

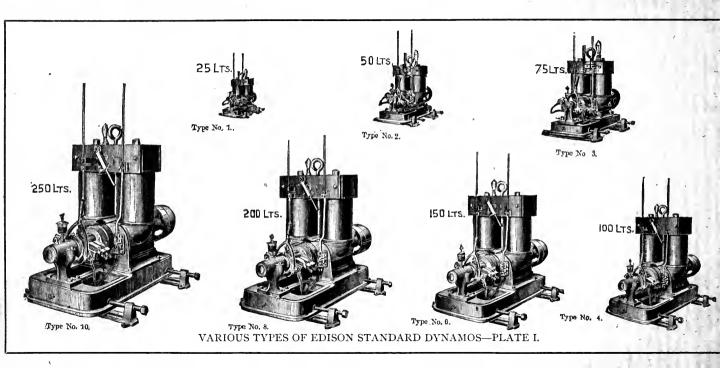


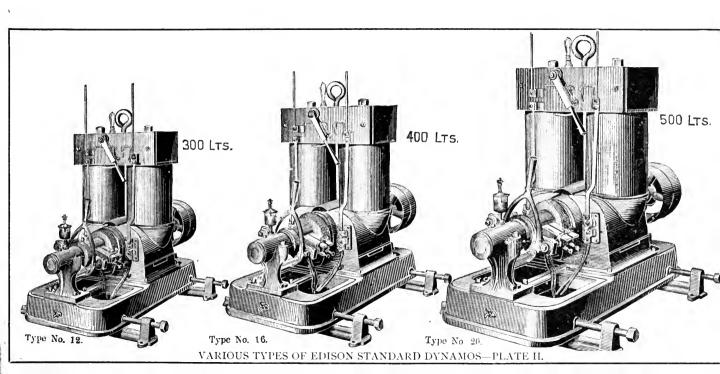
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# THE EDISON CO. FOR ISOLATED LIGHTING,

65 FIFTH AVENUE,

NEW YORK CITY.

18213B Bapcroft Library

#### THE EDISON INCANDESCENT ELECTRIC LIGHT.

The Edison Light is the most perfect medium of artificial illumination in use. Its adaptability is universal, and wherever artificial light is required, it can be advantageously used. It is in successful operation for street lighting, and effects a better and cheaper illumination than gas or the arc lamp. Plants varying in size from twenty-five lamps to fifteen thousand lamps are in daily use, and in every case these installations are constructed electrically and mechanically in accordance with the methods which the long experience of our Company has shown to be the most suited to produce the best results. All machinery and appliances are manufactured by the various Edison shops in the best manner possible, every article being standardized to the most perfect model. Every defect incident to the establishment of an entirely new industry, whether in principle of structure or method of manufacture, has been carefully eliminated, and the entire equipment of all Edison plants now represents the highest degree of perfection possible to obtain.

The Edison shops are under the management of the most skilled and practical electricians and electrical engineers, who have been associated with Mr. Edison from the time of his early experiments, and who are familiar with every branch of the business, having aided in the first incandescent electric light plant ever operated, namely, the Menlo Park exhibit. The enormous product of Edison light equipment which has been turned ont, and is now in operation in every quarter of the globe, has resulted in the acquirement of a most thorough knowledge of the best processes of manufacturing, and their unequaled facilities restricts the cost of production to the lowest figure consistent with the high standard of excellence which is always maintained.

#### THE EDISON LIGHT.

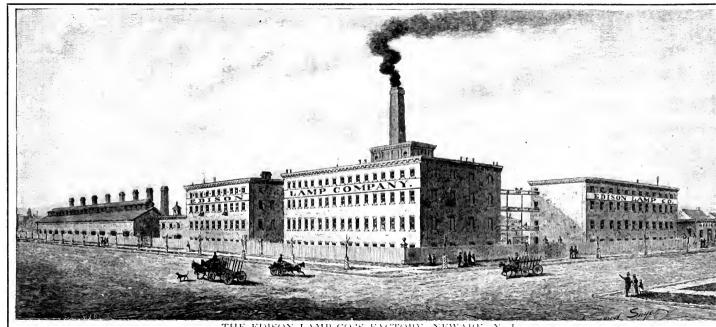
The light which is produced by an Edison lamp at the rated illuminating intensity is perfectly steady, clear, bright and beautiful. Not the slightest variation or quiver is perceptible, but the light emitted is as steady as sunlight on a cloudless day.

#### ISOLATED PLANT EQUIPMENT.

Plants for lighting separate buildings are sold outright and no royalty for their use exacted. The various sizes at present manufactured are as follows:

25	Light,	16	Candle	$\mathbf{Power}$	each.	150	Light,	16	${\bf Candle}$	$\mathbf{Power}$	each.	300	Light,	16	Candle	Power	each.
50	4.6	44	6.6	4.4	6.6	200	4.4	4.6	4.6	6.6	4.6	400	66	44	4.6	6.6	"
75	44	44	4.4	"	6.6	250	"	64	+ 6	44	. 6	500	4.4	4.4	4.6	6.6	44
100	6.6	"	4.4	. 6	6.6												

The standard equipment consists of a dynamo machine, with regulator to control the intensity of the current, an ampere meter to measure the quantity of current in use, an indicator to show the pressure of the current, and a full complement of lamps and sockets. This does not provide for wire and the various appliances connected with the system of distribution, nor for fixtures, as the conditions existing in each case can alone determine the extent and character of the requirements.



THE EDISON LAMP CO.'S FACTORY, NEWARK, N. J.

#### EDISON LAMP PATENTS.

No. 223,898, Jan. 27, 1880.

- " 227,229, May 4, 1880.
- " 230,255, July 20, 1880.
- " 251,540, Dec. 27, 1881.
- " 251,554, Dec. 27, 1881.
- " 251,596, Dec. 27, 1881.



No. 264,698, Sep. 18, 1882.

- " 264,737, Sep. 19, 1882.
- " 265,311, Oct. 3, 1882.
- " 265,777, Oct. 10, 1882.
- " 266,447, Oct. 24, 1882.
- " 317,631, May 12, 1883.

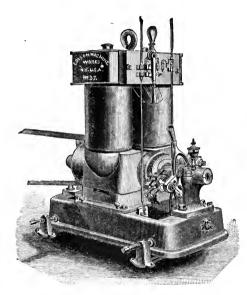
The standard Edison lamp is rated to give sixteen candle power of illumination. Lamps of different candle power are made, all of which will burn on the same circuit. The sizes now made are:

10 Candle Power.		Power.	20 Candle Power.				50 Candle Power.			
13	4.6	4.6	24	44	"	100	4.6	4.		
16	. 4		32	44		150	66	4.6		

The ten-candle power lamp is extensively used, and is found generally to give a more effective illumination than the ordinary gas burner. By reference to the illustration of the lamp, it will be seen that the various parts are fully covered by patents. Despite this, there are some companies making and selling the Edison lamp. No incandescent lamp, different from the Edison lamp, has ever been in commercial use. It is by no means a reasonable assumption that the Edison lamp can be manufactured by any one better than by the manufacturers, who have given this branch of the industry their unremitting attention from its inception. The only difference between the Edison lamps, as manufactured in the Edison factory, and those manufactured elsewhere, is that the filament in the lamp made by the Edison Co. is made of bamboo, while in the others various materials are used. Hundreds of different substances were carbonized by Mr. Edison in his early experiments; in fact, almost every known substance which could be conveniently submitted to the process, and in no case were such satisfactory results secured as with bamboo. The durability of the lamp, the amount of power required to sustain it, and its liability to become dimmed by use, are the important points to be considered in judging of its commercial value. No lamp has ever been made which will equal those manufactured by the Edison Co. in these respects. These lamps are made with reference to the most economic results. If the lamp is made so as to require less power, the durability of the lamp is sacrificed, and its tendency to blacken with use is increased. The most extensive experiments prove that the point of economy is eight standard lamps to the horse-power, and at that economy they will last longer, and the tendency to blacken be less than at any other point. This has not been shown simply in the laboratory, but is the verdict of the users of over 500,000 lamps doing actual lighting service. Nothing but absolute ignorance of the subject can excuse the claim that better results are secured, for no opportunity has existed for tests to be made in comparison with the unequaled field afforded in the hundreds of thousands of Edison lamps in use. If any real improvement on the Edison lamp is ever invented, which increases its efficiency or durability, it will be of more value to those who have a right to apply it than those who have not. Upwards of two thousand lamps per day are manufactured at the Edison lamp factory, and a series of tests and experiments unremittingly conducted, with a view of improving the methods of manufacture and sustaining the standard of lamps made.

# THE THE DYNAMO-ELECTRIC MACHINES USED IN WITH THE CONNECTION UNITED STATES IN

THE EDISON MACHINE WORKS, NEW YORK.



#### THE DYNAMO.

The efficiency of the Edison dynamo is ninety-six per cent. That is, this percentage of the power delivered at the dynamo machine is converted into electrical energy. No higher efficiency is obtained by any dynamo machine manufactured, and the limit of possible improvement can be said to have been attained in these machines. They are carefully constructed of the best obtainable metal, and every part is subjected to a thorough test. The bearings are ample in dimensions, thus assuring no trouble with heating; all electrical connections firmly secured, and every part made and fitted in such manner as to form a perfect piece of mechanism in every detail. The depreciation on the Edison dynamo machine is practically nothing. The commutator and brushes, the only parts subject to wear, will, with proper care, last for years. The machines are handsomely finished with hard wood switch-boards, mounted with polished metal connections. The regulator, ampère meter and indicator are absolutely accurate in recording and controlling the current, as to quantity and pressure, and are tastefully and substantially constructed

# EDISON THE APPLIANCES FOR SYSTEM, LIGHT BERGMANN



BERGMANN & CO.'S FACTORY, N. Y.—MANUFACTURERS OF EDISON APPLIANCES.

RERS OF EDISON APPLIANCES.

OPER/

ELECTROLIERS

CONTROLLING

#### APPLIANCES.

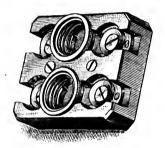
#### DOUBLE POLE SWITCHES.

The "Double Pole" switch is so arranged as to break both poles of the circuit at the same time. The importance of this cannot be overestimated, as it is the only method of positively breaking the circuit. If only one pole is broken, crosses or leaks are apt to exist, and there is no assurance that a fire will not be induced. Safety devices and circuit-controlling devices, which act upon both poles simultaneously, are absolutely essential to any system of distribution, and no method can be secure unless so constructed. Switches are made of all sizes, suitable for controlling from one lamp to three hundred lamps.

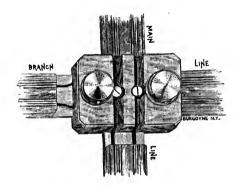


U. S. LETTERS PATENT,No. 339,298, April 6th, 1886.

#### DOUBLE POLE SAFETY DEVICES.



U. S. LETTERS PATENT, No. 314,582, March 31st, 1885.



The object of the safety catch is to prevent undue heating of the conductors, which may result from accident or poor contact, and which would in most cases be likely to produce a fire. The double pole cut-out controls this absolutely, and with this device the possibility of fire cannot exist. Small fusible lead wire is interposed in each pole through the medium of a "plug" containing properly arranged contact points, and when, from any reason, the temperature of the conductors is raised, the small lead wire is harmlessly volatilized, and the current absolutely shut off.

#### FIXTURES.

The completeness of our fixture department compares most favorably with the most extensive manufactories of gas fixtures in the country. The construction and design of the fixtures are highly artistic, or plain and substantial, as may be required.

The production of fixtures suitable for supporting the Edison lamp, meeting at once the artistic and electrical conditions required to bring the system into general use, was one of great intricacy. The combination of gas and electric light fixtures in one structure was found necessary, and the devices invented to meet these demands are numerous and effective. The insertion of an insulating joint, which provides for the flow of gas into the pipes of the fixture, and at the same time electrically insulates the structure from the gas pipes, is an absolute essential to such a combination.

Numerous other devices providing for the wiring, suspension, insulation, and arrangement of fixtures, were invented and patented, all contributing to the perfection of the Edison system, to accomplish which required inventions at every step. The unique character of the lamp affords scope for artistic arrangement impossible with any other means of lighting, so that the fixtures are more varied and beautiful in design than are gas fixtures.

The following electric light patents are owned by the Edison Co.:

		J			
248,420	Elec. Lamp FixturesOct. 18,	188	1 + 275,749	Connecting PlugApril 10,	1883
248,424	Elec. Lamp FixturesOct. 18,	188	1 286,350	Stand LampOct. 9,	1883
251,553	Elec. Lamp FixturesDec. 27,	188	1 293,553	Combination FixtureFeb. 12,	1884
251,559	Extension FixtureDec. 27,	188	1 294,697	Combination FixtureMch. 4,	1884
266,701	Combination FixtureApril 18,	188	2   297,269	Elec. Light FixtureApril 22,	1884
259,235	Electrical FixtureJune 6,	1889	2 305,200	ReflectorSept 16,	1884
262,272	Extension Chandelier Aug. 8,	188	307,879	Combination Fixture Nov. 11,	1884
263,103	Electrical ChandelierAug. 22,	188	2 311,131	Combination FixtureJan. 20,	1885
263,137	Electrical ChandelierAug. 22,	188	$2 \mid 337,199$	Extension ChandelierMarch 2,	1886
266,549	Electric FixtureOct. 24,	188	2   337,296	Elec. Light FixtureMarch 2,	1886
266,550	Elec. Light ChandelierOct. 24,	188	2   337,336	ShadeMarch 2,	1886

#### ECONOMY.

The economy of the Edison system depends so much upon the conditions under which it is operated that no definite standard figures as to cost can be given. We have testimonials showing that the cost in some places is less than an equivalent of ten cents per thousand feet for gas, and in some cases it is as high as three dollars per thousand. The items of cost in running a plant are, first, attendance; second, power, oil and waste; third, renewal lamps. In manufacturing places, and where engineers are employed, the cost of attendance can be left out entirely, as the work of caring for a plant is trivial, and any engineer can run it. The cost of power varies according to conditions under which it is produced. The cost of lamps is eighty-five cents each, and as they are guaranteed 600 hours, the cost is  $\frac{850}{200}$  of one cent per hour per lamp. The expense then of operating an Edison plant depends entirely upon the facilities already existing, and the amount of illumination required. It is a safe assumption that it will pay to put in the Edison light wherever the cost of present artificial lighting is, say, three hundred dollars per annum and over. In manufacturing establishments and places where steam is employed particularly is this so, though where an investment in boiler and engine and the employment of special engineer is necessary, the lighting requirements should be greater, in order to economically use the Edison system.



#### TESTIMONIALS.

The unqualified praise bestowed by the users of the Edison light, and its wide adoption for all classes of lighting, is strong evidence in support of all claims made for it. We append a few of the very many testimonials which have come to us unsolicited.

#### ERBEN, SEARCH & CO., WORSTED MILLS, PHILA-DELPHIA, PA.

"It works to our satisfaction, and is more economical than gas under any aspect that it can be viewed, while for all-night work the saving is a small profit in our manufacturing business.

"We could not afford to be without it."

#### PARKMOUNT COTTON AND WOOLEN MILL, PHILA-DELPHIA, PA,

"The guarantee you made as to power is more than borne out in practice."

#### ORANGE COUNTY WOOLEN MILLS, NEWBURGH, N. Y.

Mr. James Harrison writes:

"The light is better and cheaper than gas, and absolutely

safe as to fire. I expect the difference in Insurance rates will pay the whole expense inside of two years."

#### CLARK & KEEN, WORSTEDS, PHILADELPHIA, PA.

"Our saving from use of electricity on the Edison system, over our gas bills, will in the first year repay the cost of your whole plant."

"This shows an average life of our lamps at this establishment of 3,886 hours, being 3,286 hours in excess of our guarantee."

#### DAVOL COTTON MILLS, FALL RIVER, MASS.

"A careful test by indicator, made September 6th, with 312 lamps running fully up to candle power of the lamps (16 C. P.), gave us an amount of power used, 34.2 horse-power, an average of 9.12 lamps per horse-power."

"We are fully satisfied as to cost, quality and quantity of light."

#### WAMSUTTA COTTON MILLS, NEW BEDFORD, MASS.

Edward Kilburn, Agent, writes:

"Charging everything to this light that I can charge, I believe it to be more economical than gas at one dollar per thousand feet, and a very much better light."

# JOHN B. STETSON & CO., HAT MANUFACTURERS, PHILADELPHIA, PA.

"From our late tests we find it to cost us, as near as we can calculate, 38 per cent. of what gas would cost us at \$1.90 per 1,000 feet."

#### AVERY'S AGRICULTURAL IMPLEMENT MANUFAC-TORY, PEORIA, ILLS.

"We know of no artificial light we would exchange it for."

# THE UNITED STATES ROLLING STOCK CO., CHICAGO, ILL., MACHINE SHOPS.

General Master Mechanic writes:

"I would most gladly recommend the Edison Electric Light for any and every body's use."

### CONGLOMERATE MINING CO.'S MINE, LAC LA BELLE, MICH.

"The Edison Electric Light has been very satisfactory and economical. The cost of lighting the Mill from November, 1883, to November, 1884, was \$4,120.00 or about one-half the cost of lighting with kerosene."

#### MERRICK THREAD WORKS, HOLYOKE, MASS.

"We put the system in our smallest mill (4,000 spindles) on trial, and after six months we estimate that in one year the saving, as compared with cost of illumination by gas, would be sufficient to pay for the original cost of plant and installment, and leave a respectable margin besides."

Bancroft Librar

### FULTON IRON AND ENGINE WORKS, DETROIT, MICH.

"We run our engine to drive the light from the same boiler that is used to furnish steam for a larger foundry engine and for heating, and we do not notice any difference in the fuel used."

#### WINONA FLOUR MILLS, WINONA, MINN.

"We regard it as **perfectly safe**, much more so than gas or closed lanterns, for it is **simply impossible to fire a building**, or cause one of the (much to be dreaded) explosions that flouring mills are liable to when lights are carelessly used."

#### ANCHOR MILLING CO.'S FLOUR MILLS, ST. LOUIS, MO.

"It is reliable, cheap and safe, and we would not go back to gas light for any consideration."

#### BAY STATE SUGAR REFINERY, BOSTON, MASS.

"We take pleasure in stating that as we use it, it is not only much more economical, but much more satisfactory than gas."

## HARRISON, HAVEMEYER & CO., SUGAR REFINERY, PHILADELPHIA, PA.

"We find an economy in your system of Highting, compared with the use of gas as supplied by the City of Philadelphia, amounting to about 33%, i. e., we have a better lighted house than when using gas, at but two-thirds of the expense."

"We find our average lamp life to be 1,396 hours."

#### BALTIMORE TWINE AND NET COMPANY, BALTI-MORE, MD.

"We do not hesitate to say that it costs about the same as though gas were furnished at 60 cents per thousand."

#### STEARNS MFG. CO. MACHINE SHOPS, ERIE, PA.

"We have saved at least \$100 per month during the winter season by its use, and when running all night in good times the saving is greater."

#### THE NATIONAL MFG. CO., THREAD MILLS, NASH-VILLE, TENN.

"I believe it to be the cheapest light for practical use known; to say nothing of its superiority as an illuminator, its lack of heat and entire safety as to fire."

"Your plant replaced the Brush Arc system with us."

# CRACKER BAKERY, E. J. LARRABEE & CO., ALBANY, N. Y.

"We like the light very much, and it is much more economical than gas; it burns very steadily, no filekering; is decidedly more convenient and much safer than gas."

#### ARKANSAW OIL CO., TEXARKANA, KAS.

"It more than repays its cost from the security it affords against the danger of fire."

"We take pleasure in contributing our testimonial and recommendation of the Edison incandescent light as being, in our estimation, perfection for the uses and purposes intended."

## INSTITUTION FOR THE EDUCATION OF THE DEAF AND DUMB, JACKSONVILLE, ILL.

"Our electric light is giving us as nearly perfect satisfaction as any human device can."

.

#### UNIVERSITY OF THE STATE OF MISSOURI, COLUM-BIA, MO.

"So well pleased are we that we mean to extend your system of lighting still further, to the well nigh complete exclusion of all other modes of illumination from the buildings."

#### COLUMBIA COLLEGE LIBRARY, NEW YORK CITY.

"We always recommended the Edison light very strongly to other libraries who make inquiries as to the best system to adopt."

## MISSOURI INSTITUTION FOR THE EDUCATION OF THE DEAF AND DUMB, FULTON, MO.

"We find it far superior to gas, and would not willingly return to our old system of lighting."

#### MILLER SCHOOL, CROZET, VA.

"It costs us less than four-tenths of a cent for one sixteencandle power light for one hour."

### MILWAUKEE ASYLUM FOR THE INSANE, WANWA\* . TOSA, WIS.

"It has given good satisfaction all the time, and we cannot speak too highly of it."

EDISON CENTRAL STATION AT HARRISBURG, PA.—4,800 LIGHTS.

#### CENTRAL STATION PLANTS.

The problem of furnishing electric light to small consumers by distributing from a central source of supply was, at the time Mr. Edison asserted he could accomplish it, looked upon as a chimerical dream. The most positive and emphatic refutation of Mr. Edison's assertions were made by scientists, and even after the first lighting district in New York City was started and in operation, public assertions were made through the press that the whole scheme was a failure: that half the current generated was lost by leakage; that the effect to carry the current underground was utterly impracticable, &c., &c., all of which proved that the critics knew absolutely nothing of the subject. The Edison Co. now have stations in the following cities and towns, and are supplying electric light in private residences, stores, theatres, hotels, streets, and to all who want it, at prices much lower than gas was furnished prior to starting the Edison stations.

#### EDISON CENTRAL STATION ILLUMINATING COMPANIES IN THE UNITED STATES.

Name of City or Town.	State.	No. of Lan	ps. Name of City or Town.	State.	No. of Lamps.
New York	New York	13,00	0 Brought forward		73,625
Lawrence		4,00		Pennsylvania	1,900
Brockton	**	3,20	0   Tamaqua	٠	1,700
Shamokin 1	Pennsylvania	4,00	0   Tamaqua 0   McKeesport		1,900
Sunbury		3,50	0 New Brunswick	New Jersey	1,600
Fall River	Massachussetts	4.00	0 New Bedford	Massachusetts	1,600
Newburgh	New York	4.00			1,200
Tiffin (		2,00	0 Wilmington	Delaware	
Hazleton 1	Pennsylvania	3,6			1,600
Williamsport		5.00	0   Chester	4.	1,600
Mount Carmel	44	- 60	0 Lebanon	٠٠٠٠٠	1,400
Middletown (	Ohio	1,75	0 Jackson	Michigan	1,600
Piqua		1,80		Pennsylvania	
Bellefonte 1	Pennsylvania	1,60		Massachusetts	2,300
Circleville 0	Ohio	2,70			
Appleton '	Wisconsin	1,60			
Cumberland 1		2,20	0 Topeka	Kansas	4,800
Ashland 1					
Des Moines		3,20			800
Harrisburg		6,30			3,200
Lockport 1		70			6,000
York 1		1,60			
	J		Little Falls		
Carried forward	·	73,6			
			Total Lamps		130,225

#### EDISON MUNICIPAL SYSTEM.

The Edison municipal system is intended strictly for street lighting. Dynamos of two sizes only are now made, namely, for 160 lamps of 16-candle power, and for 40 lamps of 16-candle power. Municipal lamps of 24, 32 and 50-candle power are made and can be used on the same circuit. For general city lighting, this system is by far the best and most economical method, and wherever it is in use the most satisfactory results are obtained. The cost of wire in this system is inconsiderable, and a plant of 160 16-candle power lamps, sufficient to light an ordinary town, can be equipped without power with but a small investment of capital. Smaller machines will be shortly manufactured, so that public lighting on the smallest scale will be practicable and profitable.

#### ESTIMATES OF COST.

In sending for estimates, please furnish the following information:

How much boiler power, if any, is available to run dynamo?

How much power in engine, if any, is available to run dynamo?

How many buildings are required to be lighted, how many lamps in each building, and what are the relative positions of buildings with respect to intended location of dynamo?

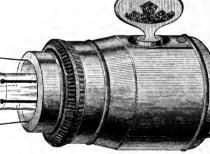
Are any special fixtures required other than plain pendants?

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A the "International Congress of Electricians" at Paris, 1882, the highest A possible award the Congress could give was a **Diploma of Frontor**, that being higher than a **Gold Medal.** The final award to Mr. Edison, and de by the several juries, was three diplomas of hone, two gold medals and a silver medal. Pursuant to usage, however, the Congress reserved the right to reorganize awards, so as to give to each exhibitor the highest award which he had received in any one class, and the Congress therefore approved the recommendations of the juries, and itself awarded a diploma of honor to Mr. Edison, the only one awarded for an incandescent electric light. In addition to the foregoing awards, Mr. Edison received from the French Government the decoration of the Legion of Honor. He had been previously made Chevalier of the Legion of Honor, hut the higher rank of Officer was conferred on account of his exhibit at the Paris Exposition.

LONDON, 1882.

At the "International Electric Exhibition," 1882, held at Crystal Palace, London, England, Mr. Edison was awarded the Only Gold Medal for a complete system of Electric lighting.

# 1883. **CINCINNATI EXPOSITION,**

amp Dollars, for the Medal, for the the prizes for an Incandescent being all The Prize of Five Hundred I System of Incandescent Electric Lighting; Gold Incandescent Electric Lighting; Gold Dynamo, were awarded to the Edison Company, be competted for:

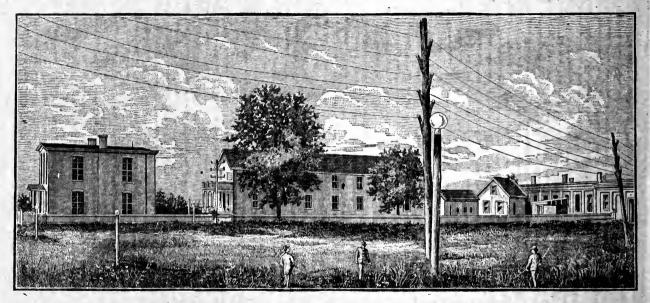
SOUTHERN EXPOSITION, LOUISVILLE, 1883.
FOUR Medals. (1) The best Incandescent Light System; (2) the obest Dynamo for Incandescent Lights; (3) the best Electric Lamp for Incandescent Light; and (4) the best Incandescent Light. The following extract is from the Report of the Jury, dated November 9th, 1883:

"The tests of the Edison system are most satisfactory as to the efficiency of the various appliances, he steadiness of the light produced and the general results. It is a matter worthy of rotter that during the hundred fallys off the Exposition with over 4,000 Edison lights believe busing, there was not at any time a suspension of light from failure of the appliances of the Edison Edistric Lighting Company.

# 1884. tests showed de-INSTITUTE, PHILADELPHIA, FRANKLIN

At the Franklin Institute, Philadelphia, 1884, lamp cided superiority in favor of the Edison lamp.

premiums were em at Vienna, Turn, Mılan, ere else where Many other awards and premium ade to the Edison system at V ice, Munich, Dresden, Turm, id Berlin and everywhere else y our. to the Eu. Munich, made to the Nice, Munic and Berlin exhibited,



"MENLO PARK"—THE BIRTHPLACE OF THE INCANDESCENT LIGHT.



