reasonable prospect for getting their money back, with interest, in four or five annual installments, and at the same time participating in a good work, who can doubt but that the men of Chicago will subscribe far more freely than they did last spring, when most of them thought the subscriptions equivalent to donations?

Freed from the suspicion of being engaged in a private speculation, and given the stimulus of working for the public good, capable men like Messrs. Bouton, Reynolds, Hesing, Crane, Drake, Gage and others, who have demonstrated that they know how to create success, will continue to give their time. Afforded the opportunity, I believe they will carry out the programme contemplated in the resolutions, and give the stockholders their money back within four or five years, and thereafter turn out from one to two hundred thousand dollars per annum for educational or other popular public purposes, under either of the two plans of operations suggested.

Further remarks were made by Messrs. Brown, Drake and others, in the midst of which it was stated that already two States — Kansas and Wisconsin — had asked for a portion of the space in the proposed new structure. The resolutions were unanimously adopted.

The following resolutions were then offered, which were unanimously adopted:

Resolved, That our thanks are due and hereby tendered to the press of the city and country for their valuable and very able reports, which contributed so largely to the success of the Exposition; and to the Associated Press, telegraph and railway companies, whose co-operation and courtesies were so timely and acceptable.

Resolved, further, That our thanks are due and hereby tendered to the exhibitors who responded so promptly and cheerfully to our invitation, and whose energy, enterprise and skill, placed in our hall an exhibition of the products of industry and art which challenged universal admiration, and was entirely worthy of the occasion.

Resolved, further, That our grateful acknowledgments are especially due to Messrs. Bouton, Drake, Laffin, Crane, Brown, Taylor, Gage and Harvey, of the Executive Committee, for their unremitting, intelligent and gratuitous labors from the beginning of the enterprise to its close.

The following expression of appreciation from the exhibitors was then presented and gratefully acknowledged:

CHICAGO, Ill., Nov. 12, 1873.

We, the undersigned, exhibitors at the Inter-State Industrial Exposition of Chicago, just closed, desire hereby to publicly express our appreciation of the ability displayed by the Executive Committee in the management of the details and workings of the Exposition. For their endeavors to promote our interest, for their uni-

form courtesy and consideration, we wish to return our sincere thanks. More especially do we consider this due Messrs. John P. Reynolds, N. S. Bouton, John B. Drake and Geo. H. Lafin, to whose untiring attention and efforts we consider the Exposition owes a great measure of its success.

(Signed)

Mrs. John S. Hendrickson,	C. H. Fargo & Co.,
Miss H. Guest,	Parker & Tilton,
Mrs. E. S. Haas,	Jas. P. Dalton,
D. D. Garland,	Pingree & Smith,
J. S. Hendrickson,	W. A. Soyers,
John Monzel,	Pennoyer, Shaw & Co.,
R. R. Randall,	Schweitzer & Beer,
J. C. Bonnell,	National Watch Co.,
John A. Hartzell,	Warren Bros.,
Julius Newman,	M. R. & O. M. Powers,
Wm. L. Porter,	J. P. Main,
D. C. Baker,	C. S. Monroe,
Frank Scott,	Alex. Anderson,
O. W. Herrick,	C. C. Wilson,
E. C. Lefebre,	T. A. Goff,
R. W. Randall,	G. V. Orton,
R. D. Lender,	H. H. Evarts,
Wilson Bros.,	Wilson Sewing Machine Co.,
L. Mannasse,	W. H. Sharp,
W. H. Banks & Co.,	Florence S. M. Co.,
Henry P. Gage,	Davis S. M. Co.,
J. F. & J. E. White,	Victor S. M. Co.,
Pioneer Manufacturing Co.,	L. J. Colburn,
Graham Bros. & Co.,	Grover & Baker S. M. Co.,
Lever Wringer Co.,	Commercial Advertiser,
N. Welley,	E. S. Harris,
M. Thorp,	Culver, Page, Hoyle & Co.,
A. Wehle & Co.,	J. H. Lerow & Co.,
Huyck & Co.,	Blees S. M. Co.,
Chas. W. Zaremba,	Mrs. E. H. Stein,
J. S. Powers,	Wendell & Hyman,
Newell H. Moulton,	N. Matson & Co.,
H. D. Camp,	Gentile & Co.,
Lyman & Silliman,	A. H. Andrews & Co.,
Hovey & Co.,	Abram French & Co.,
Heath & Milligan,	W. W. Kimball,
J. M. Reynolds,	A. B. Van Cott & Co.,
C. Marenesi,	A. Reed & Sons,
J. Trefry,	P. H. Milligan,
Mueller & Gloeckner,	French & Co.,
Haskell Brothers,	E. Schoeneman & Co.,
Vogler & Guedtner,	Nevers & Co.,
West & Co.,	Central Yeast Co.,
R. F. Adams,	American Bureau of Mines,
S. A. Bent,	C. F. Gunther,
Belding Bros. & Co.,	Green & Speer,
Giles Bros. & Co.,	E. F. Hollister & Co.,
Peck, Cella & Eaton,	A. Heteidlinger,
Victor Scale Co.,	J. Openheimer,
Julius Bauer & Co.,	Biggs & Spencer,
W. W. Strong Furniture Co.,	D. S. Heffron,
T. Allen French,	A. L. Hale & Bro.


This is the last meeting of the Exposition officials of 1873 that this volume will be honored by recording. We have now carefully lead the reader through all the meetings of both preliminary and permanent organization, from 1869 to the present time. We have seen the work commenced, and followed its progress until completed. We have seen the great industrial palace inaugurated amid the booming of cannon and the flashing of thousands of gas jets, in the presence of the State and city officials and 25,000 rejoicing Chicagoans, who, in addition to their presence, had already contributed both money and goods to the success of the enterprise. We have seen how grandly successful was that enterprise, and how Chicago has eclipsed the world in her energy and perseverance, have seen the doors closed upon the most herculean undertaking a city ever successfully consummated, and have shown how, at this early date, it is contemplated the coming year to rival even the grand scheme just closed, proving conclusively Chicago to be properly termed "the wonder and marvel of the world."





Chicago:

ITS GROWTH, PROSPECTS, MERCHANTS, AND MANUFACTURERS.

HICAGO has just reason to be proud of her great manufacturing interests. Few cities can boast the number, variety, and extensive manufactories, both general and special, of the Lake City. The city of Chicago has already assumed the character of a manufacturing metropolis. It is no longer the mere business center; its metropolitanism is national — its enterprise, success, growth, and progress are of national interest. Its glory is national, and the American citizen all over the world points with pride to this metropolis of the great northwest. Taking this into consideration, the citizens of the country at large are all interested in her growing industrial interests, and in knowing how far these interests have progressed, in what branches they principally consist, and, generally, their extent and value. We have read of their immense traffic in grain, of the wonderful amount and extent of the transactions of their wholesale houses, and of facts connected with their industrial interests, and we do not wonder they have gloried in their record. The manufacturers are the real producers of value and wealth — manufacturers, like “tillers of the soil,” are producers; they add to the actual wealth of the city, the country, and of the world. In fact, we may add with emphasis, “the glory of Chicago — her manufactories.” Chicago certainly possesses unusual inducements and facilities for the great manufacturing interests. Her natural location, her shipping facilities, her railroad connections,

proximity to the great mines of the north and west, taking all into consideration, her future growth and success is beyond computation.

There are 60,000 miles of railway in the United States, of which 13,123 center in Chicago. The average number of trains that arrive and depart each day is 420, being 210 in and the same number out. The capital invested in railroads centering in Chicago is over \$400,000,000. The gross yearly earnings of which are over \$82,000,000. The vessel tonnage of Chicago, entering and clearing from her ports, for the year 1870, was 6,033,207 tons; that of New York was 9,966,827 tons, of which 4,288,668 were foreign vessels, giving Chicago in reality the greater home tonnage. The amount for the present year is estimated at one half as large again as that of 1870. Of the manufactories of Chicago there are 745, employing in the aggregate 51,240 hands, and with an invested capital of \$52,000,000. The total amount paid to employés for wages, during the year 1873, was \$29,622,479, and the total value of productions for the same time is about \$127,687,000. The business returns of the wholesale houses of Chicago for 1873 are \$462,150,000. Chicago covers 21,900 acres, and the best business localities in the city command \$2,500 per foot. Corresponding locations in New York City \$4,000 and upwards, and Boston about the same. Chicago has over 175 miles of sewers, 100 miles of Nicholson pavement, 400 miles of water pipes and drains and over 1,000 miles of plank and stone sidewalk. In educational institutions Chicago has 51 public schools, with 600 teachers, and an attendance of 35,000 pupils. The value of buildings owned by the Board of Education is \$1,297,475. In churches Chicago has 101, which are classed as follows: Universal, 3; Congregational, 14; Methodist, 18; Presbyterian, 21; Unitarian, 4; Swedenborgian, 1; Baptist, 11; Episcopal, 14; Catholic, 15. In hotels there are 31, some of which are the largest in the world, whose combined capacity will accommodate 15,000 guests. There are 68 banks and bankers in Chicago, 10 daily papers, 4 medical colleges and 3 theological seminaries. In points of attraction Chicago is surrounded by some 62 suburban towns, many of them romantically situated, and all of them within a radius of 20 miles from the great city. Her Chamber of Commerce and Board of Trade, consisting of some 1,200 members, are also worthy of note. Another attraction is the new water works, located on the lake shore, at the east end of Chicago avenue, in the North Division. The style of architecture is *castellated gothic*, with heavy battlement corners, with solid rock-faced ashler stone

and cut stone trimmings, all the details being of a massive and permanent character. In the engine room are located three powerful engines, one of which is the largest in the United States, with a pumping capacity of 36,000,000 gallons of water every twenty-four hours; the water is supplied by means of a tunnel extending two miles into the lake, connecting with a crib. This tunnel is one of the marvels of modern engineering, and well worth the inspection of visitors. A second tunnel, found necessary by the rapid growth of the city, is now being constructed. Steamboats make frequent daily excursions to the crib for the accommodation of sight-seers.

The great fire cost the city the loss of over 18,000 buildings, and \$200,000,000 of property, while the rebuilding in the course of two years has more than restored the business center with better public and private buildings than before, and the magnificent business blocks, the palatial banks and mammoth hotels that have been erected as it were by the magic of an Aladdin's lamp, will serve to show visitors the indomitable energy and irresistible enterprise that have made Chicago what it is, and are destined in time to make it the first city in point of commercial importance, as well as in size, on the western continent.

The National Government, also, not to be outdone by private enterprise or municipal public spirit and liberality, is now putting in the foundations for one of the largest, most substantial, and most imposing edifices in the whole country, for the accommodation of its post-office, custom house, and judicial and other offices, an edifice that will cover an entire square, and the erection of which will cost about \$5,000,000.

And while these extensive building operations have been in progress, the trade and commerce of the city have gone on without interruption, continually increasing in extent and value. From the first day of January, 1872, to the first day of September, 1873,—twenty months—the receipts of corn have been 72,088,816 bushels, and the shipments 70,449,086; receipts of wheat, 22,822,802 bushels, and the shipments 21,642,181; receipts of oats, 24,309,240 bushels, and the shipments 22,948,043; receipts of flour, 2,962,128 barrels, and the shipments 2,750,443; receipts of lumber, 1,933,375 feet, and the shipments 779,361; receipts of hogs, 6,163,530 head, and the shipments 1,438,106; receipts of cattle, 3,614,557, and the shipments 917,555.

Such is a brief mention of Chicago, whose industrial development

is not merely extraordinary — it is phenomenal. This sketch, imperfect though it is, of what Chicago has done and gives promise of doing, is enough to prove her substantial prosperity; that her trade, commerce, manufactures and productive industries of all kinds have a permanent and ever-increasing stability, which no ordinary vicissitudes can impair or destroy.





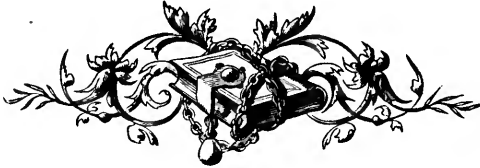
Conclusion.

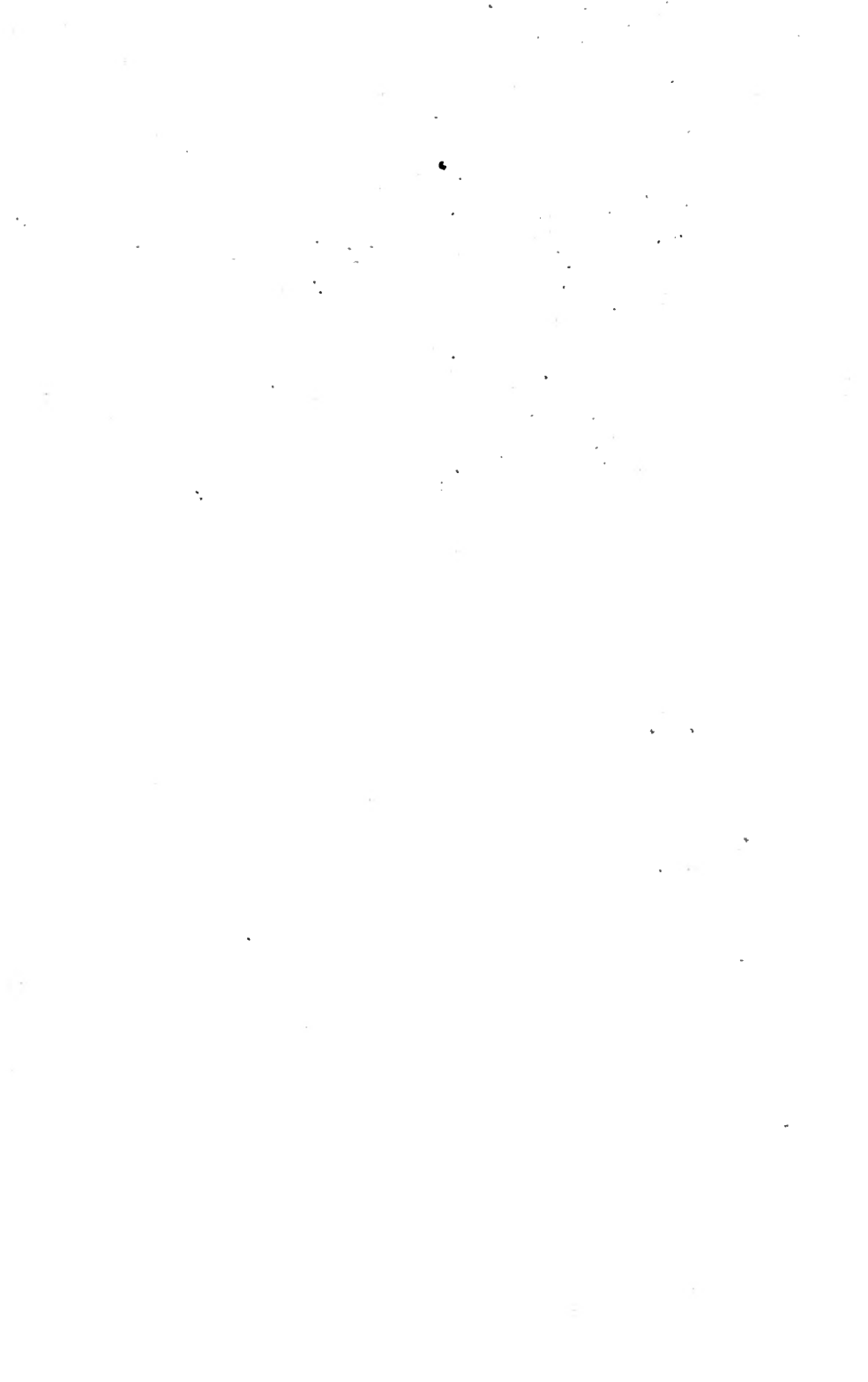


PON the foregoing pages we have endeavored to acquit ourselves with credit, and do impartial justice to the subject matter. How near we have accomplished our ambitious desires, the public must determine. The compilation of a work of this character is a most arduous and laborious task, and this volume is the result of three months' unceasing labor. Should the mention of any exhibitor have been omitted by us, we here beg to tender all such an apology, and to state it has been our intention to embody the names of *every* regular exhibitor in the building, but with an imperfect catalogue to guide us, and many minor obstacles presenting themselves, we have found our every step fraught with stumbling blocks; but as this is the first Exposition of Chicago, so is our work not only the first of the kind for Chicago, but the first book of record for any Exposition *ever published in this country*, and for any errors or omissions which may have unavoidably crept in, we trust the foregoing remarks may plead a sufficient excuse in our behalf. To those gentleman who have so kindly rendered us valuable information and assistance in the compilation of this work, our thanks are due and herewith tendered, and especially to Hon. John P. Reynolds, Secretary, for the many courtesies tendered us in the prosecution of our labors during the continuance of the exhibition; also, to Geo. H. Laffin, Esq., and other members of the Executive Committee, for favors received.

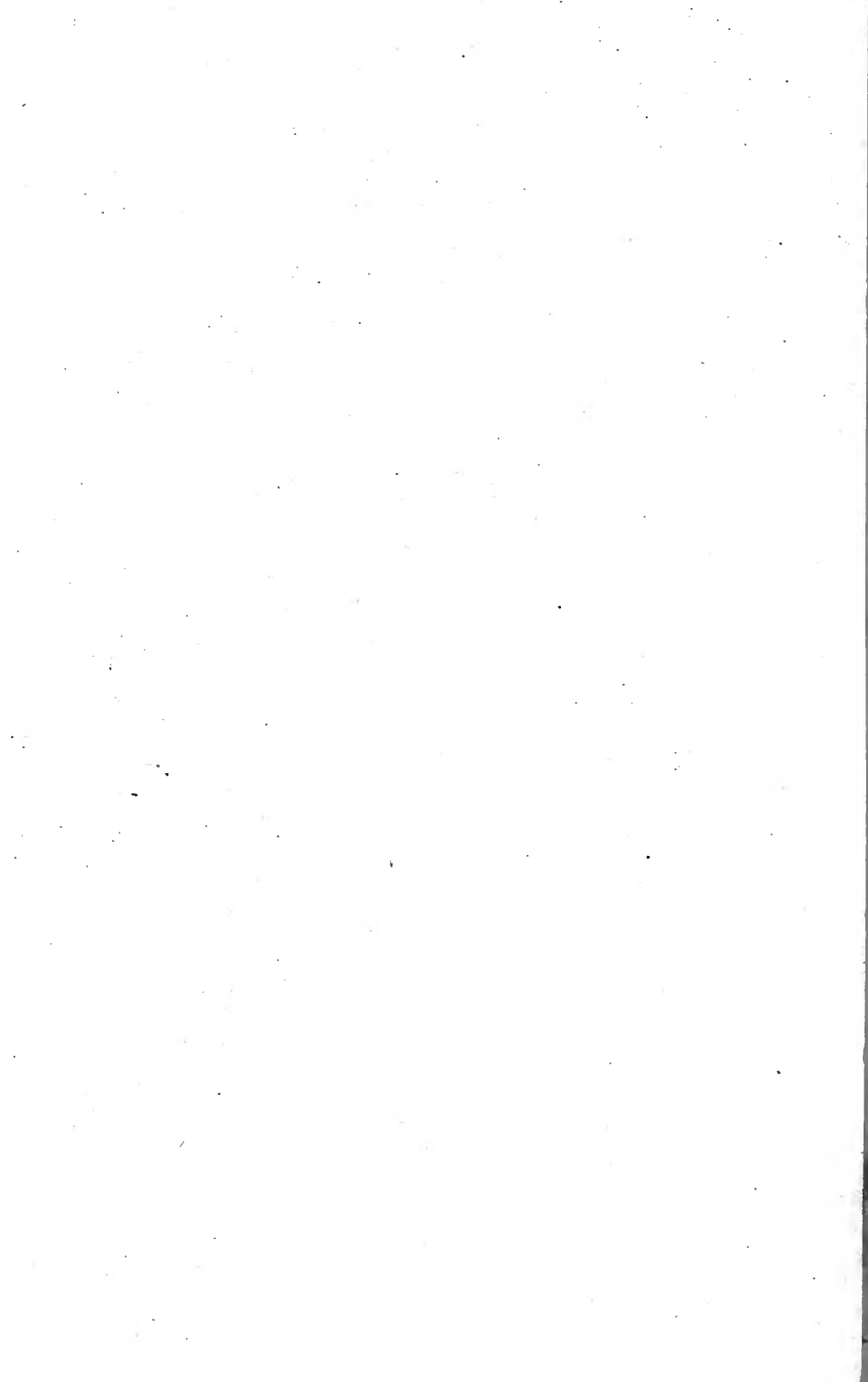
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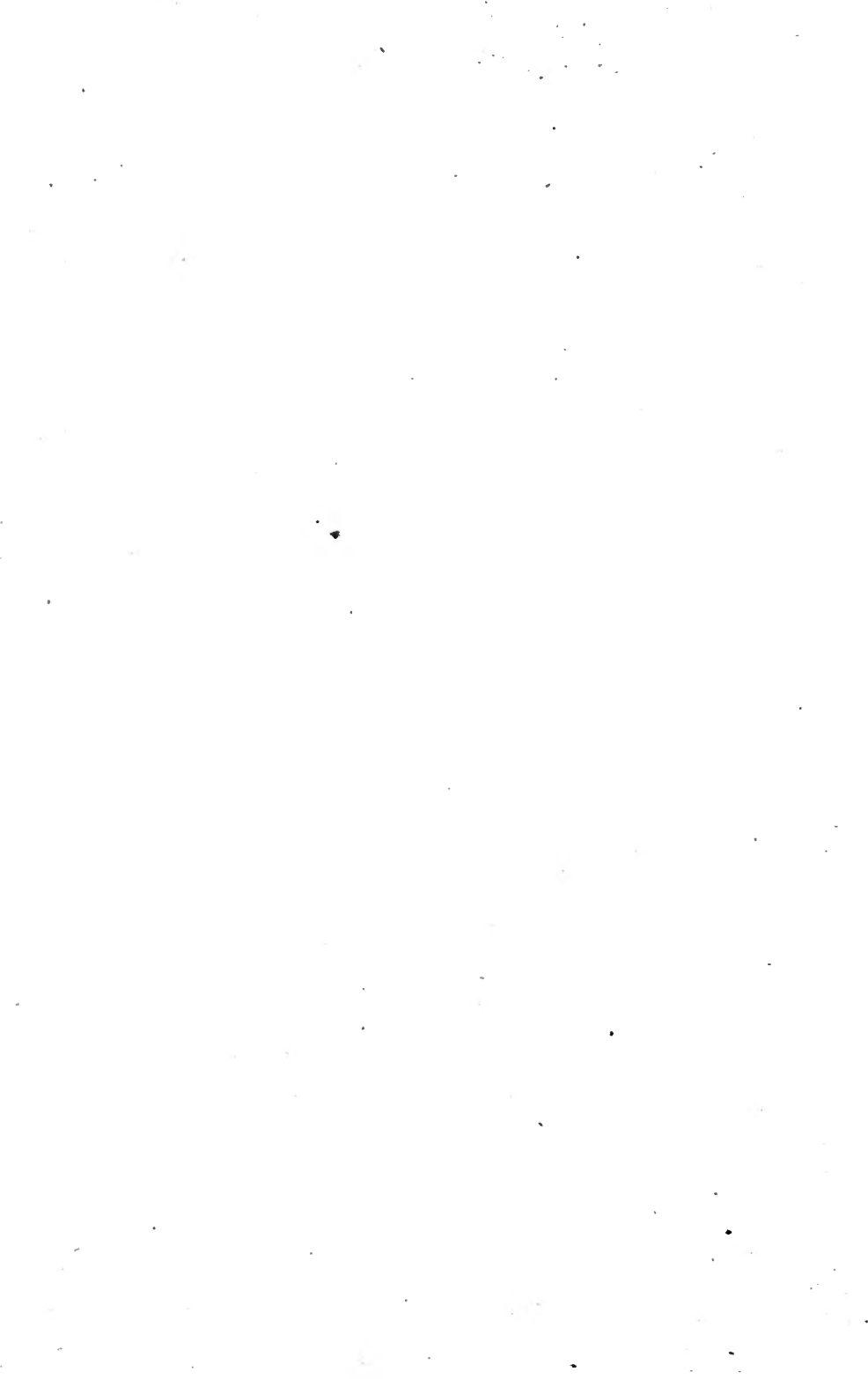
In all the hours thy future may command,
 May the rich blessings of the Father's hand
 Make glad the way before thy coming feet.
 Behold, where thou must go I hear the sweet
 Far voice of Spring eternal. On thy way
 There falls the radiance of undying day.
 No more thy heart o'er vanished treasure grieves,
 Borne on the blast like autumn's scarlet leaves ;
 For on the fire-swept plain, in gleaming lines,
 The magic of thy New Creation shines.
 O, risen one ! a glory doth enfold
 Thy sack-cloth robe transmuted into gold !
 O, City ! purged by sacramental flame,
 Be great in virtue, as thou art in name !
 Within thy walls may Happiness abide ;
 Mercy and Peace dwell ever side by side ;
 May Plenty smile ; and Concord be confessed,
 With sweet Content, in every home a guest ;
 And far away, without thine open gate,
 Be Rapine, Discord, Avarice and Hate.
 God grant to thee and thine a noble fame,
 And guard thee well from pestilence and flame,
 From dire oppression and the bloody sword ;
 And may the blessing of the gracious Lord,
 Which maketh rich and adds no sorrow, then
 Abide in peace with thee and thine. Amen.











The binding of this book was removed. The spine was relined and new headbands added. The binding was rebacked, the edges were repaired with Japanese paper and a PVA/wheat starch paste mixture. The original spine was reattached and the cloth refurbished with acrylic water color. The inner joint was repaired with Japanese paper colored to match the endsheets.

Richard C. Baker, Conservator.

St. Louis, March 2002.

