

W. & T.



AVERY
©
LTD


**WEIGHBRIDGES.
WEIGHING APPARATUS.
TESTING MACHINERY.**

FOR ENGINEERS.



**SOHO FOUNDRY
BIRMINGHAM.**

CATALOGUE No. 231.
OCT., 1906.



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Weighing Machinists by Royal Warrant of Appointment
to His Majesty the King.

W. & T. AVERY, Ltd.,

Soho Foundry, BIRMINGHAM.

ESTABLISHED 1780.

A Selection of
Weighbridges, Weighing Apparatus
and Testing Machinery,
For Engineers, Railways, Collieries,
Docks, Manufactories, Etc.

SHOW ROOMS AND REPAIRING DEPOTS.

LONDON	14, 15, 16 & 17, Cow Cross Street, E.C.
BIRMINGHAM	12, Digbeth.
GLASGOW	179, Dumbarton Road, Partick.
MANCHESTER	17, Shudehill.
LIVERPOOL	8 & 10, Hunter Street.
LEEDS	36, Wellington Street.
SHEFFIELD	29, Exchange Street.
CARDIFF	18 & 22, Custom House Street.
PORTSMOUTH	245, Commercial Road, Landport.
NEWCASTLE-ON-TYNE	Bigg Market.
NOTTINGHAM	14, Grey Friar Gate.
CHESTER	112, Foregate Street.
PRESTON	191, Lancaster Road.
BRIGHTON	34, East Street.
BELFAST	Smithfield Square.
DUBLIN	23, Drury Street.
CORK	Metropole Buildings, King Street.
BRADFORD	143, Leeds Road.
LEICESTER	58, Halford Street.
	Etc., Etc., Etc.

Over 60 First Class Exhibition Awards and 15 Gold Medals.

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INTRODUCTION.

We submit a Selection of Machines specially suitable for Engineers, Railways, Collieries, Docks, Gas Works, Water Works, Manufacturers, etc., which does not by any means include all the Machines made by us.

If you cannot see suitable Machines in this Catalogue, please let us know your exact requirements.

Special Machines. We have a large staff of Expert Draughtsmen continually engaged in designing Special Weighing Apparatus and Testing Machinery to suit Special Requirements, and shall always be pleased to submit Drawings and Specifications for Machines to suit your particular needs.

If at any time you are in difficulty with regard to Weighing or Handling your goods, or think you might save time and money by using a Machine other than catalogue pattern, please give us particulars of your ideas, when we will at once put the matter into the hands of one of our experts, and feel sure we shall be able to offer you a "Special" Machine to meet the objects you have in view.

Contracts for Repairs. On invitation we shall be pleased to tender for the overhauling, repairing, and adjusting of any Weighing Apparatus wherever situated, whether of our own or another make. We keep skilled workmen at all our Branches to meet the constantly increasing demand for Annual Repair contracts.

Patent Recording Weighing Machines. We are the sole Makers of Avery's Patent Recording Steelyards, which can be applied to all descriptions of Weighbridges and Platform Weighing Machines. By means of this unique invention, a printed Record of the weight is obtained in 1, 2, or 3 Standards from the Machine itself, both Tare and Gross, on a special ticket; this prevents the possibility of error or fraud, and ensures an immense saving of time.

Testing and Viewing. In addition to **every** machine being thoroughly tested with Standard Weights by an Expert Viewer, we have a thorough system of Examining and Gauging at every progressive Process through which each limb passes, thus ensuring great accuracy and engineering finish.

Standards of Weight. All the Weighing Machines in this Catalogue can be arranged to weigh in any standard of weight, as may be ordered.

Classification. With reference to the three classes into which our Machines are divided, we would mention that this does not refer to the quality of the materials or workmanship, but to the sensitiveness of the various patterns of Weighing Apparatus in accordance with clause 66 of the Model Regulations issued by the Board of Trade in 1890. Most of our Machines, particularly Platform Weighing Machines, are constructed, when new, to bear the tests prescribed for First Class in the Model Regulations; but, as in use they are often subjected to rough treatment and kept in work for long periods without repairs, we have decided that, in the interest of users, it is wiser in some cases to denominate them in the lower classes.

Alterations. The prices and matter generally are revised up to date of publication, but we reserve the right to vary prices or discounts, or both, without notice. It will, however, be our endeavour to give our friends the earliest intimation of any alteration we may find it necessary to make.

Conditions of Sale.

Opening Orders. All opening orders must be accompanied by a Remittance, or by two satisfactory business References, before an account can be opened.

Packing. Goods for **Home Trade** are packed in cases, crates, &c., when, in our opinion, such packing is necessary for safe transit, and packages are charged unless otherwise stated. Boxes, Mats, &c., charged at 7d. and under, are non-returnable and must be paid for in full. Other Packages, unless returned carriage paid within one month to address on tin tally affixed to each package, will be credited to the extent of half charge only.

Packing for Export, unless otherwise stated, is charged at cost.

Delivery. All consignments sent direct from the works, Birmingham, above £5 net value, exclusive of packages, are delivered **Carriage Paid** to any Railway Station in England, or to any of the following Irish Ports, viz. :—Belfast, Cork, Dublin, Dundalk, Greenore, Larne, Londonderry, Newry, Waterford, Wexford.

No complaints can be recognised unless made within three days after delivery by the Railway Company, and no claim for breakages will be entertained if a clean receipt has been given to carriers.

Payment. **Accounts** are payable **monthly**, payment to be made by the 20th of month following date of invoice.

Compound Interest at the rate of 5 per cent. per annum charged on overdue accounts.

Alphabetical Index.

For Telegraphic Code see pages 127 and 128.

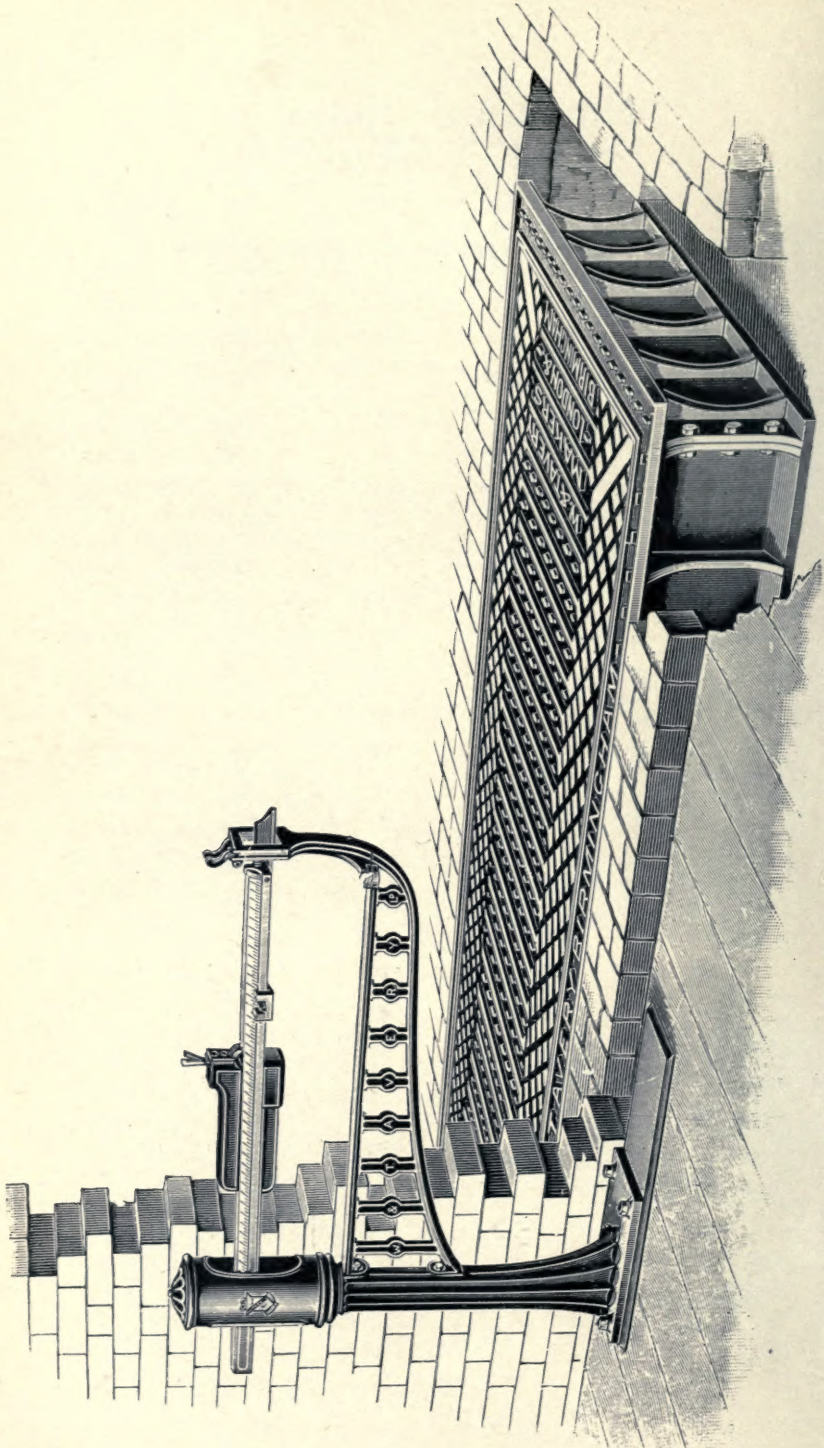
	PAGE.
Aerial Railway Weighing Machines	73-75
“Aerostat” Dial Indicating Mechanism	11 to 19
Analytical Scales	91 to 93
Beam Scales	78-79
Counting Balances	82 to 86
Crane Weighing Machines	62 to 71
Dead Weight Machines	80
Engine Weighing Tables	19
Estimating Balances	82 to 87
Furnace Charging Weighing Machine	33
Iron Warehouse Weighing Machines	37 to 48
Letter Scales	90
Lock (Coin-in-the-Slot)	95
Parcel Scales	88 to 90
Pillar Scales (Large)	76
Pitbank Weighbridges	20 to 23
Platform Weighing Machines	33 to 61
Quay Side Weighing Machine	40
Rail Weigher and Tester	45
Railway Weighbridges	9 to 19
Sack Weighing Machines	80
Secret Weighing Machine	33
Specific Gravity Balances	92
Steelyards for Platform Weighers	58-59
Steelyards for Weighbridges	24 to 31
Suspended Crane Machines	62 to 71
Suspending Scales	78-79
Testing Machines	97 to 126
Triple Recording Weighing Machine	54
Trolley Scales (Portable)	77
Tram Weighing Machines	20 to 23
Trucks (Warehouse and Sack)	81
Warehouse Machines	35-36
Warehouse Scales	88 to 90
Weighbridges	3 to 31
Weights	94

Numerical Index.

No.	Page.	No.	Page.	No.	Page.
1	94	231	47	617	121
5	94	232	41	618	97
18	94	233	40	622	107
35	94	235	55	623	119
70	45	236	37	626	109
72	75	237	42	627	105
73	73	238	54	720	92
75	19	239	43	721	92
94	81	350	85	752	61
96	81	351	84	779	95
98	36	360	86	828	70
100	35	361	83	830	64-69
102RP...	49	362	82	836	63
103	48	371	90	849	88
104	52	375	87	878	91
104F	53	554	80	879G	91
105	38	554B	80	1083	89
107G	44	564	78	1110	5
112	50	565	79	1111	13
112C	51	572	76	1114	15
112F	53	576	77	1121	17
118	90	601	101	1122	7
124	3	604	125	1128	11
125	9	606	101	1146	33
132	56	608	111	1233R	22
195	57	611	103	3371	90
218	93	612	117		
227N	21	613	123		
227S	20	614	115		
228	23	615	99		
230	39	616	113		

—

Pillars—
Platform, 58, 59
Weighbridge, 24 to 31
Code, 127 and 128



Avery's High Class Weighbridge,

Of which there are some Thousands in use by H.M. Government, Railways, Corporations, Gasworks, Waterworks, Engineers, Collieries, Dockyards, Manufactories, &c., &c.

Avery's Self-contained Wagon Weighbridge.

No. 124 C.

AVERY'S **Strong Self-contained Iron Weighbridge**, very strongly constructed of Iron of **Improved Three-lever Type**, which avoids all **Torsional Stress** and allows the Platform to swing in the direction in which the Traffic moves, thus preventing undue wear to the Knife-edges. The under-work is enclosed in a strong Cast-iron Frame with broad flanges, which can be fixed at a slight cost, as it requires very little foundation.

The meeting surfaces are accurately machined, thus producing absolutely true joints and preventing the possibility of shifting under stress, with consequent variation in weighing.

With Improved Steelyard, Pattern C, dispensing entirely with Loose Weights, and fitted with Avery's Patent Steel Notched Protection Bar.

The following are the usual sizes made :—

Capacity.	Size of Platform.		Approx. Packed Weight.	Approx. Shipping measurements.
	ft.	in.		
tons.	ft.	in.	tons	cu. ft.
5	12	0 × 6 6	4	163
8	12	0 × 6 6	4½	170
10	12	0 × 6 6	5¼	200
5	12	0 × 7 0	4½	185
8	12	0 × 7 0	4½	190
10	12	0 × 7 0	5½	210
15	12	0 × 7 0	5¾	220
15	14	0 × 8 0	6¾	255
20	14	0 × 8 0	7¾	290
20	16	0 × 8 0	8½	300

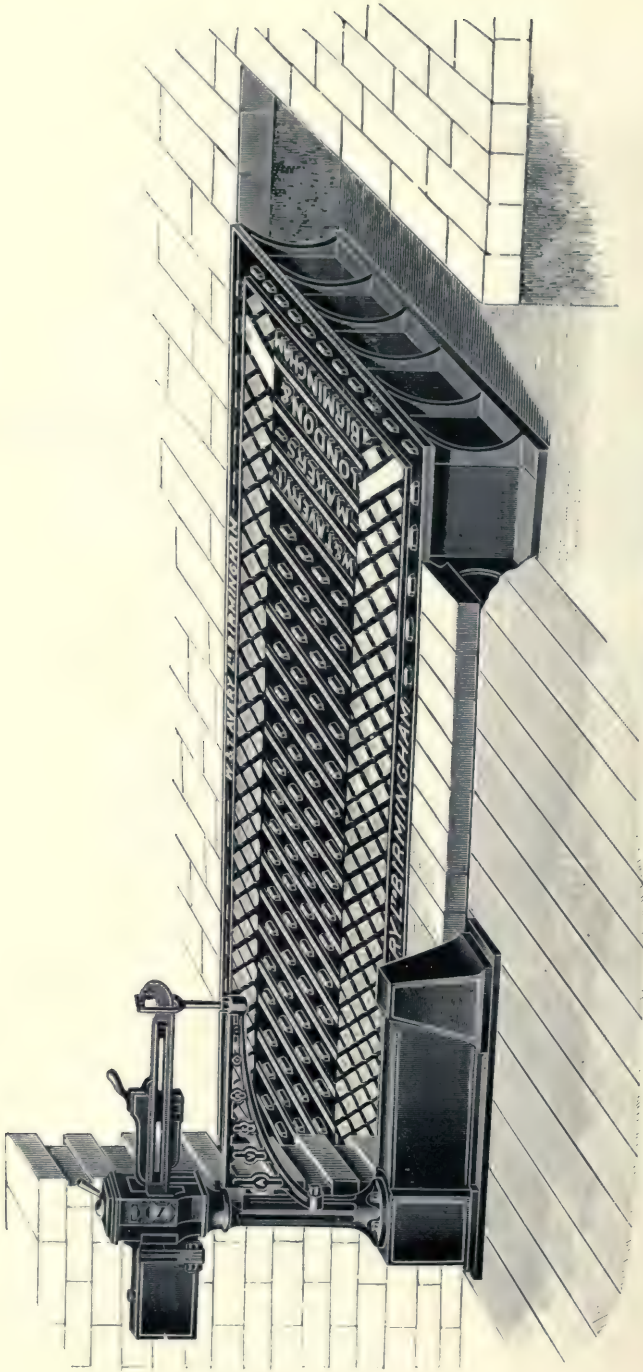
Can be fitted with various pattern Pillars and Steelyards, as shown at end of book.

We specially recommend Avery's Patent Recording Steelyard, Pattern F, by means of which the weight is permanently printed on a Ticket (see page 29).

Can be arranged to weigh in any Standard or in two or more Standards. If required in any other Standards than English Tons, Cwts., Qrs., and Lb. the Standards required must be clearly stated.

FOR CODE WORDS SEE PAGE 127.

SOHO FOUNDRY, BIRMINGHAM.



Avery's Patent Weighbridge,

To Print the Weight on Tickets, and also to Count the Number of Loads Weighed. Specially suitable for Public Use.

Avery's Patent Weighbridge.

**Specially designed to print the Weight on Tickets
and Count the Number of Loads weighed.**

**Specially suitable for Use as a Public Weighbridge as
it forms a complete check on the Weighman.**

No. 1110.

AVERY'S Patent Weighbridges, designed to print the weights on Tickets, and in addition to Automatically Count the Number of Loads.

The Weighbridges are Self-contained of Improved Three-lever Type which avoids all Torsional Stress, and are specially strongly constructed of Iron of Engineer Finish throughout. The **meeting surfaces are accurately machined**, thus producing absolutely true joints and preventing the possibility of shifting, with consequent variations in weighings.

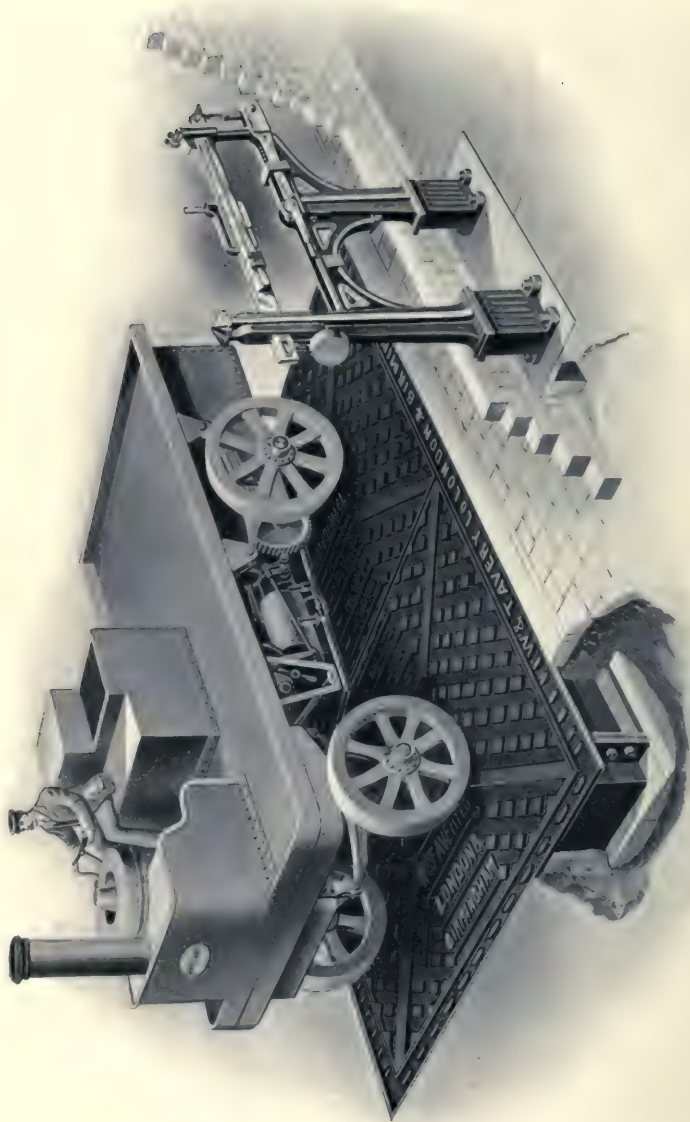
Fitted with **Avery's Patent Recording Steelyard**, by means of which the Gross and Tare Weight can be printed on a Ticket at the moment of weighing, which Ticket can be used by the Carter for delivery.

Also provided with **Avery's Patent Counter**, which Automatically records the Number of Loads weighed, and forms a complete check on the daily takings.

The following are the usual sizes made of 5, 8, 10, 15, 20, 30, and 50 tons capacity :—

ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
10 0	× 6 0	12 0	× 7 0	12 0	× 8 0	16 0	× 8 0
12 0	× 6 6	14 0	× 7 0	14 0	× 8 0		

SOHO FOUNDRY, BIRMINGHAM.



Avery's Patent Combination Weighbridge.

Specially designed for testing the weight upon each Axle of Motor-cars in conformity with the Motor-car Acts.

Avery's Patent Combination

Motor-Wagon Weighbridge.

No. 1122.

Capacity, 15 tons. Dimensions of Combined Platform, 14 ft. × 8 ft.

This Patent Weighbridge has been specially designed for testing the weight upon each Axle of Motor-Cars in conformity with the Motor-Car Acts.

THE **Weighbridge** is so constructed and arranged that when a Car is upon the Weighbridge the load can be immediately ascertained upon either the one or the other of the Axles, or upon the two combined.

The Weighbridge can be also used with equal facility for ordinary wagons or carts, as although the two platforms are quite distinct when weighing the separate axles, when combined for weighing ordinary traffic the two platforms are practically one, as there is no dead plate intervening between the platforms.

Fitted with **Avery's Patent Combination Pillar**, which by the movement of a Hand Lever throws either of the Bridges into gear for testing the Axle Weights of Motor-Cars, or both Bridges into gear for weighing Motor-Cars and ordinary road traffic.

Fitted with **Avery's Improved Steelyard**, dispensing entirely with Loose Weights, thus economising time.

Can be fitted with **Avery's Patent Recording Steelyard**, by means of which the weight can be printed on a Ticket at the moment of weighing.

BRITISH MOTOR-CAR ACTS.

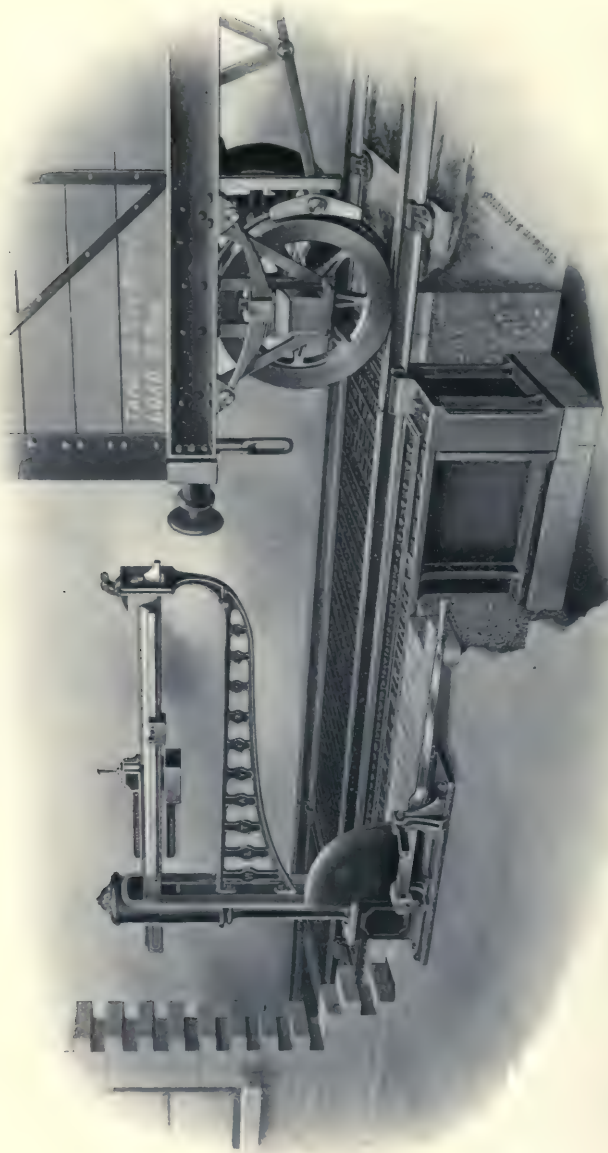
GOVERNMENT LIMITS —

The Registered Axle Weight of an Axle of a Heavy Motor-Car shall not exceed 8 tons, and the sum of the Registered Axle Weights of all the Axles of a Heavy Motor Car shall not exceed 12 tons.

Width of Car not to exceed 7 feet 6 inches.

Maximum Unladen Weight of Car, 5 tons ; of Car and Trailer, 6½ tons.

SOHO FOUNDRY, BIRMINGHAM.



Avery's Self-contained Railway Weighbridge.

As in use on the leading Railways at Home and Abroad.

Avery's Self-contained Railway Truck Weighbridge.

No. 125

Capacities, 5 to 200 tons.

AVERY'S **Strong Self-contained Iron Weighbridge** for Railway Traffic, of our **Improved Three-lever Type**, which avoids all Torsional Stress, and allows the Platform to swing in the direction in which the Traffic moves, thus preventing undue wear to the Knife-edges.

The underwork is self-contained in a Strong Cast-iron Frame which can be fixed at a small cost, as it dispenses with the expensive brick foundations otherwise required.

The meeting surfaces are accurately machined, thus producing absolutely true joints and preventing the possibility of any shifting under stress with consequent variation in weighing.

Can be fitted with various pattern Pillars and Steelyards, as shown on pages 24 to 31.

We specially recommend **Avery's Patent Recording Steelyard**, by means of which the Weight is permanently printed on a Ticket.

We make these Weighbridges in all sizes up to 75 feet long and 200 tons capacity, and with Rails fitted to any gauge, and shall be pleased to submit Drawings, Specifications, and Tenders for any special Machine or Machines to suit the exigencies of any special or abnormal requirements.

If desired, the Rails can, at a slight extra cost, be sunk flush with the Platform, so that ordinary Wagons and Carts can be weighed as well as Railway Trucks.

Can be arranged to weigh in Any Standard, or in two or more Standards.

When ordering or inquiring for prices the following particulars should be given :—

- (1) Capacity.
- (2) Standard or Standards of Weight.
- (3) Length of Platform.
- (4) Gauge of Rails.
- (5) Full Size Outline of Section of Permanent-way Rail.

SOHO FOUNDRY, BIRMINGHAM.



Avery's Patent Automatic Weighbridge.
For the Quick Weighing of Trains while in motion.

Avery's Patent

Automatic Weighbridge.

For the Quick Weighing of Trains while in motion.

No. 1128.

PATENT Weighbridge for the Quick Weighing of Railway Traffic without stopping the Trains. This is attained by means of Improved Dial Indicator and **Avery's Patent Lead-on Rails**, by means of which the load is gradually transmitted to the Levers, thus giving a steady movement to the Indicating Finger. These in no way interfere with accurate weighings—the small weight of the “Lead-on-Rails” is a constant, and is compensated for in the same manner as the Platform itself.

The Indicating Mechanism is **Avery's Patent “Aerostat” Dial**, by means of which the weight is Indicated Automatically. This invention has been designed to practically eliminate friction by reducing to a minimum the number of Spindles, with their consequent disadvantages, the weighing being accomplished by means of Cylinders carrying pendulum weights, which roll up steel bands and by actuating a Pointer indicate the exact Weight upon the Dial. The Indicating Mechanism is relieved from wear when not in use by movement of a Hand-lever.

When ordering or inquiring for prices the following particulars should be given:—

- (1) Capacity.
- (2) Standard of Weight.
- (3) Wheel-bases of each Type of Truck to be Weighed.
- (4) Length over Buffers of Truck to be Weighed.
- (5) Gauge of Rails.
- (6) Full Size Outline of Section of Permanent-way Rail.

The following advantages result from using this Patent Weighbridge:—

- (A) **Saving in time of all Train Attendants and Weighmen.**
- (B) **Quicker train transit with its attendant economies.**
- (C) **Earlier delivery of Produce at the large congested centres.**

Avery's Patent “Trains in Motion” Weighbridges are in use on the leading Railways both at Home and Abroad, including Indian State Railways, New Zealand Government Railway, Great Eastern Railway, New South Wales Government Railway, North Eastern Railway, East Indian Railway, Madras Harbour Trust Board, &c., &c., &c.

The North Eastern Railway Co. (England), who are using our Patent Weighbridges, write:—

“A Train is made up of 30 Wagons, and I understand that the Weighman averages 10 minutes per train, that is at the rate of 3 Wagons per minute, and that under favourable conditions he can weigh a train load in 7½ minutes.”

SOHO FOUNDRY, BIRMINGHAM.



Avery's Patent Combined Weighbridge,
For weighing Trains of Mixed Trucks without uncoupling.

Avery's Patent Combined Weighbridge

With Patent "Aerostat" Dial. For Weighing Trains of Mixed Trucks without uncoupling.

No. 1111.

THIS **Patent Weighbridge** has been designed to weigh both the Ordinary Small Trucks and Long Bogie Trucks.

The Arrangement consists of two Weighbridges fixed at such a distance apart that Ordinary Small Trucks can be weighed on one Weighbridge and Long Bogie Trucks on the two combined.

This Patent Weighbridge is arranged to weigh, **without uncoupling**, Trains of Mixed Trucks of every known size.

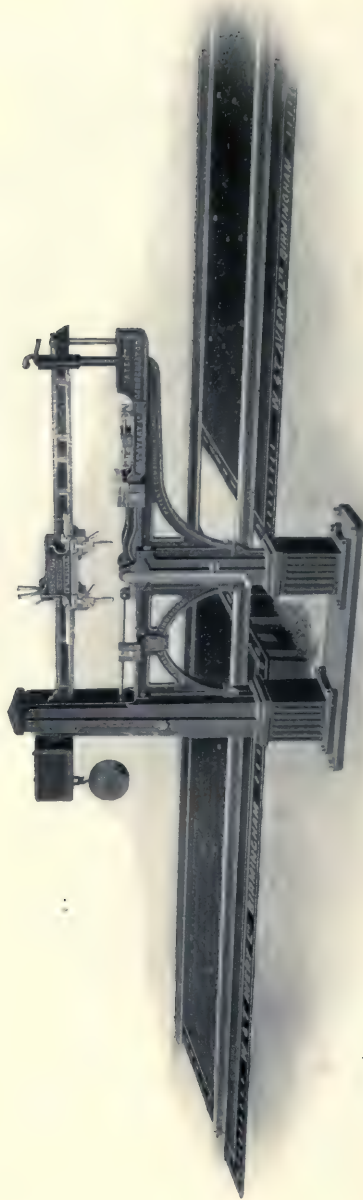
The Indicating Mechanism is **Avery's Patent "Aerostat" Dial**, by means of which the weight is Indicated Automatically. This Invention has been designed to practically eliminate friction, by reducing to a minimum the number of Spindles, with their consequent disadvantages, the weighing being accomplished by means of Cylinders carrying pendulum weights, which roll up steel bands and by actuating a Pointer indicate the exact Weight upon the Dial. The Indicating Mechanism is relieved from wear when not in use by movement of a Hand Lever.

The Weighbridges are so designed that when the one Weighbridge is in gear for weighing, by a single movement of a Hand Lever the two Weighbridges can be put into gear for weighing a Combined Load and *vice versa*.

When ordering or inquiring for prices the following particulars should be given:—

- (1) Capacity.
- (2) Standard of Weight.
- (3) Wheel-bases of each Type of Truck to be Weighed.
- (4) Length over Buffers of ditto.
- (5) Gauge of Rails.
- (6) Full Size Outline of Section of Permanent-way Rail.

SOHO FOUNDRY, BIRMINGHAM.



Avery's Patent Combined Weighbridge.

With Patent Recording Steelyard for Printing the Weight on Tickets.

Avery's Patent

Combined Weighbridge.

**For Weighing Trains of Mixed Trucks
without uncoupling.**

No. 1114.

THIS **Patent Weighbridge** has been designed to weigh both the Ordinary Small Trucks and Long Bogie Trucks.

The Arrangement consists of two Weighbridges fixed at such a distance apart that Ordinary Small Trucks can be weighed on one Weighbridge and long Bogie Trucks on the two combined.

This Patent Weighbridge is arranged to weigh, **without uncoupling**, Trains of Mixed Trucks of every known size by means of Avery's Patent Combination Arrangement. Weighments can be taken on the two Platforms separately, also on the two Platforms combined, e.g., a short Truck can be weighed on one Platform and by one movement of a Hand Lever another Truck can be weighed on the other Platform, and in addition by another movement of the Hand Lever a Long Bogie Truck can be weighed on the two Platforms combined.

By means of **Avery's Patent Compensating Arrangement** either of the Weighbridges when in use can be readily and separately balanced on the Steelyard in order to compensate for any accumulation of dirt or snow upon the Weighing Platforms, which avoids the necessity of getting down to the under Levers.

The illustration shows Weighbridges fitted with **Avery's Patent Recording Steelyard**, for Printing the Weights on Tickets; if desired, ordinary Steelyards can be fitted.

When ordering or inquiring for prices the following particulars should be given :—

- (1) Capacity.
- (2) Standard or Standards of Weight.
- (3) Wheel-bases of each Type of Truck to be Weighed.
- (4) Length over Buffers of ditto.
- (5) Gauge of Rails.
- (6) Full size Outline of Section of Permanent-way Rail.

Existing Weighbridges can be converted into Patent Combined Weighbridges by adding another Weighbridge, and connecting the two Weighbridges to Avery's Patent Combined Pillar and Steelyard, so that Railway Companies can, at a low cost, convert their existing Weighbridges to enable them to deal with the new Bogie and all other Wagons.

SOHO FOUNDRY, BIRMINGHAM.



Advertisement for The Great Eastern Life Assurance Co. Ltd. London

Avery's Live and Dead Rail Weighbridge.

No. 1121.

DESIGNED for positions on the Main Line where there is not sufficient room for separate Siding for a Weighbridge.

There are two sets of lines on the Weighbridge, the one set—the Permanent or Dead Rails being supported on Dead Girders so that the traffic over them in no way affects the Weighing Mechanism; the other, the **Weighing or Live Track**, is supported by the Weighing Platform.

The Weighbridge is of specially strong and substantial construction, and is self-contained in a massive cast-iron frame. The illustration shows our Patent "Aerostat" Dial Indicating Mechanism, but the Weighbridge can, if desired, be fitted with ordinary Steelyard or with Avery's Patent Recording Steelyard for Printing the Weights on Tickets.

When inquiring the price or ordering, give the following particulars:—

- (1) Capacity.
- (2) Standard or Standards of Weight.
- (3) Gauge of Rails.
- (4) Full size Outline of Section of Permanent-way Rail.
- (5) Length of Weighing Table or Wheel Bases of largest trucks to be weighed.

SOHO FOUNDRY, BIRMINGHAM.



Locomotive Engine Weighing Tables with Avery's "Aerostat" Indicating Quadrants.

Avery's Locomotive Engine Weighing Tables.

No 75.

Capacities, 40 to 200 tons, with 6, 8, or 10 Tables.

MASSIVE **Self-contained Weighbridge**, for ascertaining the Weight upon each Wheel of a Locomotive Engine, in order that the springs may be so regulated that the total Weight of the Engine is distributed in the desired proportion upon each Wheel.

There is an independent Weighing Machine for each wheel, each Machine having a separate length of rail upon the Platform, and the load on each Weighing Machine is indicated upon a separate Quadrant.

Fitted with Avery's Patent "Aerostat" Self-indicating Mechanism, by means of which the load upon each wheel of the locomotive is Automatically indicated Instantaneously, and can be read at a glance, thus ensuring an enormous saving in time.

If desired can be fitted with the Ordinary Steelyards for indicating the weight.

The Weighbridges are constructed on Mathematical Principles, and the materials and workmanship are of the very best throughout and of Engineer finish.

When ordering or enquiring for prices the following particulars should be given :—

- (1) Number of Wheels.
- (2) Measurements between Centres of Wheels.
- (3) Load on each Wheel.
- (4) Standard of Weight Required.
- (5) Gauge of Rails.
- (6) Full size Outline of Section of Permanent-way Rail.

Avery's Engine Weighing Tables are in use in the chief Railways at Home and Abroad, including Indian State Railways, North Eastern Railway, South Eastern and Chatham Railway, Hull and Barnsley Railway, Barry Dock Railway, New South Wales Government Railway, Argentine Government Railway, &c., &c., &c.

We also make a Light Portable Wrought-iron Weighing Apparatus for use when it is not convenient to have the large fixed machine described above. In weighing, one Portable Machine is required for each wheel of the Locomotive, the capacities being 5, 7½, or 10 ton each.

SOHO FOUNDRY, BIRMINGHAM.

Pit Bank or Tram Weighbridge.

With Double Steelyard.



No. 227 S.

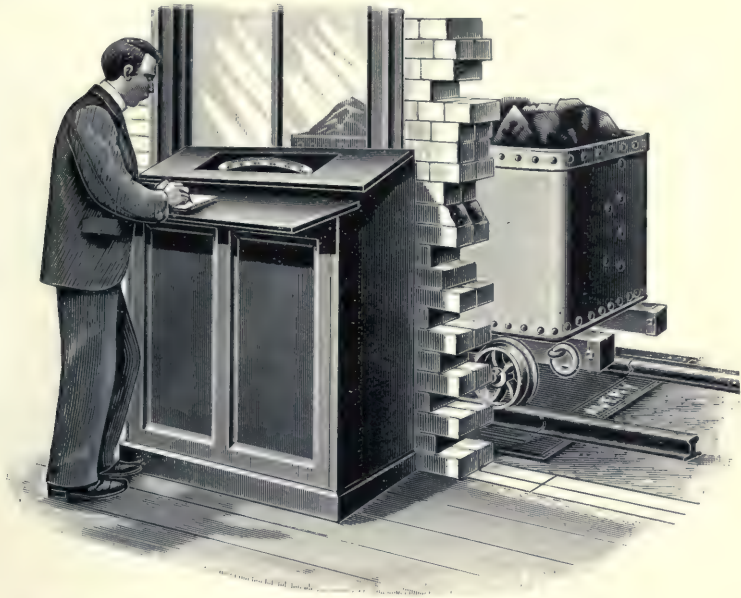
STRONG **Self-contained Iron Weighbridge** for weighing Trucks at Collieries, Quarries, &c; made especially strong to withstand rough usage; with Double Pattern Steelyard for Taring off the weight of the Trucks.

Capacity.	Size of Platform.
2 tons.	4 ft. x 2 ft. 6 in.
3 "	4 ft. x 2 ft. 6 in.
2 "	4 ft. x 3 ft. 6 in.
3 "	4 ft. x 3 ft. 6 in.
3 "	5 ft. x 4 ft. 0 in.
5 "	5 ft. x 4 ft. 0 in.
3 "	6 ft. x 4 ft. 0 in.
5 "	6 ft. x 4 ft. 0 in.

If specially ordered Platform can be provided with either Cast or Steel Rails at an extra charge. When ordering give Gauge and Full size Outline of Section of Permanent-way Rails; also state whether Weighbridge will be fixed on Concrete Foundations or on Joists.

W. & T. AVERY, LIMITED,

Avery's Patent Automatic Self-Indicating Colliery Weighing Machine.



No. 227 N.

FOR the **rapid weighing** of Trucks; the **actual net weight** of the Coal is **indicated automatically** by the Machine itself.

A **minimum** weight is decided on and balanced on Steelyards, and the Quadrant indicates 5 cwt. over that weight, thus allowing a variation of 5 cwt. in the weight of the loads, e.g., taking the fixed Minimum Weight at 25 cwt., the Quadrant is marked from 25 to 30 cwt., and any weight between this is indicated on Quadrant.

If a greater range is required for different Trains of Trucks, the Quadrant can be marked from 0 to 5 cwt., and the Minimum Weight can be balanced on Steelyard to suit the different Trains, e.g., 25 cwt. for one Train, and 30 or 35 cwt. for another; the reading on the Quadrant has then to be plussed to the fixed Minimum weight.

The Tare Weight is balanced separately; All Trucks must be tared up to the same weight.

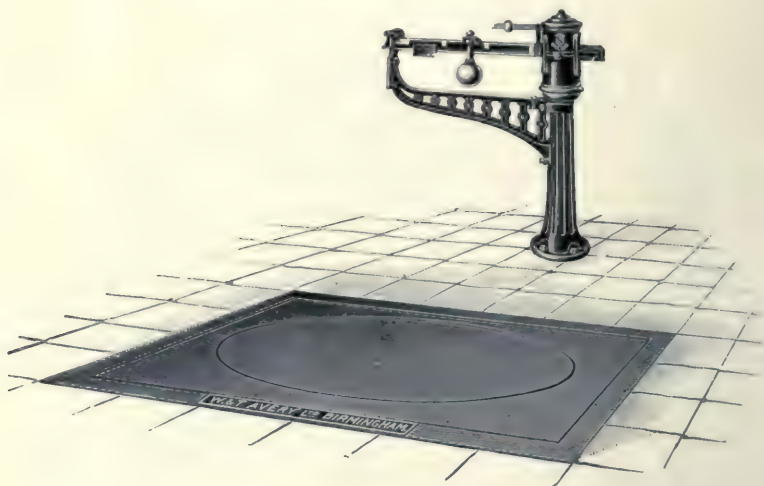
Capacity.	Size of Platform.			Capacity.	Size of Platform.		
	ft.	ft.	in.		ft.	ft.	
2 tons	4	×	2 6	3 tons	5	×	4
3 "	4	×	2 6	5 "	5	×	4
2 "	4	×	3 6	3 "	6	×	4
3 "	4	×	3 6	5 "	6	×	4

State Gauge and Full-size Outline of Section of Permanent-way Rails.

SOHO FOUNDRY, BIRMINGHAM.

Colliery Weighing Machine.

Combined with Turntable.



No. 1233 R.

SELF-CONTAINED **Truck Weighbridge**, combined with Turntable, made entirely of Iron; for use in Collieries, &c. With Steelyard, Pattern R, graduated to full capacity of Machine, thus entirely dispensing with Loose Weights, and fitted with Bar and Slide for taking the Tare of Trucks.

Capacity.	Diameter of Platform.
40 or 60 cwt. ...	3 ft. 8 in.
	4 ft. 0 in.
	4 ft. 6 in.
	5 ft. 0 in.

Can be fitted with Double Steelyard, Pattern S, as shown on page 20, without extra charge.

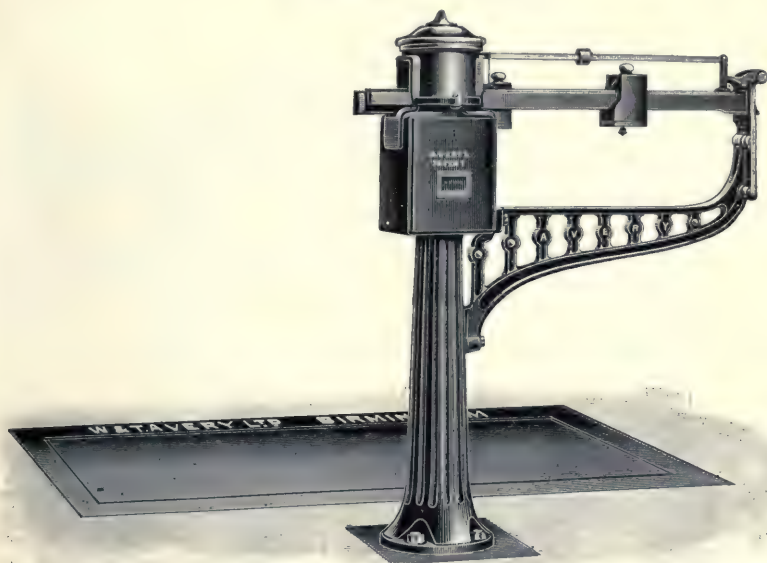
Or can be fitted with **Avery's Patent Automatic Self-indicating Quadrant and Desk**, Pattern N, as described on page 21, at an extra charge.

If desired, Rails can be cast on Platform or a Ring to guide the Trucks, at extra cost, in which case send full particulars of requirements.

W. & T. AVERY, LIMITED,

Tram Weighbridge.

**For Automatically Counting the Total Number
of Loads Weighed.**



No. 228.

TRAM Weighbridge fitted with **Avery's Patent Automatic Counting Mechanism**, which automatically counts all Loads which pass over the Weighbridge, thus forming an efficient check on the Weighing without Expense of Supervision or Loss of Time.

The Machine illustrated above is a strong, self-contained Iron Weighbridge, with Improved Double Pattern Steelyard, for taring off the Weight of Trucks.

This Patent Automatic Counting Mechanism can be fitted to any Weighbridge for Carts or Wagons, or for Railway Traffic.

Drawings and Specification for Machine to suit any requirements on application.

When writing the following particulars should be given:—

- (1) Capacity.
- (2) Standard of Weight.
- (3) Size of Platform.

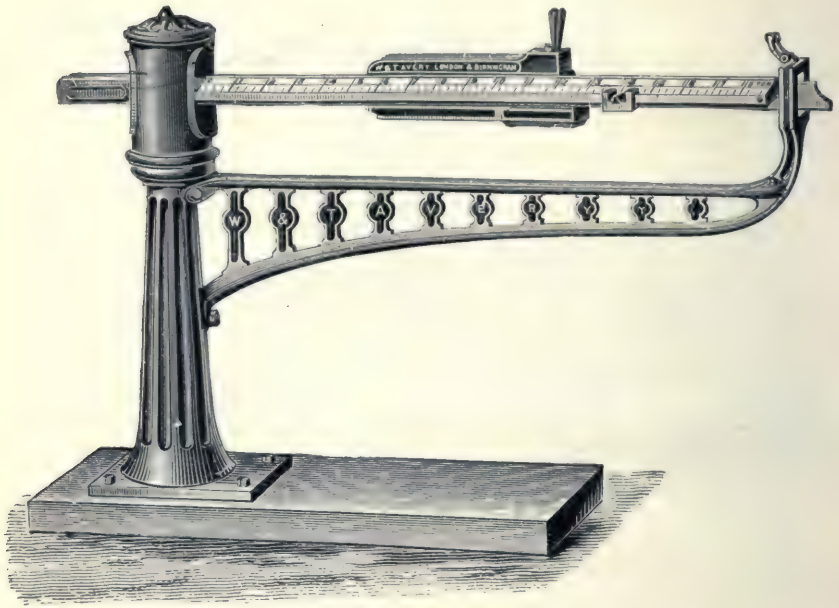
And if required with Rails—

- (5) Gauge of Rails.
- (6) Full Size Outline of Section of Permanent-way Rail.

SOHO FOUNDRY, BIRMINGHAM.

Weighbridge Pillar and Steelyard.

Dispensing with Loose Weights.



Pattern C.

WEIGHBRIDGE Pillar, with Improved Steelyard, dispensing entirely with Loose Weights. The Index Plate is graduated up to the full capacity of the Machine, and the weighing is effected by means of Sliding Poises on Steelyard. The weight can thus be read off at a glance.

Fitted with **Avery's Patent Steel Notched Protection Bar**, which prevents the wear and preserves the accuracy of the Steelyard markings; for full description see page 31.

This Steelyard can be arranged to weigh in any Standard of Weight.

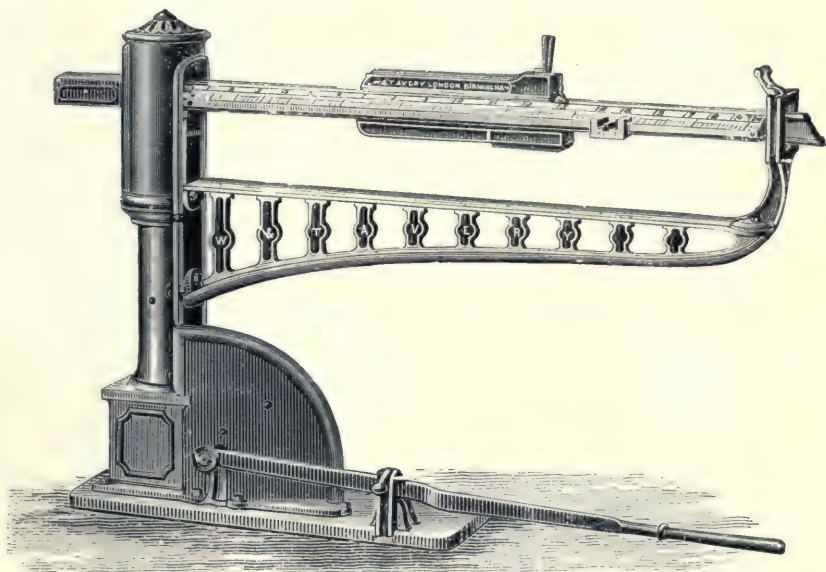
We strongly recommend this pattern as it is very simple in construction and ensures great economy in time. It is also complete in itself, no Loose Weights being required.

If required to weigh in two Standards we can fit our Improved Polygraded Steelyard, Pattern P, by means of which the Weight is indicated in two or more Standards, without Loose Weights.

W. & T. AVERY, LIMITED,

Pillar with Relieving Apparatus and Steelyard.

Dispensing with Loose Weights.



Pattern D C.

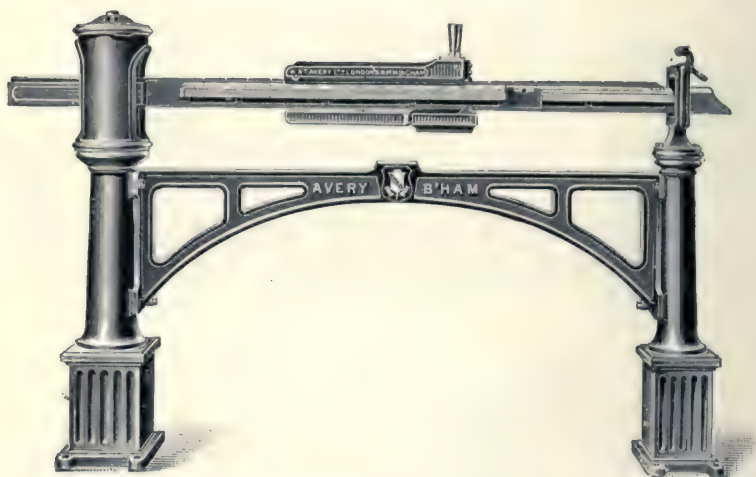
IMPROVED **Pillar with Relieving Apparatus**, fitted with Steelyard, as Pattern C described on previous page, dispensing entirely with Loose Weights, and with **Avery's Patent Steel Notched Protection Bar**.

The use of this Improved style of Pillar prolongs the life of the Machine, as by means of a Wrought-iron Relieving Handle and Rack and Pinion, the under levers can be disengaged, when desired, so that the Girders and Platform are supported on the Cast-iron Frame, thus forming a fixed and immovable bridge. Wagons can thus be drawn on and off for weighing, or simply passed over the Platform without causing any shock or wear to the Knife-edges and Weighing Parts, as these are entirely disconnected from the Platform

SOHO FOUNDRY, BIRMINGHAM.

Arch Pattern Pillar.

For Heavy Weighbridges.



ARCH PATTERN PILLAR.

STRONG and Handsome **Weighbridge Pillar** of New and Improved Design, for use on the larger sizes of Weighbridges

Can be fitted with various pattern Steelyards.

Pattern C, dispensing with Loose Weights.

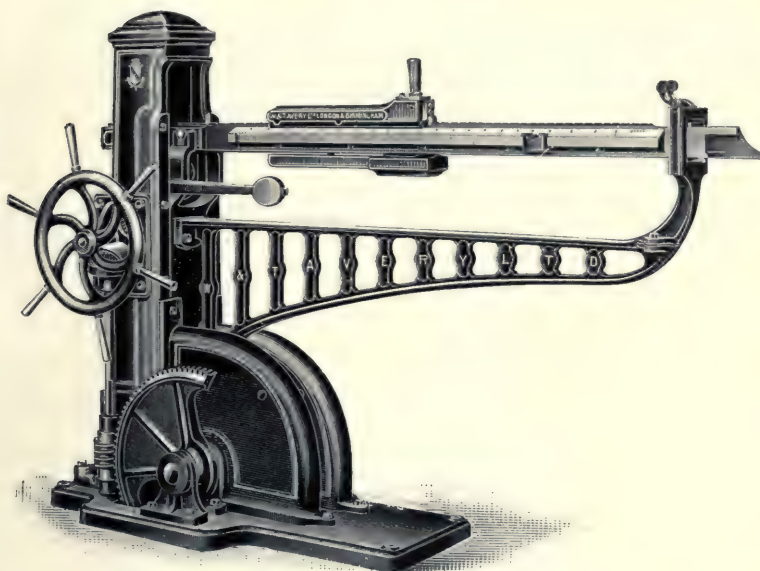
Pattern F, Patent Recording Steelyard.

Pattern P, Polygonal, graduated in two or three Standards.

W. & T. AVERY, LIMITED.

Weighbridge Pillar.

With Wheel Relief for Heavy Weighbridges.



IMPROVED **Pillar with Relieving Apparatus**, by means of which one man can raise or relieve heavy Weighbridges under full load without excessive labour.

The Relieving is effected by means of a Capstan Hand-wheel, geared to Twin Quadrants and Racks, by means of which the Weighbridge Platform is either lowered on to solid foundation, so that loads can pass on or off the Machine without affecting the working parts, or raised into gear for weighing.

Attached to the Pillar is a Tumbler which automatically indicates when the Weighbridge is fully in gear for weighing.

Can be fitted with various pattern Steelyards.

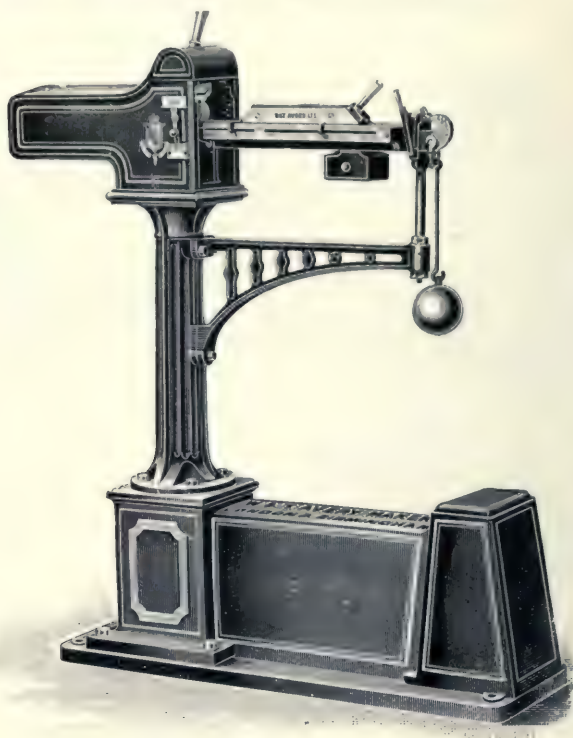
Pillar C, dispensing with Loose Weights.

Pillar F, Patent Recording Steelyard.

Pillar P, Polygonal, graduated in two or three Standards.

SOHO FOUNDRY, BIRMINGHAM.

Avery's New Pattern Pillar and Patent Recording Steelyard.



Pattern L.

WEIGHBRIDGE Pillar with Patent Steelyard for printing records of the weighments on Tickets, thus preventing the possibility of error or fraud, and ensuring an enormous saving in time.

The printing is effected on **Avery's New Patent Revolving Disc principle**. Attached to the Sliding Poises of Steelyard are Racks, by means of which Gun-metal Discs in the Pillar-head are revolved. The Discs have raised Figures corresponding with the graduations of Steelyard, which are brought into position to print the weight on a Ticket placed in a slot at head of Pillar.

Both Gross and Tare Weights are indicated on the same Ticket.

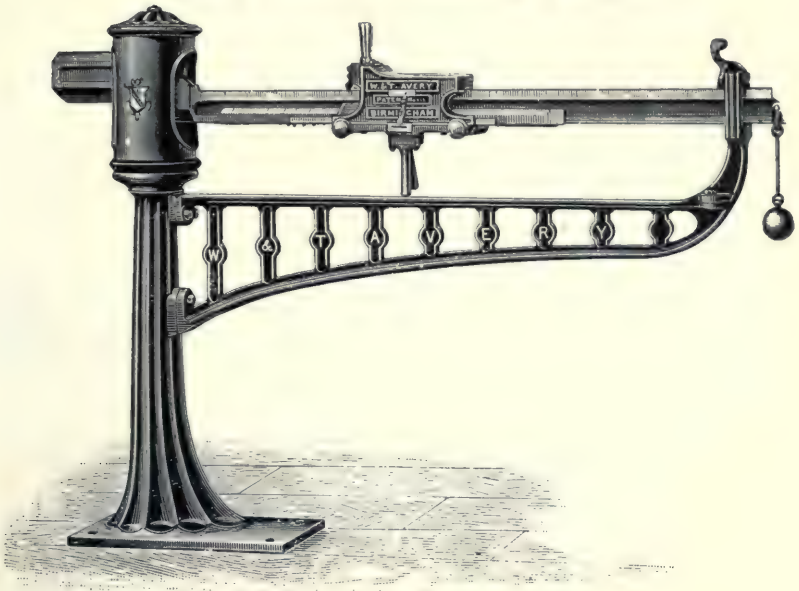
Fitted with **Avery's Patent Steel Notched Protection Bar**, which prevents the wear of the Steelyard markings.

We supply 500 Tickets free of charge with each of our Patent Recording Steelyards.

W. & T. AVERY, LIMITED,

Weighbridge Pillar.

With Avery's Patent Recording Steelyard.



Pattern F.

WEIGHBRIDGE **Pillar with Patent Steelyard** for printing records of the weighments on Tickets, thus preventing the possibility of error or fraud, and ensuring an enormous saving in time.

This Patent arrangement is very simple and durable, and consists of raised Figures of hardened steel fixed on the underside of the Steelyard, corresponding with the markings of the Steelyard, so that the weight can be read off the Steelyard, and the weight printed on a Ticket placed in the slot of Sliding Poise.

Fitted with **Avery's Patent Steel Notched Protection Bar**, which prevents the wear and preserves the accuracy of the Steelyard Markings. See page 31 for full description.

Arranged to indicate both Gross and Tare Weights on the same Ticket.

We supply 500 Tickets free of charge with each Weighbridge that is fitted with our Patent Recording Steelyard.

Pattern D F.

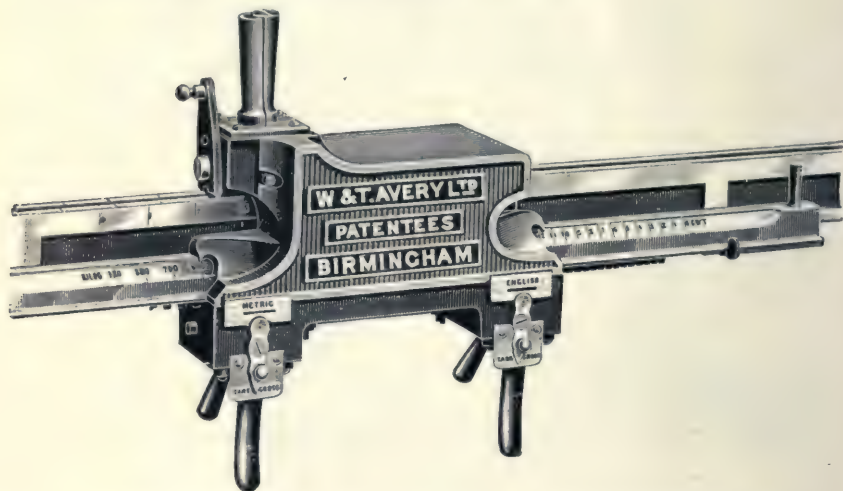
Improved Pillar with Relieving Apparatus, as Pattern D C, page 25, and fitted with Avery's Patent Recording Steelyard, as described above.

SOHO FOUNDRY, BIRMINGHAM.

Avery's New Patent "International"

Duplex-Recording

Steelyard for Weighbridges.



THE HITHERTO UNATTAINED ACHIEVEMENT OF WEIGHING AND PRINTING IN TWO STANDARDS has now been effected by Avery's New Patent International Duplex-recording Steelyard, by means of which a Permanent Record of the Weighing can be made in TWO STANDARDS ON ONE TICKET, e.g., English and Metric, English and Indian, &c.

CHIEF ADVANTAGES: Printed Records in Two Standards; No Mental Calculations; Quick Weighing and Printing; Impossibility of Error; Economy of Time; Prevention of Fraud.

It can be made to weigh and print in English and Metric, English and Indian, Metric and Indian, or any other Two Standards of Weight.

Both Gross and Tare Weights are recorded in the Two Standards.

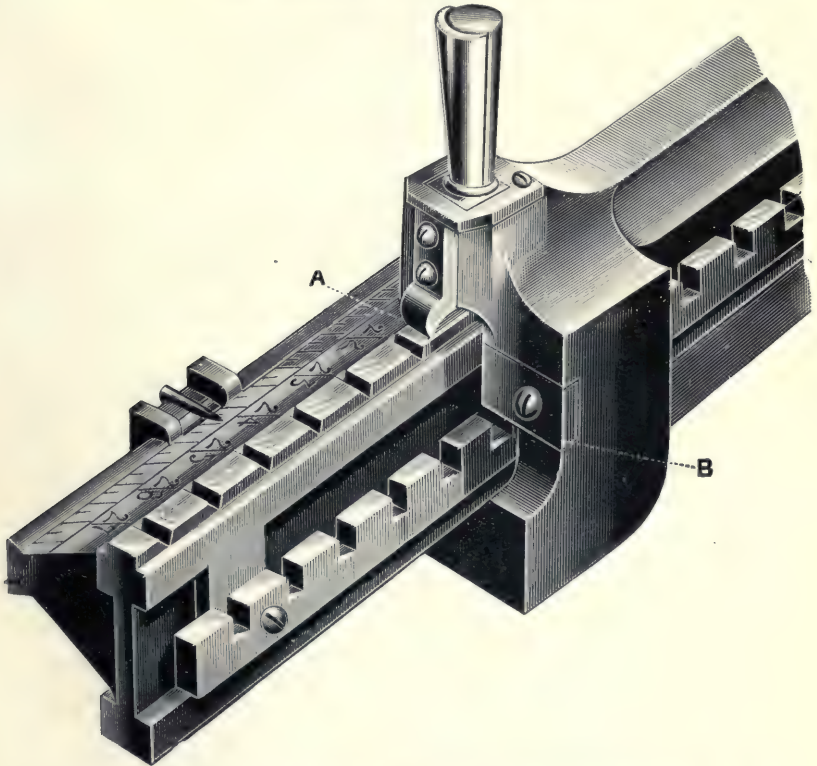
We supply 500 Special Tickets with each Steelyard.

W. & T. AVERY, LIMITED,

Avery's Patent

Steel Notched Protection Bar.

For Weighbridge Steelyards.



THIS Invention consists of a **Steel Notched Protection Bar** fixed at back of Steelyard for **preventing the wear and preserving the accuracy of the Graduation Grooves on Steelyard**. The Notches in the Protection Bar and the Graduation Grooves on Steelyard are made to **exactly correspond** by Special Machinery, and, when moving the Sliding Poise for weighing, the Positioning Nib A of Sliding Poise is prevented by the Protection Bar from coming in contact with the Steelyard, except when the Nib B drops into a Notch; the fall of the Sliding Poise is then guided by the Notch so that the Positioning Nib A drops **exactly in the centre of the V-shaped Groove** on top of Steelyard, **thus entirely obviating the possibility of the Groove on top of Steelyard getting damaged and thereby causing untrue Weighings**.

We fit this Patent Protection Bar to all our C and F Pattern Weighbridge Steelyards, as shown on pages 24 to 29.

SOHO FOUNDRY, BIRMINGHAM.



No. 1146.
Avery's Special Secret Weighing Machine.

W. & T. AVERY, LIMITED,

Avery's Special Secret Weighing Machine.

For Furnace Charging, &c.

No. 1146.

THIS Machine has been Specially Designed for Weighing Materials for Special Mixtures, **the different quantities of which are required to be kept secret.**

There are several separate Steelyards enclosed in Lock-up Case, and the Manager or Person in authority sets the Steelyards at the required Weights, and simply instructs the Workmen to Weigh off one Material to No. 1 Steelyard, another to No. 2 Steelyard, and so on—the Workmen cannot tell what Weight they are Weighing as the Steelyard is locked up in the Case, only the Nose end being visible to show when the Steelyard is balanced, and the correct Weight on Platform.

The Machine is arranged flush with the ground for weighing Barrows.

We shall be pleased to submit Drawing and Specification of Machine to suit your particular requirements on receipt of the following information :—

- (1) Number of Steelyards required.
- (2) Capacity of each Steelyard.
- (3) Size of Platform.
- (4) Whether the Materials are in Barrows or how they are handled.

SOHO FOUNDRY, BIRMINGHAM.

Strong Dormant Platform Weighing Machine.



Engraving shows Machine with Pattern A Pillar

No. 100.

FOR Manufactories, Railway Stations, Merchants' Warehouses, &c.; with Platform level with the floor so that Trucks, Casks, &c., can be rolled on and weighed with ease.

Constructed entirely of Iron with hardened Steel Knife-edges and Bearings; fitted with Relieving Apparatus for preventing the wear of the Knife-edges when the Machine is not in use. The Frame has flanged or overhanging sides, which enables the Machine to be easily fixed on Joists, &c.

A chequered pattern is cast on the Plates, which renders them far less slippery than the usual smooth Castings.

Fitted with various Pillars and Steelyards as on opposite page (*for full descriptions see pages 58 and 59*).

W. & T. AVERY, LIMITED,

Strong Dormant

Platform Weighing Machine.

No. 100.

To Weigh (Class 2)	Plate.		A	C	F
	Length.	Width.	Pillar.	Pillar.	Pillar.
5 cwt. ... {	24	24	163/-	229/-	463/-
	36	36	303/-	369/-	603/-
10 cwt. ... {	24	25	197/-	269/-	517/-
	36	36	336/-	408/-	656/-
15 cwt. ... {	30	27	264/-	336/-	584/-
	36	36	396/-	502/-	726/-
20 cwt. ... {	30	48	409/-	515/-	739/-
	36	48	460/-	566/-	790/-
	48	48	549/-	655/-	879/-
	36	60	560/-	666/-	890/-
	54	54	688/-	794/-	1018/-
30 cwt. ... {	48	72	824/-	930/-	1154/-
	48	48	560/-	692/-	930/-
	30	48	456/-	612/-	856/-
40 cwt. ... {	36	48	492/-	648/-	892/-
	36	60	614/-	770/-	1014/-
	48	48	624/-	780/-	1024/-
	54	54	710/-	866/-	1110/-
50 cwt. ... {	48	72	840/-	996/-	1240/-
	48	48	650/-	830/-	1070/-
	48	72	860/-	1040/-	1280/-

If specially ordered, can be arranged to weigh in any other Standard at same price.

Pattern A Pillar can be supplied with two sets of Weights in 2 different Standards without extra charge.

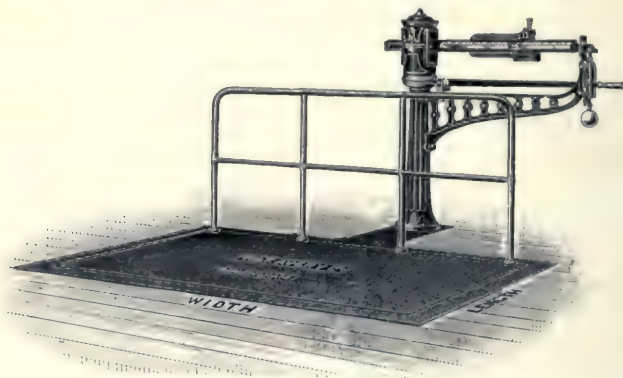
The 30, 40 and 50 cwt. sizes of Pattern C and F are fitted with *Avery's Patent Steel Notched Protection Bar.*

Any of Avery's Platform Weighing Machines can be fitted with **Avery's Patent Polygraded Steelyard**, for indicating two or more Standards without Loose Weights. Prices on Application.

SOHO FOUNDRY, BIRMINGHAM.

Dormant Weighing Machine.

With Wrought-iron Backrail.



Engraving shows Machine with Pattern C Pillar and Steelyard, dispensing entirely with loose weights.

No. 98.

WITH smooth Platform, fixed level with the Floor, and strong Wrought-iron Backrail. Made entirely of Iron, with hardened Steel Knife-edges and Bearings, and with Relieving Apparatus.

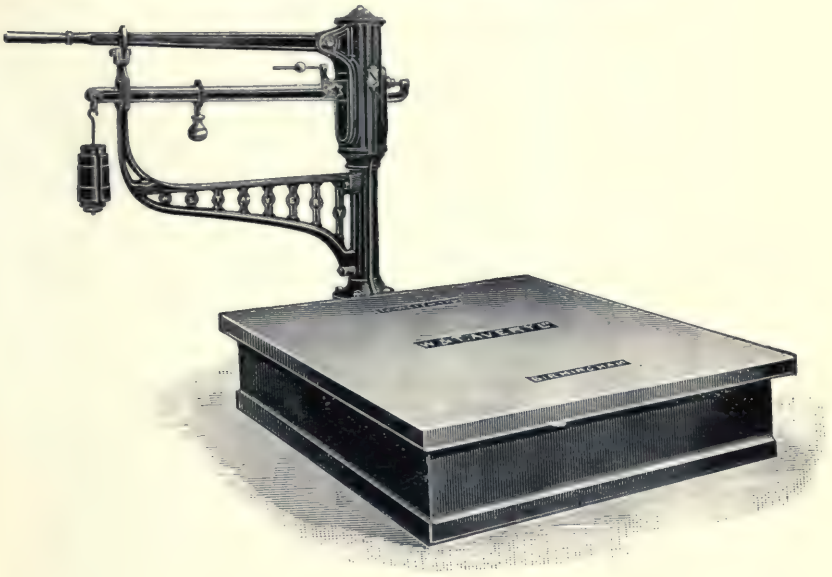
Fitted with various Pillars and Steelyards as below (*for full descriptions see pages 58 and 59*).

To weigh (Class 2)	20	20	40	40	40	50 cwt.
Platform--						
Length	30	48	36	36	48	48 in.
Width	48	72	48	60	72	72 in.
A Pillar ...	458/-	876/-	535/-	666/-	894/-	905/-
C "	564/-	982/-	691/-	822/-	1050/-	1085/-
F " ...	788/-	1206/-	935/-	1066/-	1294/-	1325/-

The above Machine can, at a slight extra cost, be fitted with Tram Rails for weighing small Trucks. When ordering same give Gauge of Rails required.

W. & T. AVERY, LIMITED,

Strong and Heavy Pattern Platform Weighing Machine.



No. 236.

To Weigh (<i>Class 2</i>)	... ..	5 tons.
Size of Platform	... 4 ft. 6 in. × 4 ft. 6 in.	

DESIGNED specially strong for heavy use in Ironfoundries, Rolling Mills, Quays, Wharves, Railways, and Large Manufactories.

Very strong and substantial Machine, constructed entirely of Iron, with thoroughly well Steeled Knife-edges and Bearings, and fitted with Relieving Apparatus to prevent undue shock and wear to the working parts when loading and unloading the Platform and when the Machine is not in use.

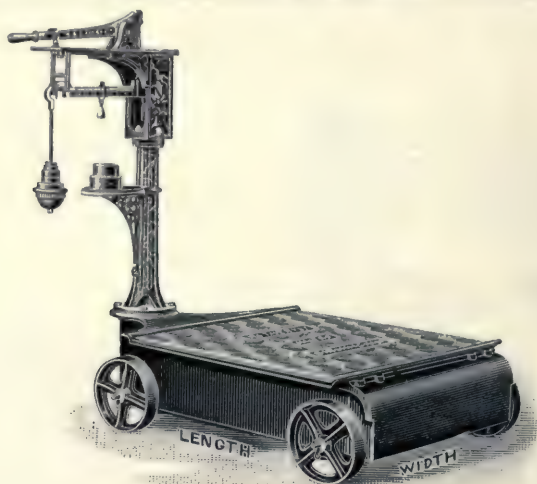
The Weighing is effected by means of a Steelyard and Loose Proportional Weights.

If desired, can be mounted on four large Wheels to facilitate removal from place to place.

Price, without Wheels	... ..	£45
" on Wheels	... ..	£50

SOHO FOUNDRY, BIRMINGHAM.

Large Portable Weighing Machine.



No. 105.

CONSTRUCTED for weighing heavy goods; suitable for Railway Stations, Manufacturer's Warehouses, and other places where it is necessary to move the machine from one place to another. Very strong and durable, being made entirely of Iron; with Relieving Apparatus, which secures the Steel Knife-edges from wear when loading and unloading Platform. Mounted on four Wheels.

Fitted with various Pillars and Steelyards as below (for full descriptions see pages 58 and 59).

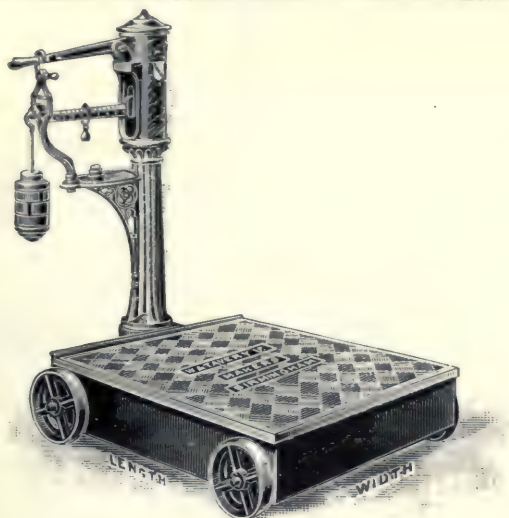
To Weigh Platform—	.. .. . (Class 2)	20	30	40 cwt.
Length	.. .. .	38	39	40 in.
Width	.. .. .	34	38	44 in.
A Pillar	... .. .	373/-	410/-	460/-
C "	... .. .	479/-	542/-	616/-
F "	... .. .	703/-	780/-	860/-
Wrought-iron Back-rail	... extra	60/-	66/-	72/-
Rack as 103 (page 48)	... extra	120/-	144/-	156/-
If without Wheels	... .. less	24/-	24/-	36/-
Packed Weight (Machine as illustrated)	... .. approx.	9½	10½	12 cwt.
Shipping Measurement...	"	25½	29½	39½ cb. ft.

If specially ordered, can be arranged to weigh in any other Standard at the same price.

Pattern A Pillar can be supplied with 2 sets of Weights in 2 different Standards without extra charge.

W. & T. AVERY, LIMITED,

Strong Pattern Platform Weighing Machine.



No. 230

SUBSTANTIAL and heavy **Platform Weighing Machine**, specially designed for heavy work for Iron Foundries, Rolling Mills, Manufactories, Wharves, Quays, &c.

Fitted with Relieving Apparatus to prevent wear to the Steel Knife-edges when loading and unloading Platform. Mounted on four wheels.

Fitted with various Pillars and Steelyards as below (for full descriptions see pages 58 and 59.)

To Weigh Platform—	(Class 2).. .. .	50	60 cwt.
Length .. .. .	.. .. .	51	51 in.
Width .. .. .	.. .. .	54	54 in.
A Pillar		650/-	700/-
B " (as shown)		674/-	724/-
C "		830/-	904/-
F "		1070/-	1130/-
If without Wheels less		48/-	48/-

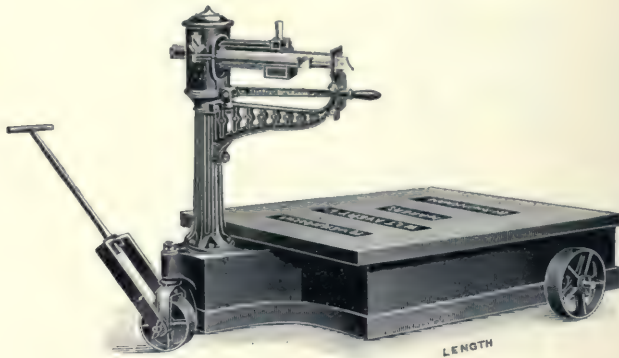
If specially ordered, can be arranged to weigh in any other Standard at same price.

Pattern A Pillar can be supplied with two sets of Weights in 2 different Standards without extra charge.

SOHO FOUNDRY, BIRMINGHAM.

Avery's Portable

"Quay Side" Weighing Machine.



No. 233.

VERY Strong and Substantial Machine, specially designed for use on Quays, Wharves, Docks, etc.

With Improved Steelyard, dispensing entirely with Loose Weights.

Constructed entirely of Iron, with thoroughly well-steeled Knife-edges and Bearings, and fitted with Relieving Apparatus to prevent undue shock and wear to the Knife-edges when loading or moving the Machine.

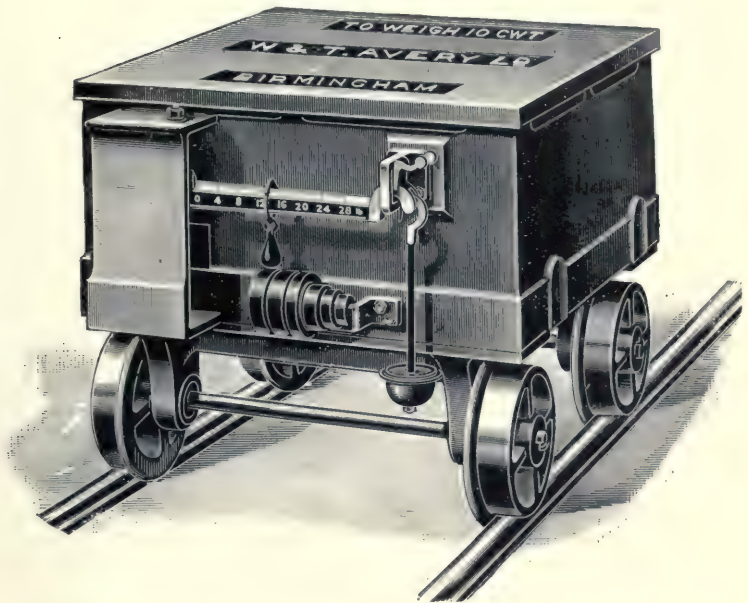
With Swivel-wheel and Drag Handle, to facilitate removal from place to place.

To Weigh (Class 2)	40 cwt.
Size of Platform	72 × 48 in.
Price	£ 60

W. & T. AVERY, LIMITED,

Specially Strong Portable Weighing Machine.

To run on Rails.



No. 232.

COMPACT **Weighing Machine** fitted on four Cast-iron Flanged Wheels, for running on Tramlines, very strong, and substantially made, with thoroughly well Steeled Knife-edges and Bearings.

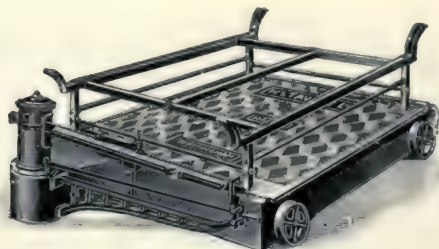
The Steelyard weighs by means of Loose Proportional Weights and is arranged below Platform, so that no part of the Machine projects above the level of the Platform.

To Weigh (Class 2)	10 cwt.
Size of Platform	30 x 30 in.
Price	£30

When ordering or enquiring about this Machine state Gauge of Rails.
If desired can be fitted with ordinary Wheels for running on the ground instead of on rails.

SOHO FOUNDRY, BIRMINGHAM.

Bar Iron Weigher, with Removable Rack.



No. 237.

STRONG, Accurate and Durable Weighing Machine with Removable Rack specially designed for Iron Warehouses, &c., where large quantities of goods have to be weighed with despatch.

The position of the Steelyard allows of rapidly loading the Rack without fear of damage to sensitive parts of the Machine; Bar, Strip, &c., can be thrown on at one side and off at the other.

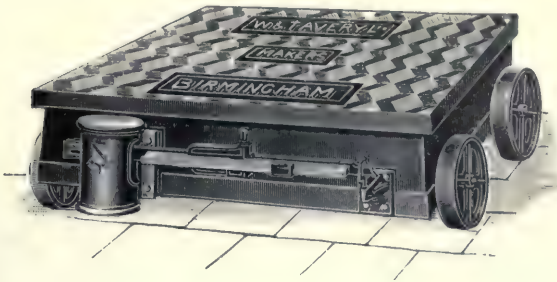
With Improved Steelyard dispensing with loose weights; and with Relieving Apparatus to preserve Knife-edges from wear during loading or moving of the Machine.

The Machine is mounted on four large Wheels.

Capacity	...	...	...	...	40 cwt.
Length of Platform	...	...	...	...	40 in.
Width of Platform	...	...	...	...	44 in.
Price	...	...	...	...	£40

W. & T. AVERY, LIMITED,

Iron Warehouse Weighing Machine.



No. 239.

SPECIALLY Strong Portable Platform Weighing Machine, made entirely of Iron, mounted on four Wheels, arranged with Steelyard below level of Platform.

The Steelyard is of Improved Pattern dispensing entirely with Loose Weights, and is graduated up to the full capacity of 60 cwt. by 1 lb divisions.

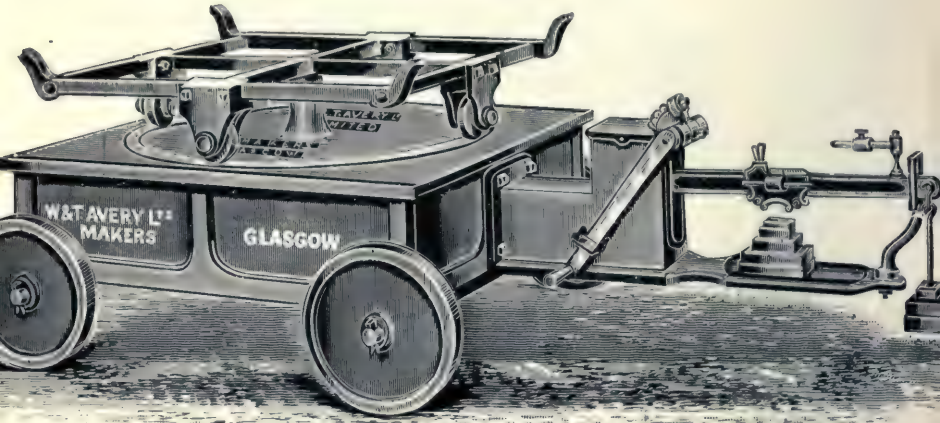
Suitable for Iron Warehouse, &c., and for weighing Goods from a Crane.

Capacity	...	...	...	...	60 cwt.
Length of Platform	...	...	...	...	51 in.
Width of Platform	...	...	...	...	54 in.
Price	...	...	...	...

SOHO FOUNDRY, BIRMINGHAM.

“Glasgow Pattern”

Bar Iron Weighing Machine.



No. 107 G.

VERY Strong and Durable Weighing Machine for use in Rolling Mills, Iron Warehouses, &c. The Platform is fitted with Revolving Rack (removable) and the Steelyard fixed below the level of the Platform to allow Bars, &c., to be turned in any direction.

The Machine is mounted on four large Wheels, and fitted with Relieving Apparatus

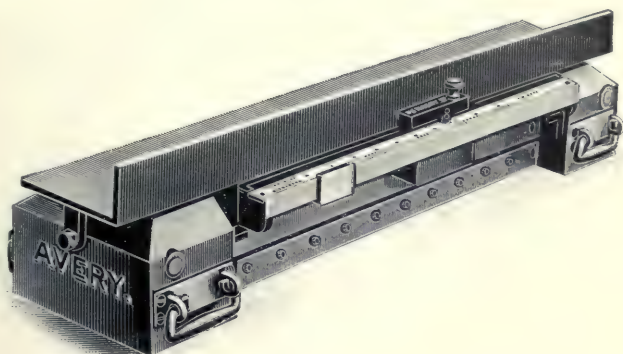
To Weigh (Class 2.)	40	...	60 cwt.
Size of Platform	42 × 42	...	46 × 43 in.
Price	£42	...	£46

Can be supplied with Stationary Rack if desired.

W. & T. AVERY, LIMITED,

Patent Rail Weigher or Tester.

Also useful in Iron Warehouses.



No. 70.

To Weigh 1,200 lb.

SPECIALLY designed for weighing Rails upon the Permanent-way to ascertain the loss through wear. The following are a few of the advantages :—

- Facility of Transport about the Lines.
- Quick weighing of Rails.
- Rapid Handling.
- No Separate Parts.
- No Loose Weights.
- Always ready for use—no fixing required.

The Machine is 4 feet 2 inches long, so that it may rest across the sleepers or be placed without adjustment on the 6-foot way, and is provided with Handles at each end to allow of instant removal. Its total weight is about 300 lb.

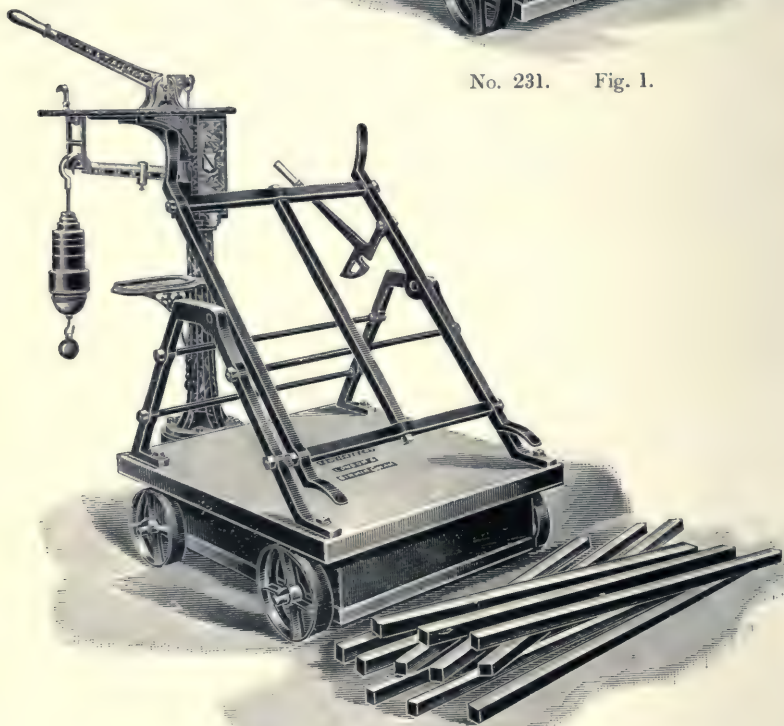
Strongly constructed with Levers of Wrought-iron to stand rough usage. To weigh up to 1,200 lb. by pounds by means of Sliding Poises.

Price on application.

SOHO FOUNDRY, BIRMINGHAM.



No. 231. Fig. 1.



No. 231. Fig. 2.

Iron Weighing Machine with Tipping Rack.

For Iron Warehouses, Rolling Mills, &c.

No. 231.

STRONG Weighing Machine with Patent Wrought Iron Tipping Rack for the *rapid weighing* of Bar Iron, &c.

The Iron Bars are placed on the Rack for weighing and after the weight has been ascertained, a Hand Lever is disengaged which releases the Rack, and the latter tips up and discharges the Load, on to the floor, thus saving the time of unloading.

The Rack is then tilted back to its original position and is securely held ready for reloading by an Automatic Catch.

The reloading and removing of the previous Load can thus go on simultaneously.

The Machine is fitted with Relieving Apparatus to prevent wear to the hardened steel Knife-edges during the loading and unloading, and is mounted on 4 Wheels to facilitate removal from place to place.

Fitted with various Pillars and Steelyards as below (*for full descriptions, see pages 58 and 59.*)

To Weigh Platform—	(Class 2)	20	40 cwt.
Length .. .. .	.. .. .	86	40 in.
Width .. .. .	.. .. .	36	44 in.
A Pillar	... .. .	600/-	860/-
B "	... .. .	706/-	1016/-
C "	... .. .	930/-	1260/-

SOHO FOUNDRY, BIRMINGHAM.

Bar Iron Weighing Machine.



No. 103.

STRONG Machine made entirely of Iron, with movable Wrought-iron Rack for use in Foundries, Iron Warehouses, &c.; with hardened Steel Knife-edges and Bearings, and fitted with Relieving Apparatus. Machines up to 5 cwt. capacity mounted on two Wheels, larger sizes on four Wheels.

Fitted with various Pillars and Steelyards as below (*for full descriptions see pages 58 and 59.*)

To Weigh (Class 2) Platform—	3	4	5	7	10	12	15	20 cwt.
Length	30	22	22	26	30	31	34	36 in.
Width	23	22	26	26	30	31	34	36 in.
A Pillar	160/-	170/-	186/-	228/-	264/-	300/-	348/-	408/-
C "	216/-	230/-	252/-	300/-	336/-	372/-	420/-	514/-
F "	460/-	470/-	486/-	548/-	584/-	620/-	668/-	738/-

For larger sizes see No. 105 (page 35), fitted with Rack as above.

W. & T. AVERY, LIMITED,

Strong Railway Pattern Platform Weighing Machine.



No. 102 R.P.

SPECIALLY constructed of **extra strength** to withstand the rough usage of Goods Stations, Warehouses, &c. Made entirely of Iron, with hardened Steel Knife-edges and Bearings, and fitted with Relieving Apparatus.

Fitted with various Pillars and Steelyards as below (for full descriptions see pages 58 and 59).

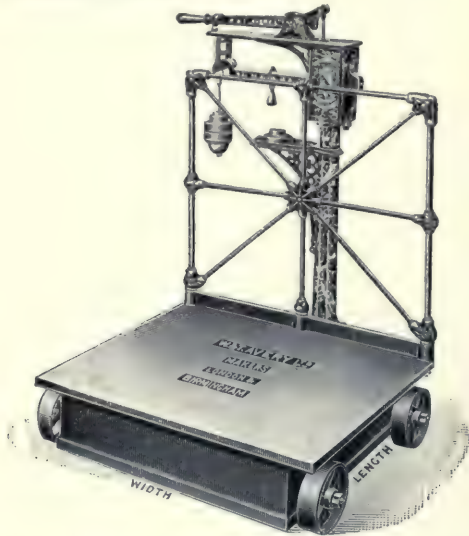
To Weigh (Class 2)	5	10	15	20 cwt.
Platform—				
Length	24	30	33	36 in.
Width	24	30	30	36 in.
B Pillar, with loose Weights	156/-	240/-	312/-	384/-
C " (as shown)	216/-	302/-	374/-	478/-
F "	450/-	550/-	622/-	702/-
On 4 Wheels, extra .. .	18/-	24/-	30/-	36/-

If specially ordered, can be arranged to weigh in any other Standard at same price.

Pattern A Pillar can be supplied with 2 sets of Weights in 2 different Standards without extra charge.

SOHO FOUNDRY, BIRMINGHAM.

Strong Regular-Pattern Platform Weigher.



No. 112.

MACHINES up to 5 cwt. capacity mounted on two Wheels, larger sizes on four Wheels. With Back-rail for weighing Sacks, &c. Constructed entirely of Iron, with hardened steel Knife-edges and Bearings, and fitted with Relieving Apparatus.

Fitted with various Pillars and Steelyards as below (for full descriptions see pages 58 and 59)

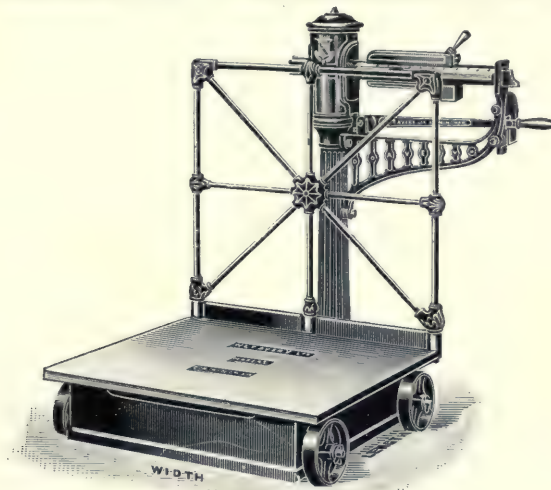
To Weigh (Class 2) Platform—	2	3	4	5	7	10	12	15	20 cwt.
Length	18	20	22	22	26	30	31	34	36 in.
Width	18	23	22	26	31	34	36	38	36 in.
A Pillar ..	115/-	127/-	137/-	150/-	192/-	222/-	252/-	276/-	324/-
C " ...		183/-	197/-	216/-	264/-	294/-	324/-	348/-	430/-
F " ..		427/-	437/-	450/-	512/-	542/-	572/-	596/-	654/-
Packed Weight approx. }	1½	3¼	3½	4	5¼	6½	7½	8½	9 cwt.
Shipping Measurem't approx. }	7	10½	14¼	12¼	17½	24	24	25	25 c.ft.

If specially ordered, can be arranged to weigh in any other Standard at same price.

Pattern A Pillar can be supplied with 2 sets of Weights in 2 different Standards without extra charge. FOR CODE WORDS SEE PAGE 128.

W. & T. AVERY, LIMITED,

Avery's Improved No-loose-weight Platform Weigher.



No. 112 C.

FITTED with Improved Steelyard, dispensing entirely with loose weights, the Index Plate being graduated up to the full capacity of the Machine, thus **effecting a great economy in time.**

Constructed entirely of Iron, with hardened Steel Knife-edges and Bearings, and fitted with Improved Relieving Apparatus.

With Back-rail for weighing Sacks, etc. Machines up to 5 cwt. capacity mounted on two Wheels, larger sizes on four wheels.

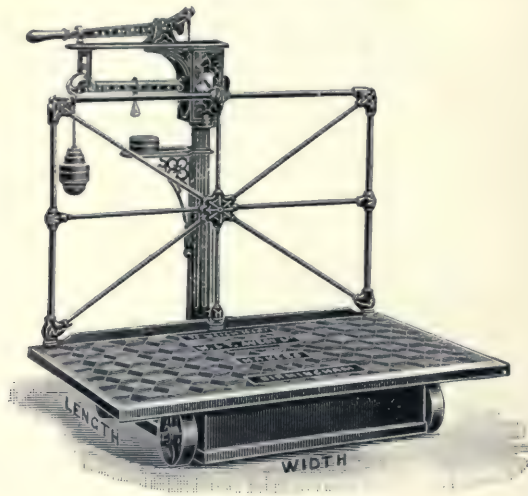
If specially ordered can be fitted with Avery's Patent Steel Notched Protection Bar, as described on page 31.

To Weigh (Class 2) Platform—	3	4	5	7	10	12	15	20 cwt.
Length	20	22	22	26	30	31	34	36 in.
Width	23	22	26	31	34	36	38	36 in.
Price	183/-	197/-	216/-	264/-	294/-	324/-	348/-	430/-
Patent Protection Bar <i>extra</i>	12/-	12/-	12/-	18/-	18/-	18/-	18/-	18/-
Packed Weight <i>approx.</i>	3¼	3½	4	5¼	6½	7½	8½	9 cwt.
Shipping Measure- ment <i>approx.</i>	10½	14½	12¼	17½	24	24	25	25 c. ft

Can be arranged to weigh in any other Standard at same price.

SOHO FOUNDRY, BIRMINGHAM.

Portable Weighing Machine, with Extended Plate and Back Rail.



No. 104.

WITH extra large Platform, cast with a chequered pattern to prevent slipperiness, and Back-rail for weighing Bales of Wool and other bulky goods. Mounted on four Wheels. Made entirely of Iron, with hardened Steel Knife-edges and Bearings, and fitted with Relieving Apparatus.

Fitted with various Pillars and Steelyards as below (*for full descriptions see pages 58 and 59*).

To Weigh (Class 2)	7	10	12	15	30 cwt.
Platform—Length ..	30	32	34	36	38 in.
Width ..	40	50	52	54	57 in.
A Pillar	204/-	234/-	264/-	300/-	380/-
C "	276/-	306/-	336/-	372/-	486/-
F "	524/-	554/-	584/-	620/-	710/-
Packed weight, approx.	6	7½	8	8¾	11¾ cwt.
Shipping Measurement, approx.	21	26½	27	27½	37¾ c.ft.

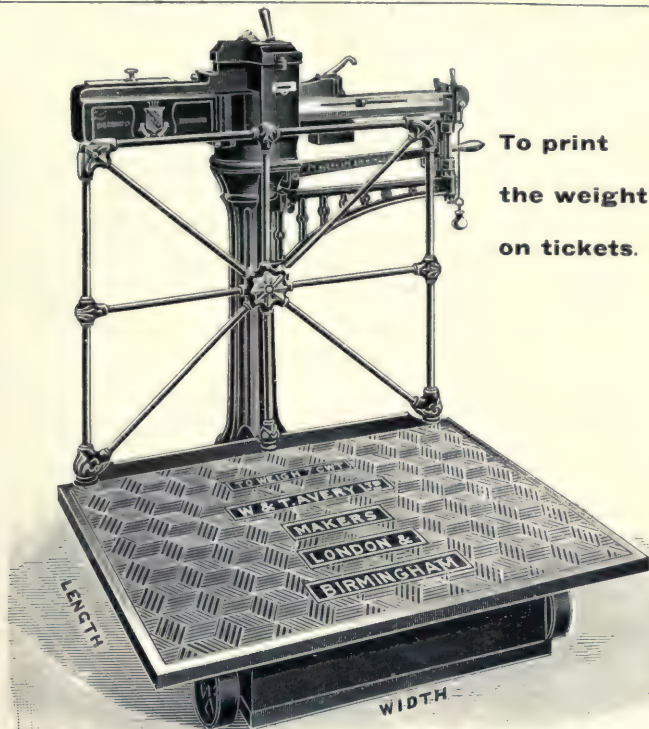
If specially ordered, can be arranged to weigh in any other Standard at same price.

Pattern A Pillar can be supplied with 2 sets of weights in 2 different Standards without extra charge.

FOR CODE WORDS SEE PAGE 128.

W. & T. AVERY, LIMITED,

Patent Recording Platform Weigher.



PLATFORM Weighing Machine, fitted with Avery's Patent Recording Steelyard for printing the weight on Tickets at the time of weighing, the use of which avoids the possibility of error in reading or copying and effects a very great economy in time.

If desired can be arranged to print both Gross and Tare Weights.

No. 112 F.

To Weigh	(Class 2)	3	4	5	7	10	12	15	20 cwt.
Platform, length		20	22	22	26	30	31	34	36 in.
" width		23	22	26	31	34	36	38	36 in.
Price ...		427/-	437/-	450/-	512/-	542/-	572/-	596/-	654/-

No. 104 F (with Extended Platform as illustrated).

To Weigh	(Class 2) ..	7	10	12	15	20 cwt.
Platform, length ..		30	32	34	36	38 in.
" width ..		40	50	52	54	57 in.
Price ...		524 -	554/-	584/-	620/-	710/-

If desired can be made to weigh and print in Any Standard of Weight.

We supply 500 Tickets free of charge with each of the above Machines. Further quantities can be supplied at a charge of 6/- per thousand.

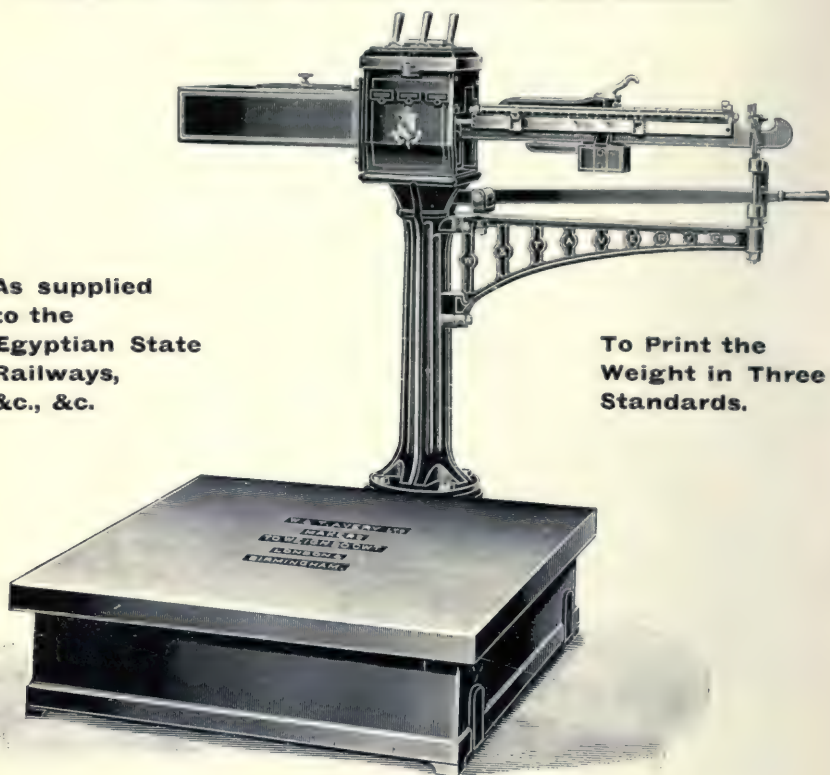
SOHO FOUNDRY, BIRMINGHAM.

Avery's Patent

Triple Recording Weighing Machine.

As supplied
to the
Egyptian State
Railways,
&c., &c.

To Print the
Weight in Three
Standards.



No. 238.

STRONG and accurate **Platform Weighing Machine**, fitted with Avery's Patent Triple Recording Apparatus, by means of which the weight can be taken and a **permanent record printed** on Tickets in **three different Standards**, *e.g.*, English, Metric, and Egyptian; an enormous advantage where several Standards are in use.

The weight being printed in all three Standards by the Machine itself avoids any writing, copying, or converting of weighments, and thus prevents any possibility of inaccuracy either from carelessness or fraud.

The weighing is **perfectly true**; the Triple Printing Gear does not affect accuracy in any way. The machines are strong, sensitive, and accurate.

The following are the most usual sizes made:—

To Weigh (Class 2) ...	5	...	10	...	20 cwt.
Platform ...	22 × 28	...	30 × 30	...	36 × 36 in.

Can be arranged to print in any three Standards, *e.g.*, English, Indian, and Metric; or English, Metric, and Egyptian, &c.

When ordering give the exact Standards required.

W. & T. AVERY, LIMITED,

The "Acme"
 Platform
 Weigher.

Superior Quality.



No. 235.

SUPERIOR Quality Platform Weighing Machine, specially designed for accurate weighing.

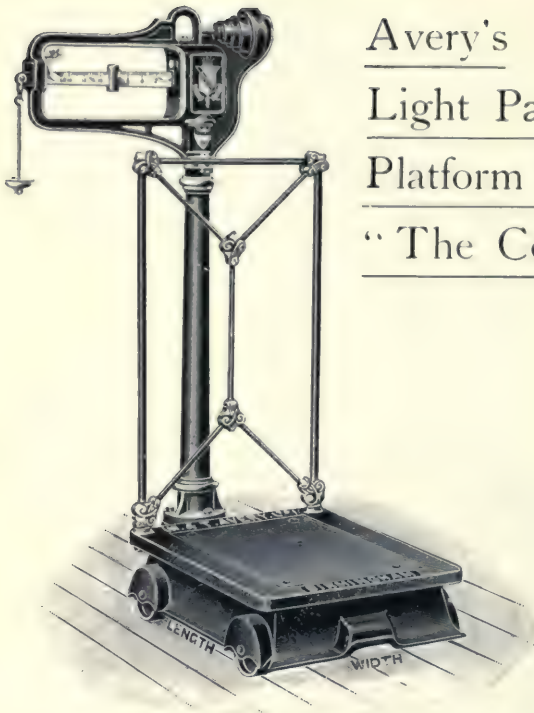
The Knife-edges and Bearings throughout work in Reservoirs of Oil, thus preserving a **fine degree of sensitiveness** and preventing rust, so that the Machines can be used in damp places without injury. The Iron Frame has a solid bottom, and encases the working parts so as to exclude damp. The Platform is so hung that it can move freely in every direction without fear of injury to the working parts.

The Machine is fitted with Improved Relieving Apparatus, which gives a Parallel Lift to the Steelyard and entirely prevents wear to the weighing parts when loading or unloading and when Machine is not in use. The Steelyard is of Improved Pattern and of engineering finish; it is graduated up to the full capacity of the Machine by $\frac{1}{4}$ lb. divisions, thus dispensing entirely with Loose Weights. The Bearings work in Reservoirs of Oil, preserving the **free and delicate oscillation of the Steelyard**, even after long and constant use.

After completion and before despatch each Weighing Machine is thoroughly tested by a competent "Viewer," ensuring the absolute accuracy of every individual machine.

Capacity (Class 2) ...	10 cwt. by $\frac{1}{4}$ lb. divisions.
Platform ...	26 in. x 26 in.
Price ...	£18

SOHO FOUNDRY, BIRMINGHAM.



Avery's
Light Pattern
Platform Weigher
"The Colonial."

No. 132.

LIGHT Portable Platform Weighing Machine, made entirely of Iron, excepting the Steelyard, which is Gun-metal, with Knife-edges and Bearings of hardened Steel.

Fitted with Back-rail for Sacks, &c., and mounted on four Wheels, with Frame constructed so as to give a strong double bearing to the Axles.

To Weigh	(Class 2)	4	4	7	11 cwt.
Platform--Length		20	22	26	28 in.
Width		17	17	19	22 in.
With Cast-iron Head to Pillar ...		109/-	114/-	150/-	180/-
" Malleable " " ...		118/-	123/-	162/-	192/-
Packed Weight approx.		1 $\frac{3}{4}$	1 $\frac{3}{4}$	2 $\frac{1}{4}$	4 cwt
Shipping Measurement		6	5 $\frac{1}{4}$	7	9 cub. ft

Prices include Nut Wrench and Packing each Machine in separate case.

If desired, can be supplied with 2 sets of Proportional Weights, for weighing in 2 Standards, without extra charge.

FOR CODE WORDS SEE PAGE 128.

W. & T. AVERY, LIMITED,

Universal Platform Weigher.

No. 195

LIGHT Portable Platform Weighing Machine, mounted on four Wheels, with well-seasoned Wood Pillar, and Brass Steelyard. With Knife-edges and Bearings of hardened Steel.



To Weigh (Class 2)	400	600	800	1,000 lb.
Platform—Length	21½	25	26	26 in.
Width	15	16	17	17 in.
Price	104/-	120/-	130/-	140/-
Back-rail extra	6/-	6/-	9/-	12/-
Packed Weight ... approx.	1½	2	2½	2½ cwt.
Shipping Measurement	5¾	7	7	7½ cub. ft.
To Weigh (Class 2)	1,200	1,500	2,000	2,500 b.
Platform—Length	28	28	33	34 in.
Width	20	31	25	26 in.
Price	167/-	172/-	225/-	264/-
Back-rail extra	15/-	16/-	18/-	22/-
Packed Weight ... approx.	3	3	4½	4½ cwt.
Shipping Measurement	9½	9½	12	12¾ cu. ft.

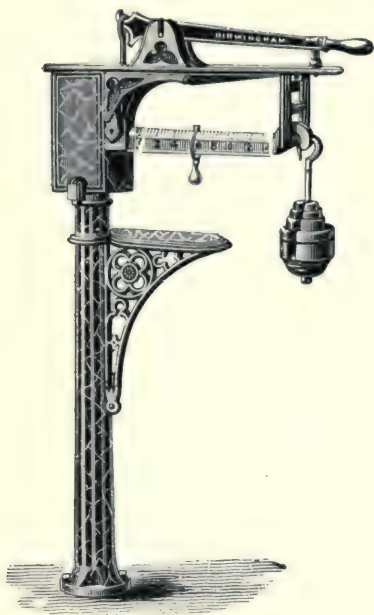
Prices include Packing each Machine in separate case.

If specially ordered, can be arranged to weigh in Metric or any other standard of Weight, or in 2 different standards, without extra charge.

FOR CODE WORDS SEE PAGE 128.

SOHO FOUNDRY, BIRMINGHAM.

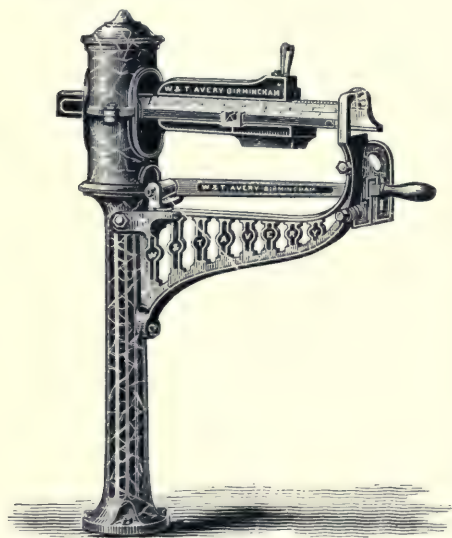
Pillars for Platform Weighers.



Pattern A.

PILLAR and **Steelyard** to weigh with Loose Proportional Weights; fitted with Relieving Apparatus, to prevent wear when loading and unloading, and when Machine is not in use.

Can be arranged to weigh in any Standard, or in two Standards by means of two sets of Weights, without extra charge.



Pattern C.

IMPROVED **Pillar and Steelyard** to dispense with Loose Weights, the Index Plate being graduated to full capacity of Machine; fitted with Improved Relieving Apparatus, so arranged that the Steelyard is always in a horizontal position.

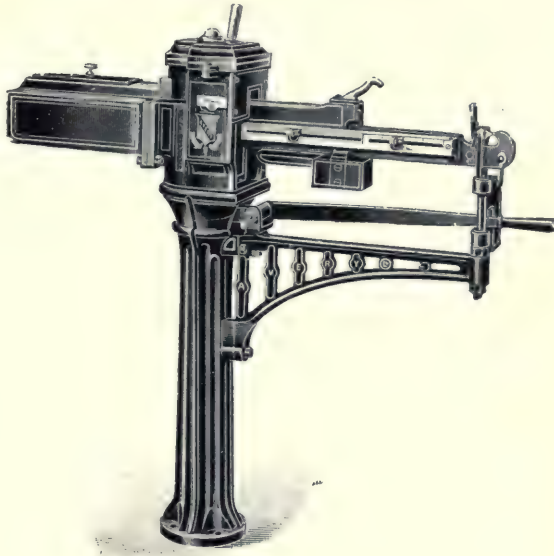
Very simple in construction and effecting a great Economy in Time, the Weight being read off at a glance.

By a recent improvement the Pillar-head can be easily taken off, which greatly facilitates the fixing or removal of the Steelyard.

Can be arranged to weigh in any Standard without extra charge.

W. & T. AVERY, LIMITED,

Pillars for Platform Weighers.



Pattern F.

NEW Pattern **Pillar**, fitted with **Avery's Patent Recording Steelyard**, for Printing the Weights on Tickets at the time of weighing, thus avoiding the possibility of error in reading or copying, and effecting a very great economy in time.

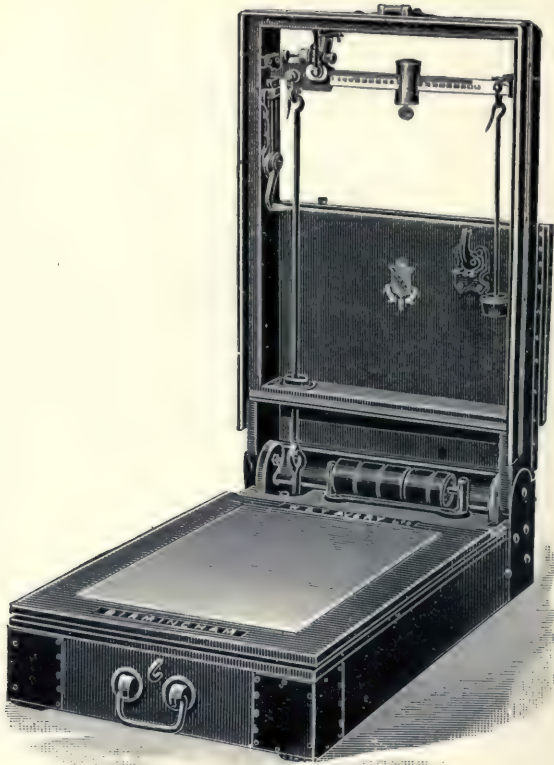
Provision can be made for indicating both Gross and Tare Weights if specially ordered.

Can be arranged to **weigh and print in any Standard.**

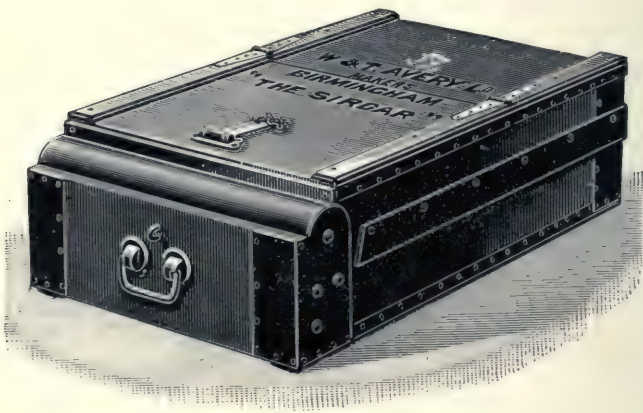
All sizes over 20 cwt. are fitted with **Avery's Patent Steel Notched Protection Bar**, as described on page 31.

We supply 500 Tickets with each Machine that is fitted with our Patent Recording Steelyard. Further quantities of Tickets of regular stock patterns can be supplied at a charge of **6/-** per thousand.

SOHO FOUNDRY, BIRMINGHAM.



No. 752 (Open).



No. 752 (Closed).

The "Sirdar"

Commissariat Weighing Machine.

No. 752.

INVALUABLE for the Commissariat Department of an Army or on board Ship, and useful for all purposes where a Compact Portable Machine is required.

The Case is of Seasoned Wood, bound with Iron, which secures great strength together with lightness and compactness.

Fitted with Polished Gun metal Steelyard graduated up to 100 lb. by $\frac{1}{2}$ lb. divisions, the full capacity of the Machine being made up by means of Loose Proportional Weights.

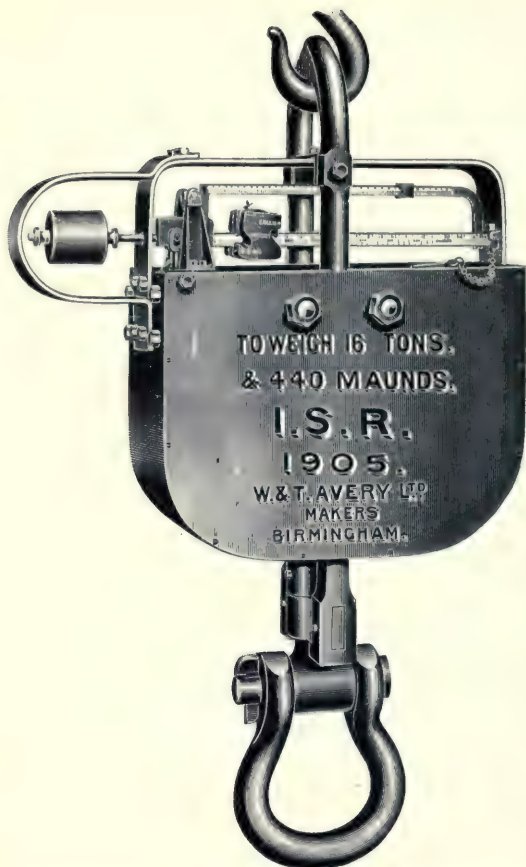
With Cast-iron Platform with Wood centre piece, Iron Weighing Parts, and hardened Steel Knife-edges and Bearings.

To Weigh	1,200 lb.
Size of Platform	22 x 29 in.
Price	216/-
Packed Weight	274 lb.
Measurement	8 $\frac{1}{4}$ cub. ft.

Price includes Packing each Machine in skeleton case.

If specially ordered can be arranged to weigh in any Standard of Weight without extra charge.

SOHO FOUNDRY, BIRMINGHAM.



*Illustrated with Shackle for Swing Chains, exactly as supplied to the
Indian State Railways.*

No. 836.

AVERY'S Patent Duplex Suspended or Crane Weighing Machine of the most perfect design and construction, fitted with **Avery's Patent Duplex Poise**, by means of which the weight can be correctly taken in **both Standards**—the Steelyard is accurately notched, and the Patent Poise can be engaged in either set of Notches (this is essential **for accurate weighing**). By an ingenious arrangement of the Poise it is impossible when weighing for the Poise to accidentally engage with graduations of the wrong Standard.

W. & T. AVERY, LIMITED,

Avery's Patent "Duplex" Suspended or Crane Weighing Machine.

For Weighing in Two Standards.

No. 836.

MACHINES up to 10 tons Capacity are provided with an open Wrought-iron Hook for carrying the load; those over 10 tons have Swivel Eye only. Where customers do not possess suitable attachments for the Sling Chains, a Special Shackle, as illustrated, can be supplied at extra prices.

CAPACITY.				PRICE with Iron Hook.	
Tons.	Graduations.	Kilog	Graduations.		
$\frac{1}{2}$	1 lb.	500	$\frac{1}{2}$ kilog.	£14 10 0	
1	1 "	1,000	$\frac{1}{2}$ "	£16 0 0	
$1\frac{1}{2}$	1 "	1,500	1 "	£21 0 0	
2	1 "	2,000	1 "	£24 0 0	
3	2 "	3,000	1 "	£30 0 0	
5	2 "	5,000	1 "	£42 0 0	
10	2 "	10,000	1 "	£52 0 0	
				PRICE with Swivel Eye	Extra for Shackle.
16	7 lb.	16,000	2 kilog.	£62 0 0	£2 2 0
20	7 "	20,000	2 "	£68 0 0	£2 8 0
30	7 "	30,000	4 "	£91 0 0	£3 5 0
40	7 "	40,000	4 "	£110 0 0	£3 15 0
50	7 "	50,000	5 "	£130 0 0	£4 10 0
60	7 "	60,000	5 "	£163 0 0	£5 4 0

Machines as above.	Distance between Hanging Points.		Approximate Net Weight.		Approximate Gross Weight.				
Tons.	ft.	in.	Cwt.	qr.	lb.	Cwt.	qr.	lb.	
$\frac{1}{2}$	2	0	0	2	0	0	3	0	
1	2	1	0	2	21	1	0	21	
$1\frac{1}{2}$	2	1	0	3	14	1	1	0	
2	2	5	1	0	14	1	2	0	
3	2	6	1	0	21	1	3	0	
5	3	0	2	0	0	2	3	0	
10	Without Shackle.	4	3	3	3	5	0	0	
16		3	9	5	2	0	6	3	0
20		3	9	5	3	0	7	0	0
30		3	9	8	3	0	11	0	0
40		4	0	10	2	0	12	2	0
50		4	3	13	3	0	18	0	0
60		4	7	16	0	0	19	0	0

Can be supplied in any other Two Standards at same price; when ordering state exactly what Standards are required.

SOHO FOUNDRY, BIRMINGHAM.



No. 830

THE superiority of the "Avery" Crane Weighing Machine consists in its general design being upon the soundest Mechanical Principles. The Suspension Loop is **turned under** and also **bolted to** a Strong Wrought-iron Frame or Body, **from which all the Levers carrying the Load are suspended.**

Tested for strength 25 per cent. over full capacity before leaving the Works.

W. & T. AVERY, LIMITED,

Avery's Improved Suspended or Crane Weighing Machine.

Capacities, 10 cwt. to 10 tons.

No. 830

IMPROVED **Pattern Suspended or Crane Weighing Machine**, constructed entirely of Iron and Steel, very accurate and durable, and not liable to easily get out of order.

The Indicating Steelyard is conveniently placed for ready access, and is arranged to dispense with Loose Weights, the full capacity being indicated on the Steelyard itself. Provision is made for Taring-off Chains, Slings, or Cam Hooks. The Steelyard is provided with a Locking Pin for preserving the Knife-edges from wear when not in use, and is protected from injury by a Wrought-iron Guard as illustrated

Fitted with Wrought-iron Hook for carrying the load.

To Weigh in English .													
Capacity	Price			Gradua- tions.	Distance between Hanging Points.	Approx. Net Weight.			Approx. Packed Weight.		Code Word.		
Tons	£	s.	d.	lb.	ft.	in.	cwt	qr.	lb.	cwt.	qr.	lb.	
$\frac{1}{2}$	10	15	0	1	2	0	0	2	0	0	3	0	Mollipes.
1	12	0	0	1	2	1	0	2	21	1	0	21	Mollisco.
$1\frac{1}{2}$	17	0	0	1	2	1	0	3	14	1	1	0	Mollivate
2	20	0	0	1	2	5	1	0	14	1	2	0	Molondro.
3	26	0	0	2	2	6	1	0	21	1	3	0	Moltiplici.
5	37	0	0	2	3	0	2	0	0	2	3	0	Molybdan
10	47	0	0	2	4	3	3	3	0	5	0	0	Momordiga
To Weigh in Metric													
Kilog.	£	s.	d.	Kilog.	Cm.	Kilog.	Kilog.			Code Word.			
500	10	15	0	$\frac{1}{2}$	60	25	38			Mondaccio.			
1,000	12	0	0	$\frac{1}{2}$	63	35	60			Mondatore.			
1,500	17	0	0	1	63	45	63			Mondazione.			
2,000	20	0	0	1	73	55	76			Mondifichi.			
3,000	26	0	0	1	76	60	89			Mondiglia.			
5,000	37	0	0	1	91	100	139			Monederia.			
10,000	47	0	0	1	Metre. 1·29	190	254			Monetalis.			

If specially ordered can be arranged to weigh in any other standard without extra charge.

If cabling add the Standard after the Code Word for the English Machine, thus, "Mollipes Decimal" will mean No. 830, $\frac{1}{2}$ ton size, graduated in English Decimals.

SOHO FOUNDRY, BIRMINGHAM.



No. 830 C.

Tested for strength 25 per cent. over full capacity before leaving the Works.

W. & T AVERY, LIMITED,

Avery's Improved Suspended or Crane Weighing Machine.

Capacity, 16 tons and 20 tons.

No. 830 C.

STRONG Pattern Suspended or Crane Machine for weighing Large Castings, Boilers, Girders, &c., **while being lifted.**

Very strongly constructed of Iron and Steel, thus ensuring great durability; extremely accurate and not liable to easily get out of order.

The superiority of the "Avery" Crane Weighing Machine consists in its general design being upon the soundest Mechanical Principles.

The Suspension Loop is **turned under** and also **bolted to** a strong Wrought-iron Frame or Body from which **all the levers carrying the load are suspended.**

The Main Knife-edge, from which the Load is directly hung, is **supported along its whole length** by the Main Lever, thus entirely obviating the possibility of the Knife-edge breaking and letting the load fall.

The indicating Steelyard is conveniently placed for ready access, and is arranged to dispense with Loose Weights, the full capacity being indicated on the Steelyard itself. Provision is made for Taring-off Chains, Slings, or Cam Hooks.

The Steelyard is provided with a Locking Pin for preserving the Knife-edges from wear when not in use, and is protected from injury by a Wrought-iron Guard as illustrated.

To Weigh in English.							
Capacity	Price.		Graduations.	Distance between Hanging Points.	Approximate Net Weight.	Approximate Packed Weight.	Code Word.
Tons.	£	s.	d.	lb.	ft. in.	cwt.	
16	56	0	0	7	3 9	5½	Monacanda.
20	62	0	0	7	3 9	5¾	Monacillo.
To Weigh in Metric.							
Kilog.	£	s.	d.	Kilog.	Metre.	Kilog.	Kilog.
16,000	56	0	0	2	1·14	280	342
20,000	62	0	0	2	1·14	285	355
							Mongibelo. Monicongo.

If specially ordered can be arranged to weigh in any other standard without extra charge.

If cabling add the Standard after the Code Word for the English Machine, thus, "Monacanda Decimal" will mean No. 830 C, 16 ton size, graduated in English Decimals.

If desired we can supply Special Shackles, as shown on page 71, where purchaser does not possess suitable attachment for the Sling Chains.

SOHO FOUNDRY, BIRMINGHAM.



No. 830 D.

STRONG and Heavy Pattern Suspended or Crane Weighing Machine with the Suspension Loop **turned under** and also **bolted to** a strong Wrought-iron Frame or Body from which **all the Levers carrying the Load are suspended.**

The Main Knife-edge, from which the Load is directly hung, is **supported along its whole length** by the Main Lever, thus entirely obviating the possibility of the Knife-edge breaking and letting the Load fall.

All Avery's Crane Weighing Machines are tested for strength 25 per cent. over full capacity before leaving the Works.

W. & T. AVERY, LIMITED,

Avery's Strong and Heavy Pattern Suspended or Crane Weighing Machine.

Capacity 30 tons to 150 tons.

No. 830 D.

HEAVERY Pattern Suspended or Crane Machine, for weighing heavy loads, such as Armour Plates, Guns, Boilers, Bridgework, Large Castings, &c., while being lifted, thus saving time and trouble, and the expense of carting to a fixed weighbridge.

Very strongly constructed of iron and steel, thus ensuring great durability; extremely accurate and not liable to easily get out of order.

The Indicating Steelyard is conveniently placed for ready access, and is arranged to dispense with Loose Weights, the full capacity being indicated on the Steelyard itself. Provision is made for Taring-off Chains, Slings, or Cam Hooks.

The Steelyard is provided with a Locking Pin for preserving the Knife-edges from wear when not in use, and is protected from injury by a Wrought-iron Guard as illustrated.

To weigh in English .						
Capacity.	Price.	Gradua- tions.	Distance between Hanging Points.	Approx. Net Weight.	Approx. Packed Weight.	Code Word.
Tons.	£ s. d.	lb.	ft. in	cwt.	cwt.	
30	84 0 0	7	3 9	8 $\frac{3}{4}$	11	Monandrian
40	103 0 0	7	4 0	10 $\frac{1}{2}$	12 $\frac{1}{2}$	Monasticon
50	122 0 0	7	4 3	13 $\frac{3}{4}$	18	Monatario
60	155 0 0	7	4 7	16	19	Monchlein

To weigh in Metric .						
Kilog.	£ s. d.	Kilog.	Metre.	Kilog	Kilog.	
30,000	84 0 0	4	1.14	445	559	Moniscono
40,000	103 0 0	4	1.21	535	635	Monivate
50,000	122 0 0	5	1.29	700	914	Monoceros
60,000	155 0 0	5	1.39	815	965	Monogynia

Special Quotations given for Machines from 80 tons to 150 tons Capacity.

*If specially ordered can be arranged to weigh in **any other Standard** without extra charge.*

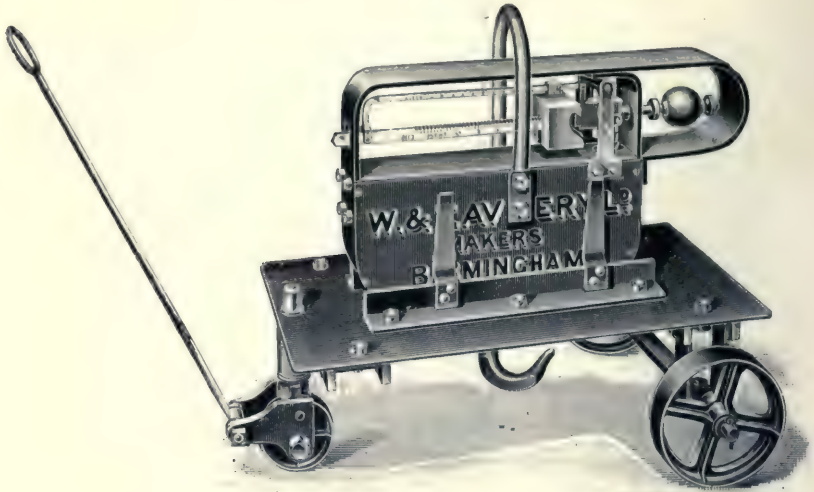
If cabling add the Standard after the Code Word for the English Machine, thus, "Monasticon Indian" would mean No 830 D, 40 ton size, graduated in Maunds and Seers (we take the Maund to equal 82 $\frac{1}{2}$ lb. unless ordered to the contrary).

If desired we can supply Special Shackles as shown on page 71, where Purchaser does not possess suitable attachment for the Sling Chains.

SOHO FOUNDRY, BIRMINGHAM.

Avery's Wrought-iron Trolley.

For Crane Weighing Machines.



No. 828

WROUGHT-IRON **Trolley**, with Swivel and Drag Handle, specially constructed for Avery's Crane Weighing Machines; arranged to take the Machine vertically as shown, thus preventing any damage being done to the Knife-edges by placing the Machine on its side.

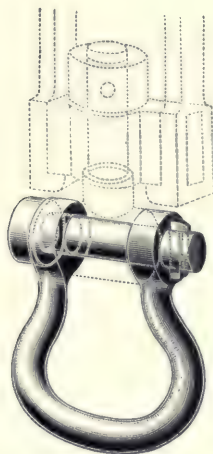
This Trolley will be found very convenient where one Weighing Machine is used on several Cranes.

Capacity of Machine ...	1	3	5	10	16 tons
Price of Trolley only ..	£4 0 0	£5 0 0	£7 0 0	£10 0 0	£11 0 0
Capacity of Machine ...	20	30	40	50	60 tons
Price of Trolley only ...	£12 0 0	£13 0 0	£14 0 0	£16 0 0	£18 0 0

W. & T. AVERY, LIMITED,

Wrought-iron Shackles.

For Avery's Heavy Pattern Suspended Weighers.



SPECIALLY forged **Wrought-iron Shackle, Bolt, and Cotter** turned and fitted to Swivel Eye of Avery's Heavy Pattern Crane Weighing Machines, as illustrated on previous pages.

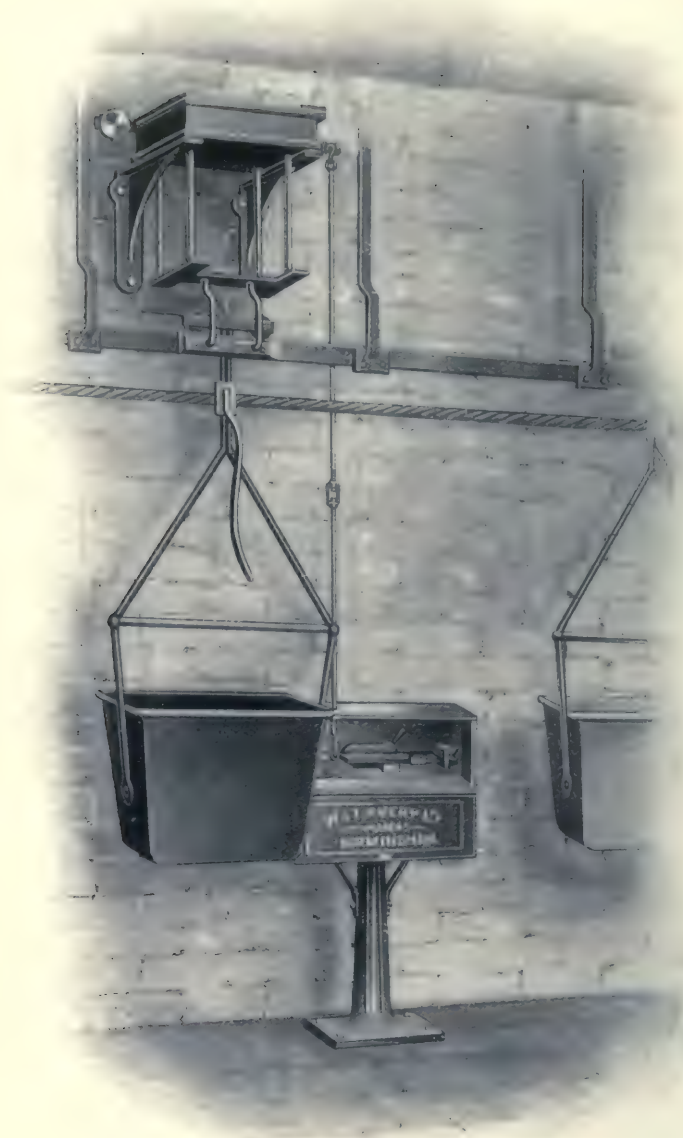
For the convenience of Purchasers who have not suitable attachments for the Sling Chains.

Prices of Wrought-iron Shackle, Bolt and Cotter as shown above.

Capacity of Machine.	Price (extra to Machine).	Code Word.
16 tons.	42/-	Monopastes.
20 "	48/-	Monstrabo.
30 "	65/-	Monstravit.
40 "	75/-	Montanesco.
50 "	90/-	Montantada.
60 "	104/-	Montanuela.

Special Quotation given for larger sizes.

SOHO FOUNDRY, BIRMINGHAM.



Overhead Weighing Machine.

For use in connection with Overhead Tracks or Ropeways.

For weighing Ores, Materials, or Loose Goods of any description
in Skips or Grabs, Metal in the Ladle, Unwieldy Castings,
&c., Packed Cases, Bales of Cotton, Paper, &c.

No. 73.

Capacity, 5, 7, 10 or 20 cwt.

THE use of this Weighing Machine effects a great saving in expense where
Goods or Material handled on an Overhead Track require to be weighed.

A detached portion of the rail is suspended from the Weighing Levers, thus
enabling the Loads to be weighed without removing them from the rail.

The Machine can be easily arranged to suit existing Rails, as it occupies a
very small space, and the Steelyard can be fixed at any reasonable distance below
the Weighing Mechanism.

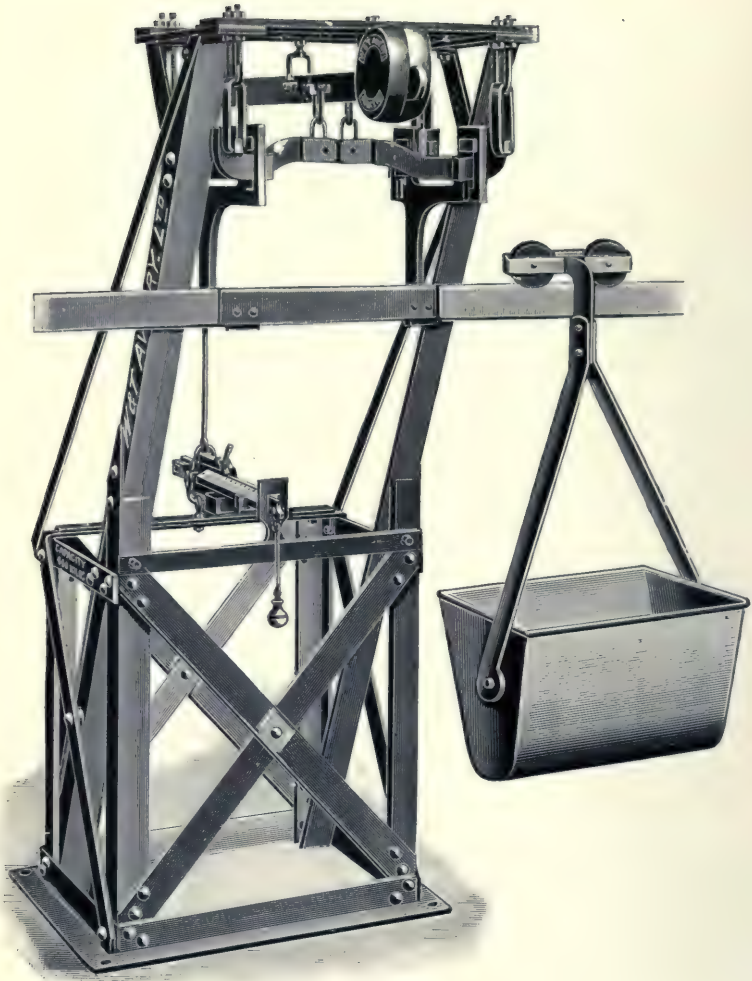
Illustration shows Machine fitted with Avery's Improved Steelyard,
Pattern C, which is graduated up to the full capacity of Machine, and dispenses
entirely with loose weights, thus ensuring a great economy in time. The
Steelyard is enclosed in Lock-up Mahogany Case.

If desired, the Machine can be fitted with **Avery's Patent Recording
Steelyard**, Pattern F, by means of which a **Permanent Record of the Weight
is printed on a Ticket** at the moment of weighing, thus absolutely preventing
the possibility of error or fraud, and ensuring an immense saving of time.

On application we shall be pleased to quote for Machine adapted to suit
any situation. When ordering or inquiring, the following particulars should
be given :—

- (1). Maximum Weight of Load.
- (2). Material to be weighed and form of Skip or Grab used.
- (3). Wheel-base of Trolleys.
- (4). Standard of Weight.
- (5). Distance of Track from Wall.

SOHO FOUNDRY, BIRMINGHAM.



No. 72

W. & T. AVERY, LIMITED,

Aerial Railway

Weighing Machine.

No. 72

Capacity, 5, 7, or 10 cwt.

WEIGHING Machine for Aerial Railways or Ropeways for weighing loads without removing them from the rails.

A detached portion of the Rail is suspended from the Weighing Levers, so that when the load has reached this portion of Rail the Weight can be readily ascertained.

The Machine is constructed of Wrought-iron and is supported by a strong Wrought-iron Frame, thus being quite complete in itself.

The Machine is fitted with our Improved Pattern Steelyard, graduated up to the full capacity and weighing entirely without Loose Weights, thereby greatly economising time, the weight being read off at a glance. The Steelyard can be graduated to any capacity or, if desired, our Patent Polygraded Steelyard, weighing in two or more Standards, can be supplied.

Specifications, Drawings, and Estimates on Application.

When ordering or enquiring for prices send full particulars, including Section of Rail, Wheel-base of Trolley, and Height of Rail from Ground-level.

SOHO FOUNDRY, BIRMINGHAM.

Improved Pillar Scales.

**With Sensitive and Durable Dutch-end Beam,
for Metal Merchants, &c.**



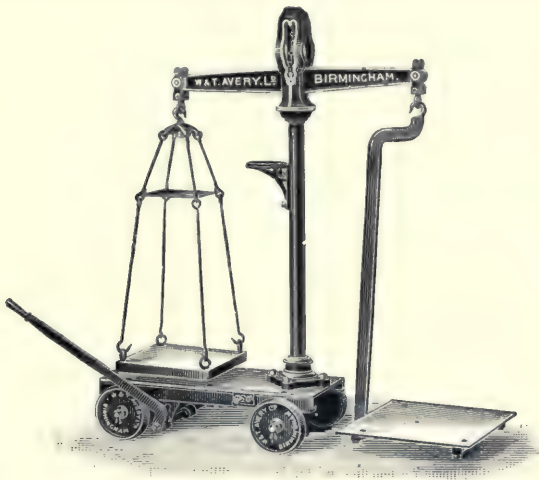
No 572.

STRONG Wrought-iron Pillar on Cast-iron Foot: strong Dutch-end Beam for sensitive weighing: Iron Weight Scale with Links or Chains; Wrought-iron Goods Scale, with either Single or Double Iron Crank; can be readily taken to pieces to facilitate transport.

To Weigh (Class 2) Crank Scale	2 22×20	3 22×20	4 22×22	5 26×22	7 26×26	10 cwt. 30×30 in.
Single Crank	174/-	192/-	228/-	240/-	310/-	410/-
Double Crank	204/-	222/-	264/-	276/-	348/-	432/-

W. & T. AVERY, LIMITED,

Avery's Improved Wrought-iron Trolley Scales.



No. 576.

STRONG Portable Scales for Stores, Warehouses, Docks, &c. ; with Strong Wrought-iron Trolley, Wrought-iron Pillar, Iron Scales, with Links or Chains and Iron Crank ; with Improved Sensitive and Durable Dutch-end Beam for accurate Weighing.

Fitted with Improved Relieving Gear for raising the Weight Scale and bringing the Goods Scale level with the floor for loading, so that the weights need not be removed after each weighing.

To Weigh .. (Class 2)	2	3	4	5	10 cwt.
Length of Beam	3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	5 ft.
Goods Scale	22 x 18	22 x 20	22 x 22	26 x 22	30 x 30 in.
Price	240/-	252/-	300/-	336/-	480/-
With Double Crank .. .	258/-	276/-	324/-	360/-	504/-
<i>Extras —</i>					
Galvanised Fittings .. .	30/-	30/-	36/-	42/-	66/-
Swivel and Drag Handle	24/-	24/-	36/-	36/-	48/-

Special Quotations for larger sizes.

If specially ordered can be constructed to take to pieces for transport abroad.

SOHO FOUNDRY, BIRMINGHAM.

Suspending Scales with Crank.

For Fine Weighing

No. 564

SENSITIVE **S**uspend-
ing **S**cales for weigh-
ing Copper and Metal,
or for any purpose where
accurate weighing is
essential.

With strong Iron Fittings
throughout.

No. 862. Sensitive
Square-end Weighbeam.

No. 863. Extremely
Sensitive Dutch-end Weigh-
beam, with Broad Knife-
edges and Bearings, which
render it very durable.

The Catch Weight
Lever raises the Weight
Scale, bringing the Goods
Scale level with the floor
for loading, so that the
Weights need not be
removed after each Weight-
ment.



To Weigh (Class 2)	2	3	4	5	6 cwt.
Length of Beam	3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
Size of Scales	18	20	22	24	26 ins. sq
No. 862 Beam	117/-	127/-	158/-	170/-	202/-
" 863 Beam	132/-	147/-	178/-	190/-	222/-
Plates and Fittings Galvanised <i>extra</i>	36/-	36/-	45/-	50/-	60/-
Wood Scales instead of Iron <i>less</i>	6/-	6/-	10/-	10/-	12/-
Catch Weight Lever <i>extra</i>	18/-	18/-	20/-	20/-	21/-
To Weigh (Class 2)	8	10	12	15	20 cwt.
Length of Beam	4 ft. 3 in.	4 ft. 6 in.	4 ft. 9 in.	5 ft.	5 ft. 6 in.
Size of Scales	28	30	32	34	36 ins. sq.
No. 862 Beam	240/-	283/-	330/-	390/-	477/-
" 863 Beam	270/-	328/-	380/-	445/-	522/-
Plates and Fittings Galvanised <i>extra</i>	72/-	84/-	96/-	114/-	132/-
Wood Scales instead of Iron <i>less</i>	12/-	18/-	18/-	24/-	30/-
Catch Weight Lever <i>extra</i>	23/-	29/-	30/-	35/-	36/-

Estimates for larger sizes, or for special fittings to suit any requirement, on application.

W. & T. AVERY, LIMITED,

Large Beam Scales.

**As supplied to the Mersey Docks and
Harbour Board.**



No. 565.

LARGE and Strong Suspending Beam Scales for heavy work on Wharves, Docks, &c.

With 6 ft. 4 in. Square-end Beam of 30 cwt. capacity, with Chains and well-seasoned Wood Boards. Size of Goods Board, 4 ft. x 3 ft.

PRICE ON APPLICATION.

We shall be pleased to estimate for Beams of any capacity with any description of Scale Fittings.

SOHO FOUNDRY, BIRMINGHAM.

Dead-weight Sack Machine.

No. 554.

CAST-IRON Frame and beam; hardened steel Knife-edges and Bearings; Wood or Iron Scales.

Fitted with Handles and Wheels, and with Wrought-iron side straps

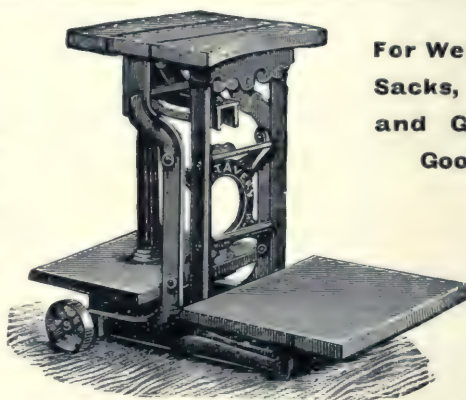


To Weigh .. (Class 2) Size of Goods Scale ..	2 14 x 18½	3 17 x 20	4 cwt. 18 x 22 in.
Wood Scales	76/-	78/-	102/-
Iron Scales	87/-	91/-	119/-
If without Side Straps (Wood Scales)	74/-	76/-	100/-

Strong Portable Machine.

No. 554 B.

CAST-IRON Frame and Beam; hardened Steel Knife-edges and Bearings; fitted with handles and wheels. With wood or Iron Scales



**For Weighing
Sacks, Bales,
and General
Goods.**

To Weigh .. (Class 2) Size of Goods Scale ..	4 18 x 22	5 20 x 24	7 23 x 27	10 28 x 32	12 cwt. 36 x 42 in.
Wood Scales	108/-	133/-	177/-	258/-	354/-
Iron Scales	120/-	158/-	202/-	302/-	420/-

W. & T. AVERY, LIMITED,

Large and Strong Truck.

**For Railway Stations, Warehouses, Piers, and
Landing Stages, &c.**

No. 96.

A LARGE and thoroughly strong and reliable **Truck** for heavy goods, made of well-seasoned Ash, with strong Wrought-iron Nose-plate, Iron Axle, and Cast-iron Wheels.

Length from Handle to Nose ..	64 in.
Length of Nose Plate	24 in.
Width of Nose Plate	22 in.
Diameter of Wheels	9½ in.
PRICE ON APPLICATION.	



Strong Wood Warehouse or Sack Truck.

No. 94.

MADE of best seasoned Ash, with strong wood Cross-bars and strong wide Wrought-iron Bar extending as shield over wheels.

With Legs, Axle Brackets, &c., of Wrought-iron and special extended Nose-plate, thoroughly protecting and strengthening the Wood Sides.

Strong solid Wheels of either Cast-iron or Steel, of extra large diameter to ensure smooth running.

Size No.	0	1	2
Length from Handle to Nose ..	40	44	48in.
Width at Handles	18	19	20in.
Width at Nose	12	14	14in.
Diameter of Wheels	7	8	9in.
With Cast-iron Wheels ...	25/-	30/-	33/-
With Cast-steel Wheels ...	33/-	38/-	43/-
Rubber-tyred Wheels <i>extra</i>	10/-	12/-	15/-

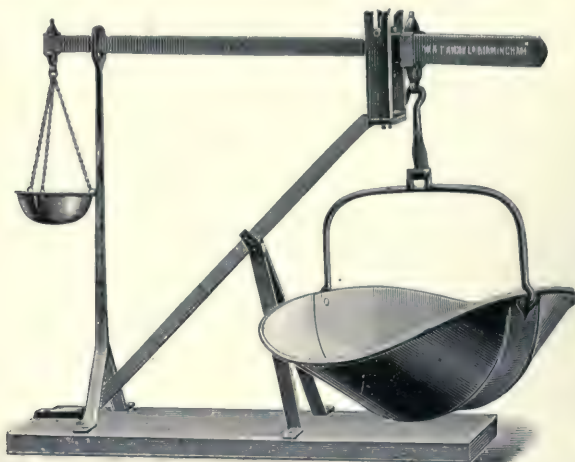
No. 90 **Sack Truck**, with Wrought-iron Cross-bars, bent to receive Sacks. Same sizes and prices.



SOHO FOUNDRY, BIRMINGHAM.

Avery's

Improved Counting Balance.



No. 362.

POWER : 10 to 1 or 12 to 1.

COMPUTING Balance, with Elm Slab, **Agate Bearings**, and Boat-shaped Scoop.

For use in Manufactories where quantities of small Articles have to be Counted or Checked ; so arranged that either a Dozen articles in the small Scoop represent a Gross in the large one, or 10 in the small Scoop equal 100 in the large, so that hundreds or grosses can be rapidly counted.

This Balance will be found a most valuable **Labour-saving Appliance** for counting small pressed or stamped Articles, Screws, &c.

When ordering state what power is required.

Capacity	10	20	30 lb.
Galvanised Boat Scoop ...	64/-	70/-	80/-
Copper	72/-	77/-	89/-

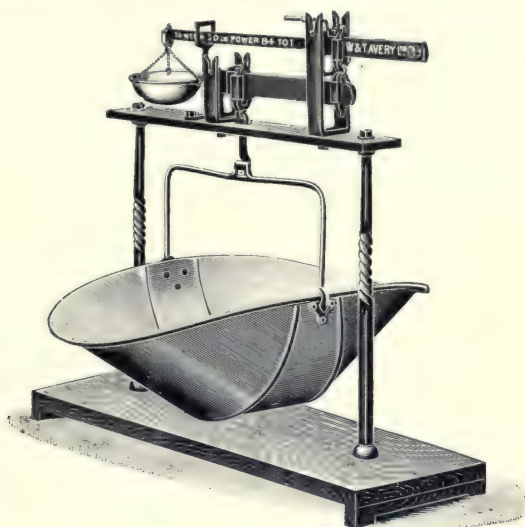
Larger sizes made to order ; prices on application.

Scoops can be fitted to suit any articles.

W. & T. AVERY, LIMITED,

Avery's New Pattern

Improved Counting Balance.



No. 361.

POWER : 100 [to 1 or 144 to 1.

IMPROVED **Computing Balance**, with Compound Levers so arranged that one article in the small Scoop represents either 100 or 144 in the large one, **so that Hundreds or Grosses can be rapidly counted.**

With Wrought-iron Levers and Frame, Elm Slab, **Agate Bearings**, and Boat-shape Scoop.

Invaluable for Counting and Checking small pressed or stamped articles, screws, &c., for checking men's work or for stocktaking.

When ordering state what power is required.

Capacity	10	20	30	50 lb.
Galvanised Boat Scoop ..	94/-	100/-	115/-	150/-
Copper ditto ...	100/-	110/-	125/-	—

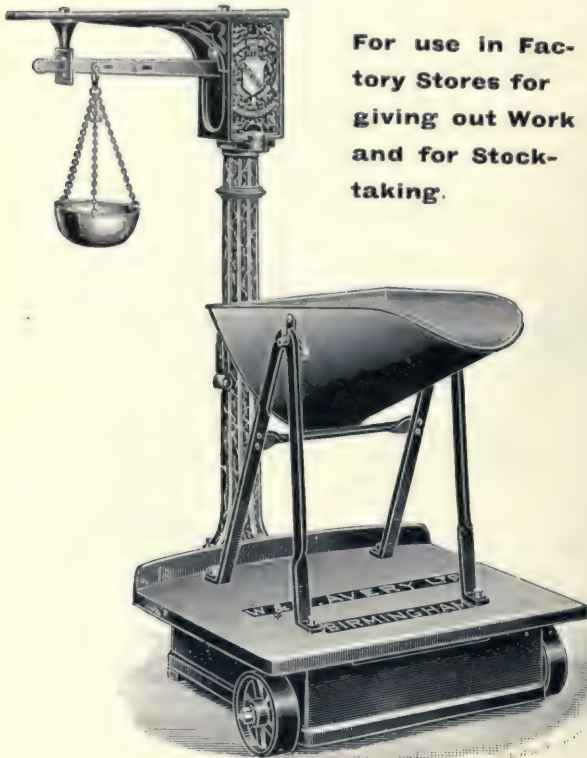
Larger sizes made to order ; prices on application.

Scoops can be fitted to suit any articles.

Can be adjusted to any other power to suit special requirements.

SOHO FOUNDRY, BIRMINGHAM.

Avery's Specially Strong Counting Machine.



For use in Factory Stores for giving out Work and for Stock-taking.

No. 351

POWER: 50 to 1 and 72 to 1.

THE power of this Machine is 50 to 1 when the small scoop is suspended from the first centre, and 72 to 1 when suspended from the second centre, so that **Two Articles in the small Scoop represent a Hundred or a Cross in the large one, so that Hundreds or Crosses can be rapidly counted.**

Strongly constructed of Iron with hardened Steel Knife-edges and Bearings, Wrought-iron Standard with Tipping Scoop; mounted on Two Wheels.

Capacity	4 cwt.
Price	180/-

W. & T. AVERY, LIMITED,

Avery's Counting Balance.

**As used in Large Manufactories of Screws, Buttons
Cycle Accessories, Small Stamped or Pressed Articles,
and all Small Articles sold by Count.**



No. 350

THIS **Balance** has been designed for the quick and accurate counting of large quantities of small articles in Grosses or Hundreds, or any other required number.

A Gross of the Articles is counted and placed in the Scoop, and the Steelyard balanced by means of the Poise, and the Poise locked by turning the thumbscrew. Grosses can then be counted with very great speed and absolute accuracy.

The Machine illustrated has a Sensitive Brass Beam, with Agate Bearings, Steel Scoop, and Japanned Iron Stand on Mahogany Base.

We have supplied over One Hundred of this pattern for use in One Manufactory.

Made in various sizes, and with various fittings to suit different articles.

Send full particulars of requirements or Samples of Articles to be counted, and we will submit the most suitable Machine.

SOHO FOUNDRY, BIRMINGHAM.

Avery's Counting Machine.



No. 360

FOR Counting large quantities of articles ; for instance, by counting the **first gross** and placing them in one Scoop **any number of grosses** can be counted (*i.e.* weighed) in the other Scoop.

With Iron Scoops and constructed to vibrate like a Scale Beam.

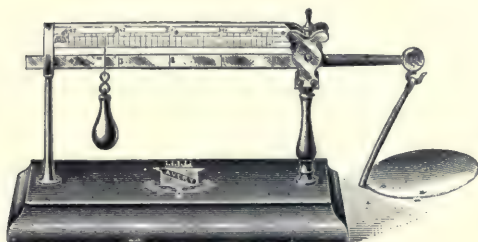
Invaluable in Factories and Large Warehouses ; can be used as an ordinary Weighing Machine as well as a Counting Machine.

To Weigh	7	14	28	56 lb.
Size of Scoops	6×9	7½×11½	8½×13	10×15in
Price	28/-	32/-	40/-	48/-

Pans can be fitted to suit any articles ; prices on application.
When enquiring send Samples of Articles to be counted.

Avery's Estimating Balance.

With Ivory Index Scale.



No 375

FOR ascertaining the Weight of a Gross of Small Articles by the Weight of one Article. Dispensing with Loose Weights, the Weight of a Gross being indicated on an Ivory Index Plate.

Capacity (1 Article)	1	2	4	8	16 ozs.
Price	40/-	42/-	45/-	50/-	55/-

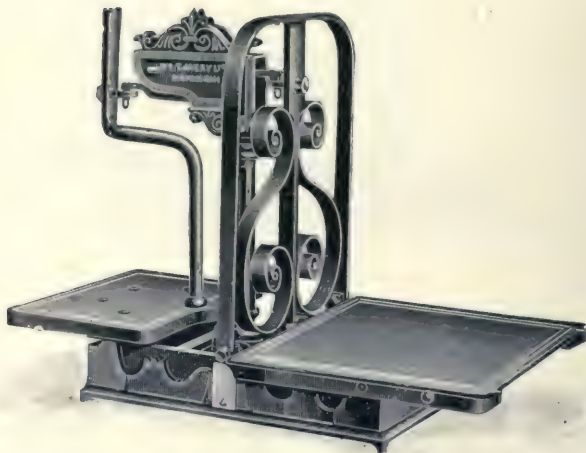
If fitted with Index Plate to show by the weight of one article the weight of a Gross and a Dozen, price **10/-** extra.

Special Counting or Estimating Scales can be supplied for all purposes. Send us full particulars of your requirements, or Samples of Articles to be counted, and we will submit Drawings of the most suitable Scale.

SOHO FOUNDRY, BIRMINGHAM.

Avery's "Imperial" Scales.

For Warehouse Use.



No. 849.

AVERY'S Strong and serviceable "Imperial" Scales, with hardened Steel Knife-edges and Bearings and Brass Caps. Neatly Japanned and Gilt.

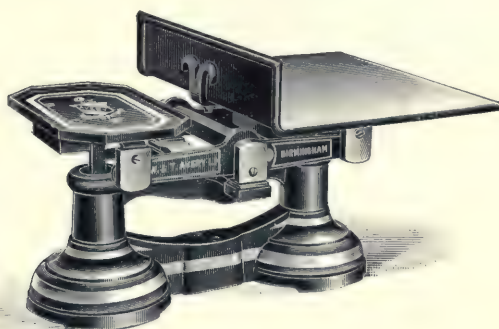
To Weigh (Class 2)	14	28	56	112	224 lb.
A. Iron Plate <i>as illustrated</i>	39/-	50/-	62/-	91/-	122/-
A. Copper ditto	40/6	52/-	66/-	98/-	132/-
Jl. Iron Plate turned up one side	40/-	51/-	63/-	92/-	125/-
Jl. Copper ditto	42/-	54/-	68/-	100/-	...
Rod and Hook for Wire <i>extra</i>	5/-	5/-	6/-	6/-	7/-

W. & T. AVERY, LIMITED,

Avery's Strong Parcel Scales.

To Vibrate.

For general use in Works, Stores, &c.



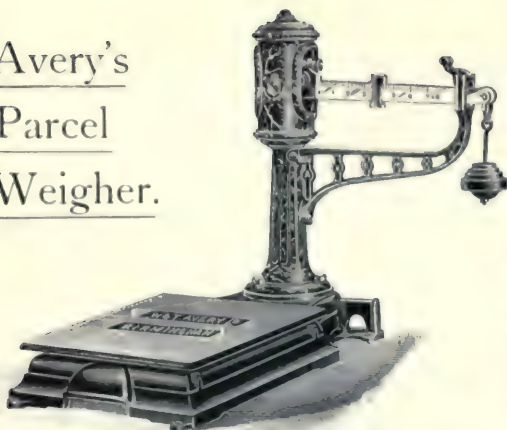
No. 1083

AVERY'S Strong Scales, made to vibrate like a Scale Beam. Japanned and Gilt; with Special Broad Beam and hardened steel Knife-edges and Bearings.

To Weigh. (Class 2.)	4	7	14	28	56	84	112 lb.
J 1 Iron Plate (as illustrated)	21/-	23/-	24/-	29/-	35/-	53/-	63/-
J 1 Copper ditto	22/-	25/-	27/-	33/-	39/-	58/-	69/-
G Oblong Tin Pan... ..	21/-	23/-	24/-	28/-	34/-	52/-	62/-
G " Copper Pan	22/-	24/-	26/-	32/-	39/-	58/-	69/-
Galvanized Ironwork <i>extra</i>	4/-	4/6	5/-	5/6	7/6	10/6	15/-

SOHO FOUNDRY, BIRMINGHAM.

Avery's
Parcel
Weigher.



REGULAR quality,
neatly Japanned
with Gun - metal
Steelyard.

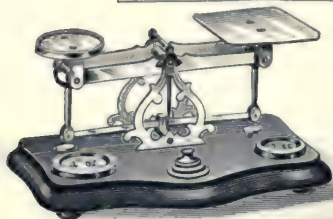
Best quality,
superior finish
throughout, to weigh
by single oz. Best
Japanned in Marble
and Gold.

Complete with
Proportional Weights.

No. 118

To Weigh Platform	(Class 2)	1 13½ × 10½	2 cwt. 14 × 14 in.
Regular		71/-	83/-
Best		78/-	93/-
Back-rail	extra	9/-	10/-
To Weigh in English and Metric	extra	4/-	4/-

Brass Letter Weigher.



No. 371

BEST Quality, on Polished
Walnut Slab, complete
with Brass Weights down to
¼ oz.

To Weigh	4	8	16	32	64 oz
Price	17/-	22/-	29/-	36/-	50/-

Can be supplied in Metric Standard at same price.

No. 3371

Second Quality; complete with weights down to ¼ oz.

To Weigh	4	8	16	32 oz.
Price	6/6	11/-	16/6	25/6

W. & T. AVERY, LIMITED,

Analytical Scales.

No. 879 G

MAHOGANY Box, Brass Pillar and Beam, Brass Weight Scale and Chains, Brass Folding Crank, Two Glass Pans, **complete with Apothecaries' Weights.**

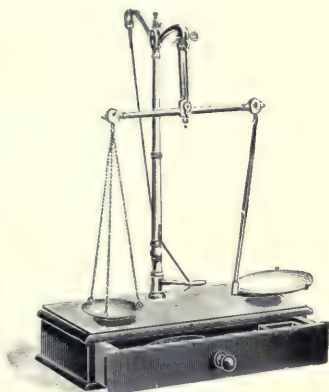
Weights supplied.

No. 13 B. 2 Drachms to $\frac{1}{2}$ Scruple. No.

15 B. 6 to $\frac{1}{2}$ Grain.

Finely Adjusted for Stamping.

To Weigh (Class 1)	2 oz.
Length of Beam	7 $\frac{1}{2}$ in.
Brass Oval Box-end Beam ...	30/-
Brass Beam, with Agate Middle Bearings	39/-
Nickel-plated extra	6/-



Second Quality.

With Weights roughly adjusted, *i.e.*, not suitable for trade purposes in the United Kingdom under the Weights and Measures Act, 1889.

Weights supplied.

2 Drachms to $\frac{1}{2}$ Scruple and 6 to $\frac{1}{2}$ Grain.

Roughly Adjusted.

Price (Second Quality) 25/-

Metric Analytical Scales.

No. 878

MAHOGANY Box, Brass Pillar, with lever and back string, Brass Oval Box-end Beam, Brass Weight Scale and Chains, Brass Folding Crank, two Glass Pans, **complete with Metric Weights**, finely adjusted as below :—

10.5.2.2 and 1 gramme.

5.2.2 " 1 decigramme.

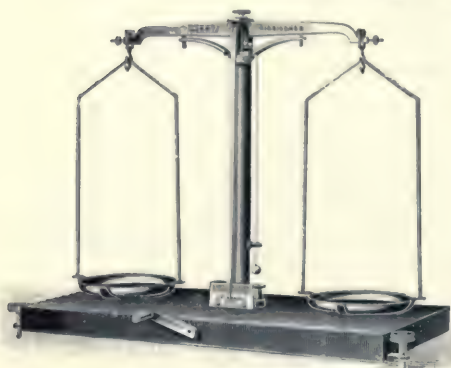
5.2.2 " 1 centigramme.

Length of Beam (Class 1)	7 $\frac{1}{2}$ in.
With Metric Weights only	32/-
With Metric Weights and English Weights (2 drachms to $\frac{1}{2}$ grain)	34/-

SOHO FOUNDRY, BIRMINGHAM.

Avery's Fine Balances.

**For Chemists' and Laboratory Use, and for
Yarn Weighing, &c.**



No. 720

FINE Balance, with Brass Beam, with Agate Bearings throughout, fitted with Adjustment Screws at each end, and with Long Indicator for delicate weighing. Brass Pillar, with Improved Relief and Arrest Bar, and with Plum-line for levelling the Balance. Double Cranks and removing Brass Pans.

Fitted on Mahogany Slab with Brass Levelling Feet.

To weigh 2 oz. (Class 1). Sensitive to $\frac{1}{80}$ th grain.

Price... .. 55/-

Can be used as a Specific Gravity Balance by the addition of a Stool and Glass Vessel.

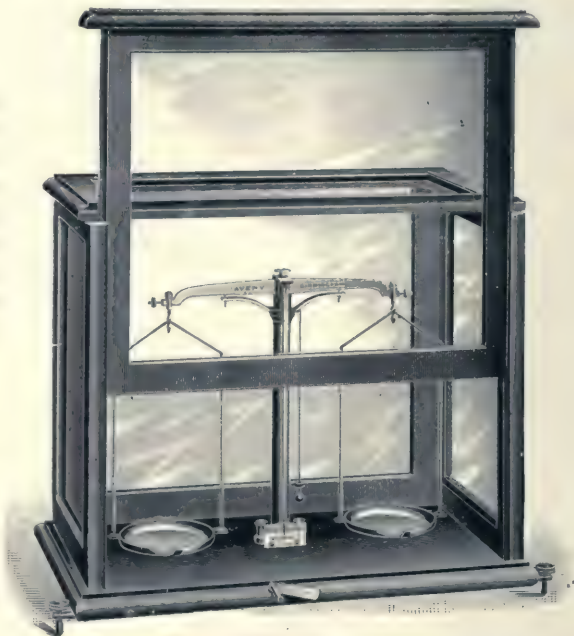
No. 721

FINE Balance similar to the above, but fitted in Mahogany Framed Glass Case, with Sliding Front on Counterpoise for ready access to the Balance.

With Brass Levelling Feet.
To Weigh 2 oz.
(Class 1).

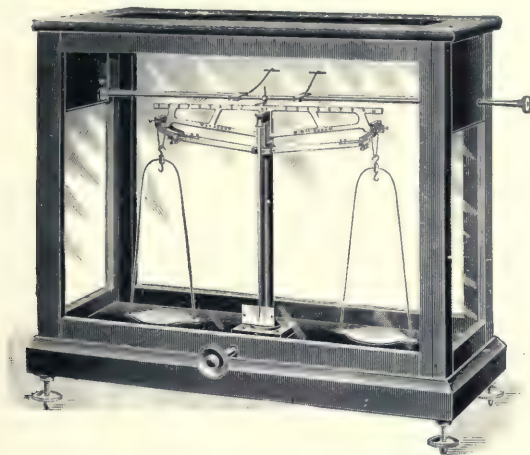
Sensitive to $\frac{1}{80}$ th grain.

Price 80/-



W. & T. AVERY, LIMITED,

Avery's Specially Sensitive
Chemical Balance.



No. 218

CHEMICAL **Balance** with 12 in. Gun Metal Beam fitted with Agate Bearings and with Arrestment. Capacity 1,500 grains, sensitive to '01 grain.

The Balance is enclosed in glazed Mahogany Case with Four Brass Levelling Feet, and with Double Rider Slide

Price £12 5 0

SOHO FOUNDRY, BIRMINGHAM.

Avery's Iron Weights.



FLAT IRON WEIGHTS.
No. 1

$\frac{1}{4}$	$\frac{1}{2}$	1	2	4 lb.
1/9	2/3	3/7	5/6	9/6 doz.

IN SETS WITH 2 oz. TO $\frac{1}{4}$ oz. IN BRASS.

1	2	4 lb. down.
17/-	22/6	32/- per doz. sets.

Metric Standard.

50	100	200	500 grammes.	1	2 kilog.
2/6	5/-	7/6	9/-	12/-	18/- doz.

IN SETS DOWN TO 50 GRAMMES.

500 grammes.	1	2 kilog.
2/6	3/6	5/- per set.

$\frac{1}{4}$	$\frac{1}{2}$	1	2	4	7	14	28	56 lb.
2/6	2/9	4/-	6/6	11/3	17/-	28/-	51/-	90/- doz.

IN SETS DOWN TO $\frac{1}{4}$ LB.

4	7	14	28	56 lb.
2/3	3/8	6/-	10/3	17/9 per set.

Metric Standard.

50	100	200	500 grammes.
-/4	-/6	-/8	1/- each.
1	2	5	10
1/2	1/7	3/-	5/6
			9/- each.

IN SETS DOWN TO 50 GRAMMES.

500 grammes.	1	2	5	10	20 kilog down.
3/2	4/4	5/11	10/6	16/-	25/- per set.



IRON BAR WEIGHTS.
No. 5

1	2	4	7	14	28	56 lb.
-/6	-/9	1/3	1/9	2/9	4/6	7/9 each.

IN SETS DOWN TO 1 LB.

4	7	14	28	56 lb. down.
2/6	4/3	7/-	11/6	19/3 per set.

Metric Standard.

1	2	5	10	20 kilog.
1/6	2/-	3/6	6/-	9/6 each.



**BOARD OF TRADE
PATTERN
IRON BAR WEIGHTS.**
No. 18

LEGALISED FOR TRADE USE IN ENGLAND.

5	10	20	50 lb.
1/6	2/-	4/-	7/6 each.



**ENGLISH DECIMAL
WEIGHTS.**
No. 35

**Iron or Brass Weights supplied to any Standard.
Special Quotations for quantities.**

W. & T. AVERY, LIMITED,

Avery's Patent Automatic

Penny-in-the-Slot Collecting Lock.

With Removable Coin Box.

**For Lavatories at Railway Stations, Parks, Hotels, &c.,
Public Galleries, Reading Rooms, and all
Places of Amusement.**

All Places of Public Resort are now expected to be provided with well-appointed Lavatories for the use of the Public. These can best be maintained by use of the Penny-in-the-Slot Door Lock, which collects the means to defray expenses, and provides a constant source of income to the Proprietor.

No. 779.

THIS Patent Door Lock, designed to overcome the many defects of other Locks on the Market, combines all the latest improvements with Absolute Reliability, while its simplicity of construction allows it to be placed on the Market at a very low price.

A special feature of its construction is that it can be reversed to suit either right or left-hand doors, opening inwards or outwards—a great advantage to all who keep a Stock.

With this Lock the Attendant can gain access whether the Lavatory is occupied or not.

The Coin Box is made Removable and so arranged that the Collector can only take it away **locked**, and only the responsible person in the Office to whom the Key is given can open it to take over the money.

Duplicate Coin Boxes can be supplied so that the Collector takes away one locked up and attaches an empty box to the lock.

Can be made to work with any Coin or with 2 Coins.

Each Coin Box will hold 14/- in Copper Coins.

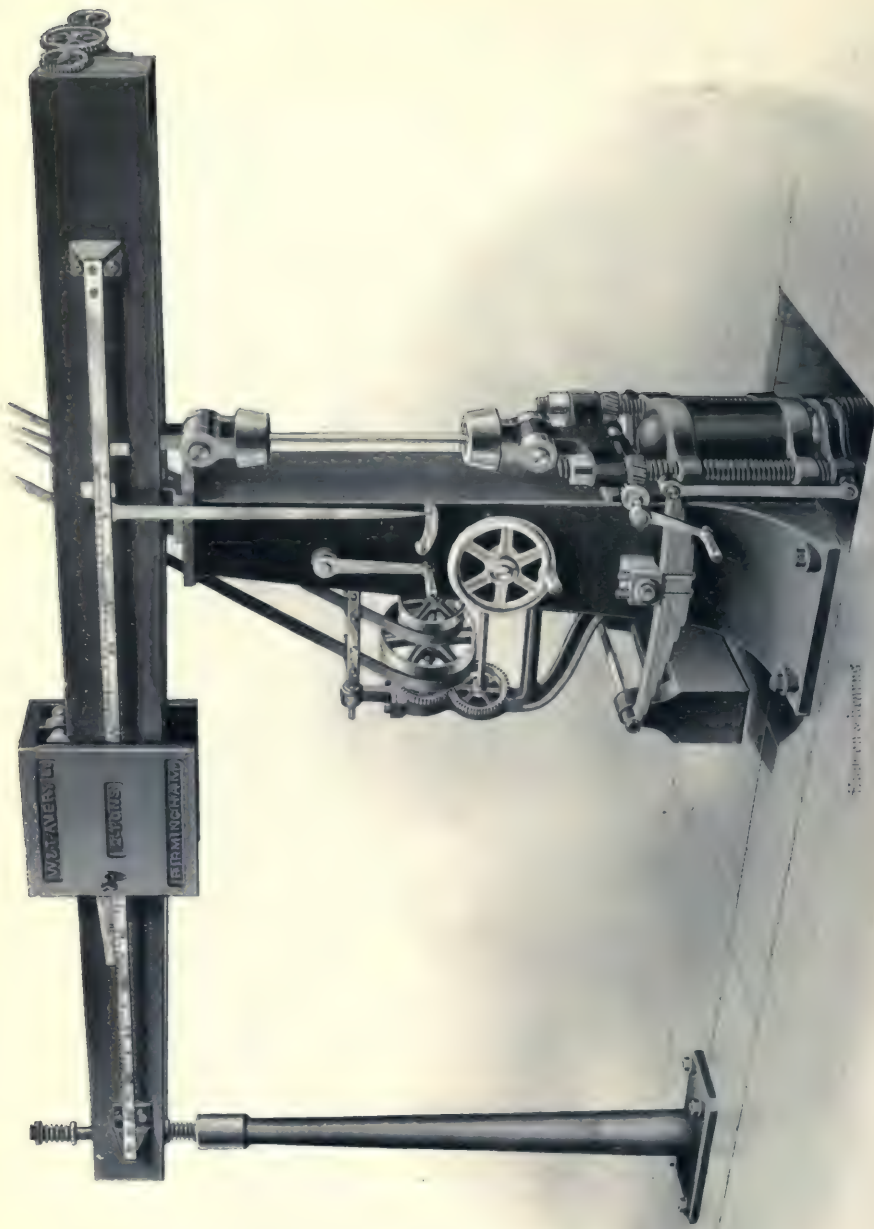
Made in Brass ; also in Japanned Iron.

PRICES ON APPLICATION.



Width, 4½ in.

SOHO FOUNDRY, BIRMINGHAM.



WATSON & CO. BIRMINGHAM

Avery's Hydraulic Vertical Testing Machine.

Single Lever Type.

For Tensile, Compressive, and Transverse Tests.

No. 618.

Capacities, 50 to 100 tons.

THE Machine is of Massive Design, and is constructed on the Single Lever Principle, with Appliances for Tensile, Compressive, and Transverse Tests.

The Main Column is of Substantial Construction, and is provided with a hardened Steel Bearing 20 inches long, for the Fulcrum Knife-edge of Lever.

The Weighbeam or Lever is built up of Strong Steel Plates fitted with best hardened Steel Knife-edges, the Main and Fulcrum Knife-edges being 20 inches long, to comply with the Board of Trade requirements.

The Graduations on the Lever are Machine divided, and, in conjunction with a Vernier, sub divisions of $\frac{1}{100}$ th of a Ton are attained.

The Sliding Weight on the Lever is a Standard Weight ; this is propelled along the Beam by means of a screw worked by power, and for the fine adjustments through gearing by a Hand-wheel fixed on the Column.

Buffer Springs are provided at top and bottom of Pillar Standard to lessen the Shock to the Lever when the Specimen breaks.

The Strain is applied by Hydraulic Power through a Cylinder and Ram.

The Appliances for holding the Specimens are of best Steel accurately machined to gauge

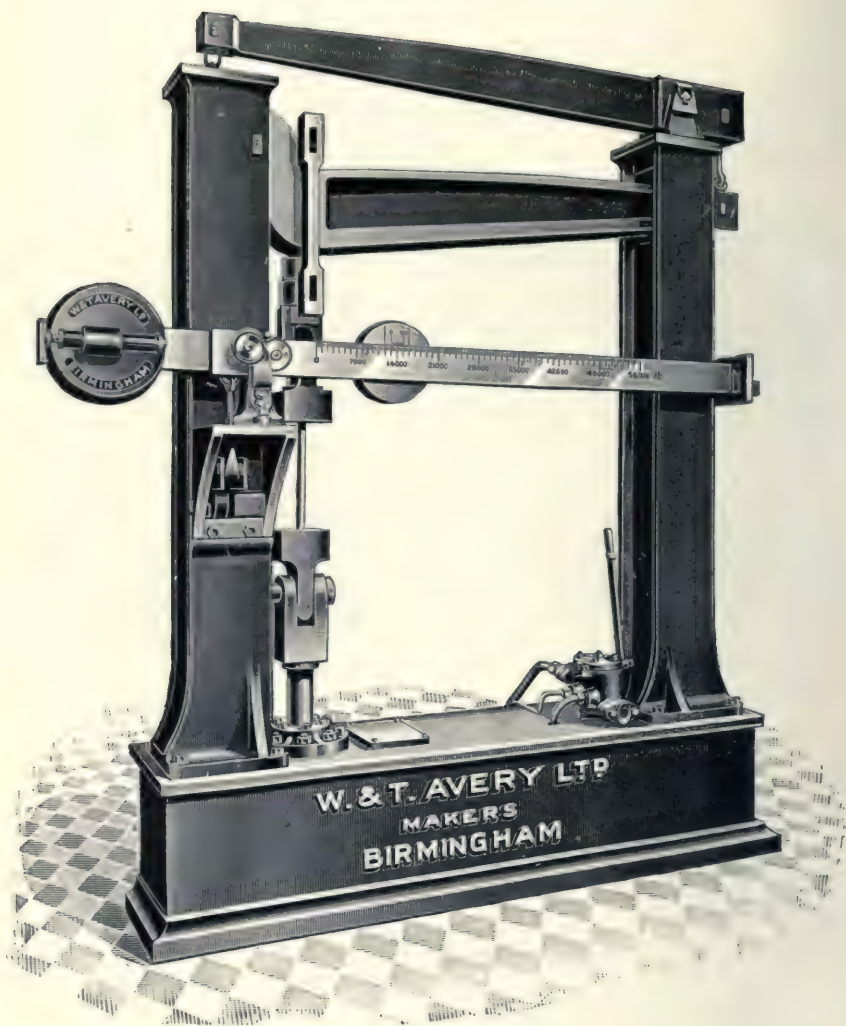
Tools can be supplied to suit purchasers' exact requirements.

The Machine throughout is of substantial construction and the workmanship of the Best, the meeting surfaces being planed throughout, and the whole of Engineering Finish.

The Machine is thoroughly tested before leaving the Works.

When ordering or inquiring about this Machine, give full particulars of material and Dimensions of the Specimens to be tested ; also state whether Hydraulic Pressure is available, and, if so, state pressure per square inch.

SOHO FOUNDRY, BIRMINGHAM.



No. 615.

W. & T. AVERY, LIMITED,

Hydraulic Testing Machine.

For Tensile, Transverse, and Compressive Strains.

No. 615

Capacities, 10 tons to 100 tons.

IMPROVED Pattern **Hydraulic Testing Machine** of the Vertical Type, for ascertaining the strength of Metals, &c., in Tension, Compression, and Transversely

The Machine is designed on the Compound Lever Principle, and is of Strong and Substantial Construction throughout, with the Meeting Surfaces machined, and the whole of the Best Material and Workmanship. Being on the Compound Lever Principle, it is very Compact, and takes up the Minimum amount of **Floor Space**.

The Steelyard is of Improved Design, graduated up to the Full Capacity, thus dispensing entirely with the use of Loose Weights. The finer graduations are indicated by a Vernier Scale on the Sliding Poise, conveniently placed for reading from Ground Level.

The Sliding Poise is moved along the Steelyard for balancing by Special Gearing connected with a small Hand Wheel fixed on to Frame of Machine, thus ensuring a **continuous steady strain** giving **absolutely accurate results**. This is a great improvement on the hand method, as it is impossible to put the Strain on suddenly.

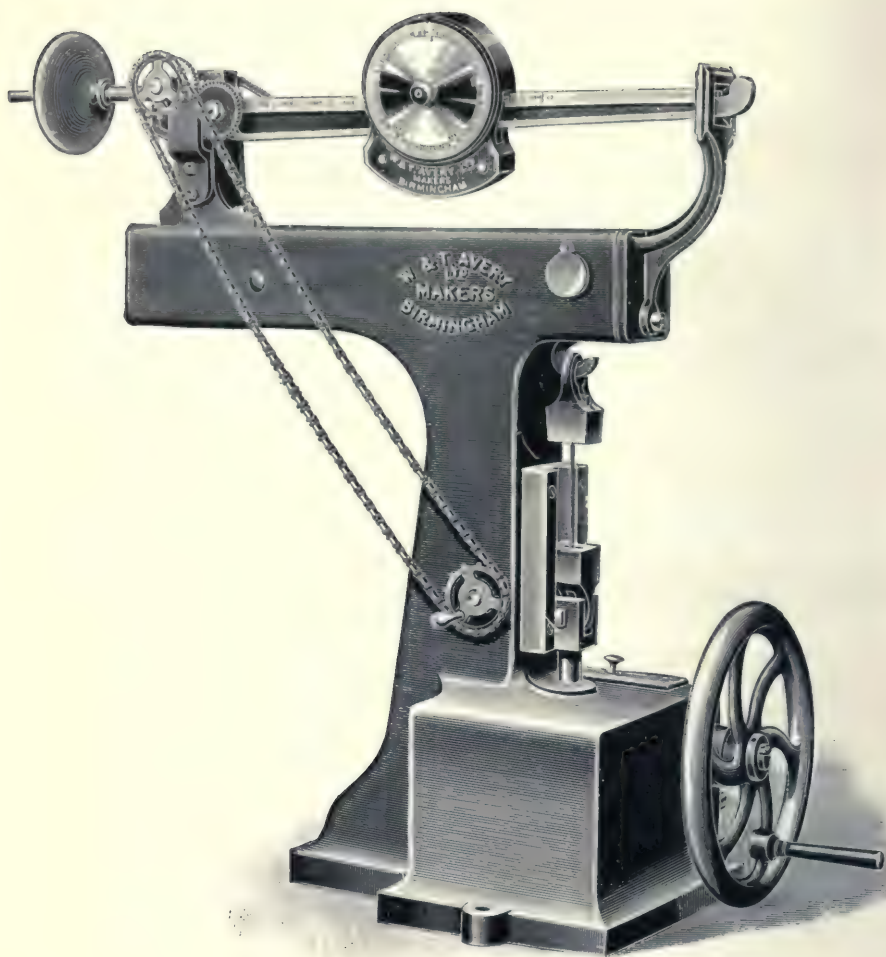
The Lever Knife-edges and Bearings through which the Strains are transmitted are of specially prepared Best Hardened Steel. The Main Knife-edges are continuous, thus ensuring Absolute lineability.

A Graduated Scale is provided for ascertaining the Extension, Compression and Deflection of the Specimens tested.

An Autographic Recording Apparatus can be provided for taking Diagrams by means of which the Elastic Limit and Yield Point of the Specimen may be ascertained.

When ordering or enquiring about this Machine, give full particulars of material and dimensions of the Specimens to be tested; also state whether Hydraulic Pressure is available, and, if so, state pressure per square inch.

SOHO FOUNDRY, BIRMINGHAM.



No. 601.

W. & T. AVERY, LIMITED,

Improved Testing Machine.

(Hand Power.)
For Wire and Small Specimens.

No. 601.

Capacities, 5,000 and 7,000 lb.

IMPROVED **Testing Machine** specially designed for accurately and speedily ascertaining the Breaking Strain and Elongation of Wire, small Test Pieces, Cycle Spokes, &c.

The Strain is applied by means of Worm and Wheel actuated by a Hand Wheel, and is indicated in single pounds on the Steelyard by a Sliding Poise, with revolving graduated Dial.

The Steelyard is balanced entirely by the Sliding Poise, thus entirely dispensing with the use of Loose Weights. The Sliding Poise is moved along the Steelyard for balancing by a Worm and Wheel arrangement connected with a small Hand Wheel fixed on to Frame of Machine, which ensures a continuous steady strain, giving absolutely accurate results. This is a great improvement on the old hand method, as it is impossible to put the Strain on suddenly.

Quick return of the Die Box after fracture of Specimen is ensured by an instantly operated arrangement of Change Wheels.

A Graduated Scale is provided for recording the elongation of the Specimens.

The two Hand Wheels are conveniently arranged so that Specimens can be tested by one Operator.

Four Sets of Dies are supplied to suit various Gauges of Wire, and by means of these the Specimen can be speedily and effectively gripped. Other Dies to suit various Specimens can be supplied if desired at additional cost.

Small Wire Torsion Tester.

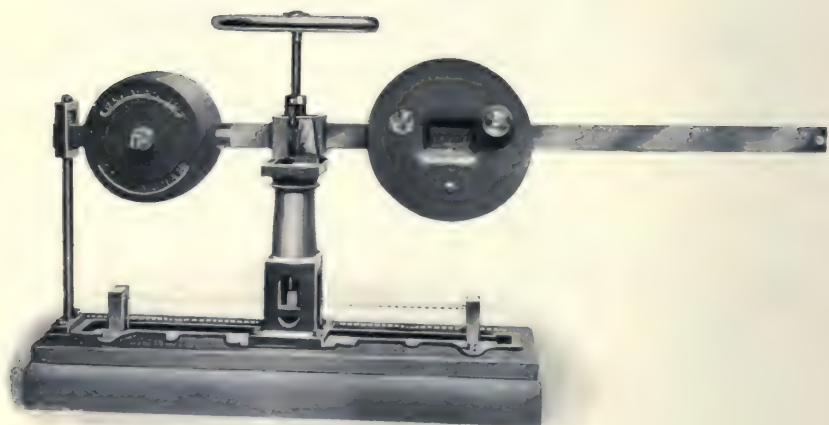
No. 606.

Torsion Testing Machine for ascertaining the number of Twists that a piece of Wire will stand before Fracture.

The Torsion is applied by means of a small Hand Wheel, the number of turns being registered by a screw arrangement upon a Graduated Scale Plate, which indicates up to 140 turns, and can be instantly set back to Zero.

Three Sets of Dies are supplied to enable three sizes of Wire, from No. 8 S.W.G. down, to be firmly gripped, and provision is made for testing Specimens of any length up to 8 inches.

SOHO FOUNDRY, BIRMINGHAM.



No. 611.

*As supplied to His Majesty's Government, the Chief English Railways,
Large Shipbuilding Yards, Foundries, &c.*

W. & T. AVERY, LIMITED.

Transverse Bar Testing Machine.

No. 611.

Capacity, 40 cwt.

STRONG Testing Machine for ascertaining the Transverse Breaking Strength and Deflection of Cast-iron Bars, 2 in. x 1 in. Section, or less, and up to 36 inches between centres.

The Bed Plate is of Cast-iron, fitted with Dogs for holding the Specimens, adjustable to suit different lengths of Bars, the Base being graduated so that the Specimens may be accurately positioned, either 12 in., 24 in., or 36 in. between centres.

A Graduated Deflection Scale is attached to the Machine, by means of which the varying Deflections of a Specimen under different Strains can be ascertained at any period of the Test. The Scale has two series of Graduations, one decimally by $\frac{1}{20}$ th inch divisions up to 1 inch, and the other by $\frac{1}{16}$ th inch divisions up to 1 inch.

A Cast-iron Standard is bolted to the Base Plate, fitted with hardened Steel Bearing Blocks, upon which the Fulcrum Knife-edges of the Steelyard rest.

With Strong Wrought-iron Steelyard, Machined and Polished bright, fitted with hardened Steel Knife-edges, and graduated up to 40 cwt. by 28 lb. divisions, thus dispensing entirely with Loose Weights. The Steelyard is provided with a Sliding Poise, by means of which the Steelyard is kept in equilibrium, and the Strain indicated.

To ensure the Strain being steadily and evenly applied, and the most accurate results attained, a small Hand Wheel is fitted to the Poise for propelling the latter.

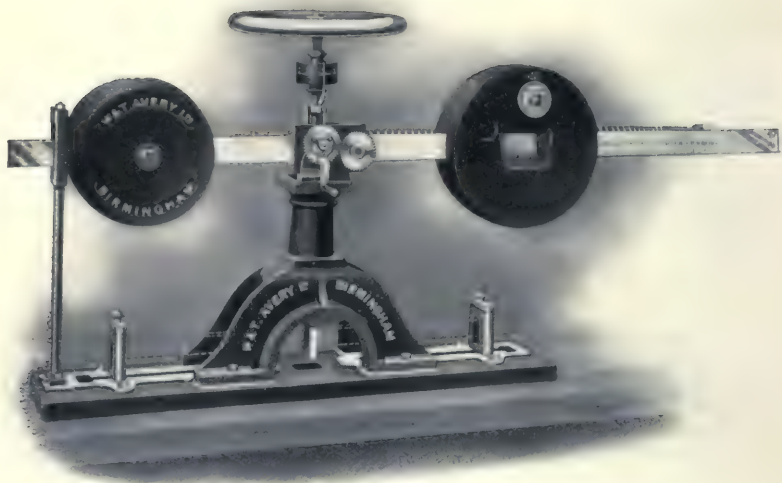
The Strain is applied by actuating a Turned and Polished Hand Wheel with a Screw working through a Steeled and Hardened Stirrup, which exerts the Strain on to the Specimen.

To minimise the Shock on the Steelyard due to the breaking of the Specimen, a Spring Buffer is fitted to the Steelyard Carrier.

The Materials and Workmanship throughout are of best Engineering Finish, and each machine is thoroughly tested for Strength and Accuracy before leaving the Works.

Scale Drawing, Specification, and Price on application.

SOHO FOUNDRY, BIRMINGHAM.



No. 627.

W. & T. AVERY, LIMITED,

104

Avery's Improved Iron Bar

Testing Machine.

"Laboratory Pattern"

No. 627.

Capacity 40 cwt.

IMPROVED Testing Machine for Cast-iron Bars, of superior design and finish, specially constructed to give extremely accurate results; we specially recommend this pattern for Scientific Purposes.

The Machine is designed for ascertaining the Transverse Breaking Strength and Deflection of Cast-iron Bars, 2 in. by 1 in. Section, or less, and up to 36 in. between centres.

The Bed Plate is of Cast-iron, fitted with Dogs for holding the Specimens adjustable to suit different lengths of Bars, the base being graduated so that the Specimens may be accurately positioned, either 12 in., 24 in., or 36 in. between centres. The Dogs can be locked in the required position.

An Improved Deflection Scale is attached to the Machine, by means of which the varying Deflections of a Specimen under different Strains can be ascertained at any period of the Test. This Scale is graduated by $\frac{1}{1000}$ th inch divisions.

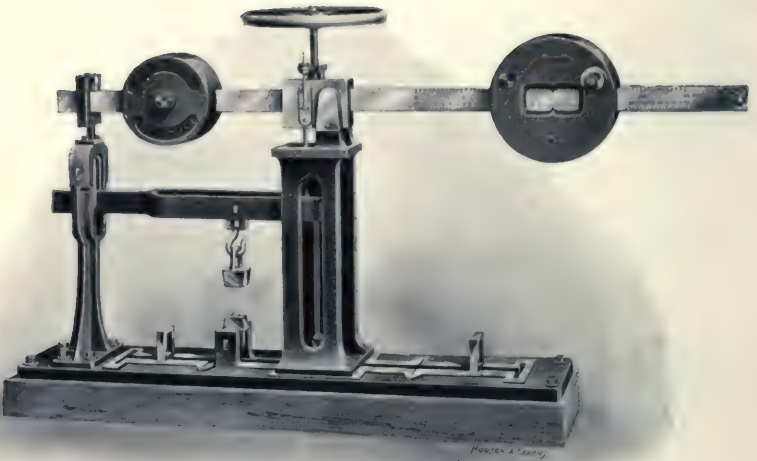
With Strong Wrought-iron Steelyard, Machined and Polished bright, fitted with hardened Steel Knife-edges, and graduated up to 40 cwt. by 28 lb. divisions, thus dispensing entirely with Loose Weights.

The Travelling Poise, by means of which the Steelyard is kept in equilibrium, and the Strain indicated, is propelled by means of a Hand Wheel and Screw Gearing, the Hand Wheel being carried on the main column. This arrangement avoids the pressure of the hand upon the Poise, which is apt to give inaccurate results, and obviates the possibility of the Poise moving after fracture.

The Strain is applied by actuating a Turned and Polished Hand Wheel with a Screw working through a Steeled and Hardened Stirrup, which exerts the Strain on to the Specimen.

Scale Drawing, Specification, and Price on Application.

SOHO FOUNDRY, BIRMINGHAM.



No. 622.

W. & T. AVERY, LIMITED,

Combined Testing Machine for Cast Iron.

For Tensile and Transverse Tests.

No. 622.

Tensile Capacity - 60 cwt.

Transverse Capacity - 40 cwt.

THE necessity of testing Cast-iron in Tension as well as Transversely is established, and this Machine has been specially designed for making both the Tensile and Transverse Tests.

For Tensile Tests the idea is to test specimens $\frac{1}{2}$ in. diameter, for which size the Capacity of 60 cwt. allows for Iron which will stand 15 tons per square inch, and Hardened Steel Dies for gripping Specimens $\frac{1}{2}$ in. diameter are provided.

For Transverse Tests the Machine is designed to test bars 2 in. \times 1 in. Section or less, and up to 36 in. between centres.

The Bed Plate is of Cast-iron, fitted with Dogs for holding the Specimens, adjustable to suit different lengths of Bars, the Base being graduated so that the Specimens may be accurately positioned, either 12 in., 24 in., or 36 in. between centres.

A Graduated Deflection Scale is attached to the Machine, by means of which the varying Deflections of a Specimen under different Strains can be ascertained at any period of the test. The Scale has two series of graduations, one decimally by $\frac{1}{10}$ th inch divisions up to 1 inch, and the other by $\frac{1}{16}$ th inch divisions up to 1 inch.

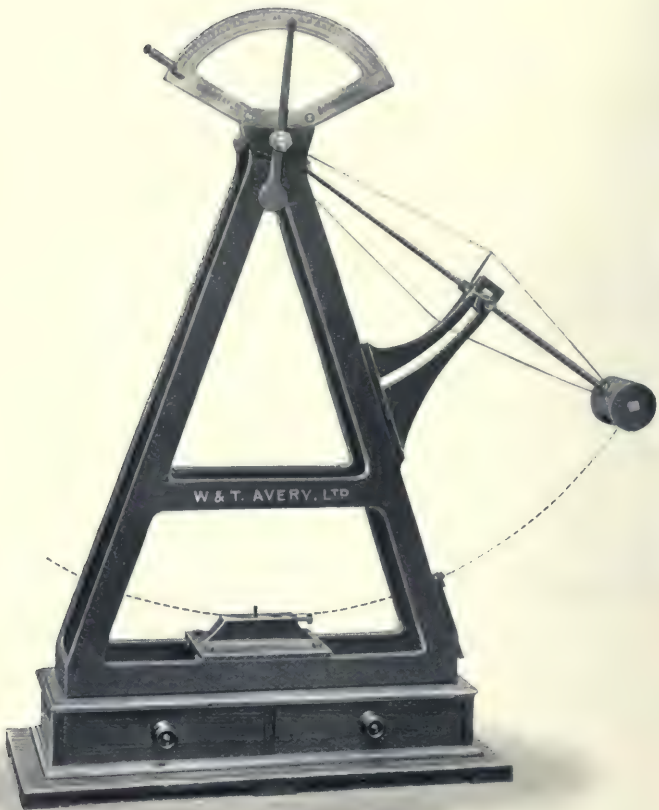
A Cast-iron Standard is bolted to the Base-plate, fitted with hardened Steel Bearing Blocks, upon which the Fulcra Knife-edges of the Steelyard rest.

With strong Wrought-iron Steelyard, Machined and Polished bright, fitted with hardened Steel Knife-edges, and graduated up to 40 cwt. by 28 lb. divisions, thus dispensing entirely with Loose Weights. The Steelyard is provided with a Sliding Poise, by means of which the Steelyard is kept in equilibrium, and the Strain indicated.

To ensure the Strain being steadily and evenly applied, and the most accurate results attained, a small Hand Wheel is fitted to the Poise for propelling the latter.

The Strain is applied by means of a Hand Wheel, Screw, and Stirrup, which exerts the Strain on to the Specimen.

SOHO FOUNDRY, BIRMINGHAM.



Avery's Patent Impact Testing Machine.

No. 626.

*In use by H.M. Government, Universities, Engineering Works, and
Motor Manufactories, etc., etc.*

W. & T. AVERY, LIMITED,

Patent Impact Testing Machine.

No. 626

THE importance of **Testing by Impact** has been demonstrated very forcibly lately by leading Engineers, and Impact Testing is undoubtedly essential when any material is required to stand "**shock**," it being impossible to find out this quality by Tensile or any other than Impact Test.

Avery's Impact Testing Machine has been designed to meet this demand. A pendulum Weight is raised to a certain height and allowed to swing and strike the Test-piece, *fracturing it in one blow*, and the number of foot pounds of energy which the Test-piece has absorbed is automatically registered on the Indicating Quadrant by the absorption finger.

The Machine is scientifically designed, the striking point of the pendulum being at the centre of percussion, thus ensuring the whole of the energy of the falling weight being transmitted to the specimen. The point of contact of the falling weight is protected from wear and injury by the provision of a special hardened Steel Knife-edge. To reduce the friction at the point of suspension to a minimum, the pendulum is suspended by hardened cone points, one of which is adjustable. The machine is of the highest grade throughout, all the meeting surfaces being planed, and the whole of engineering finish and the results are absolutely reliable. It can be worked by an unskilled operator and tests made at the rate of 60 per hour.

The enormous advantage accruing from having a machine which will apply a sudden "shock" and accurately register the amount of energy which the Test-piece absorbs at fracture cannot be exaggerated, as **it is essentially those portions of machinery which are liable to "shock" that should be made of the most carefully tested material**, and this Impact Testing Machine enables the material to be tested in a manner which exactly resembles the strains that the materials will have to stand when in actual use.

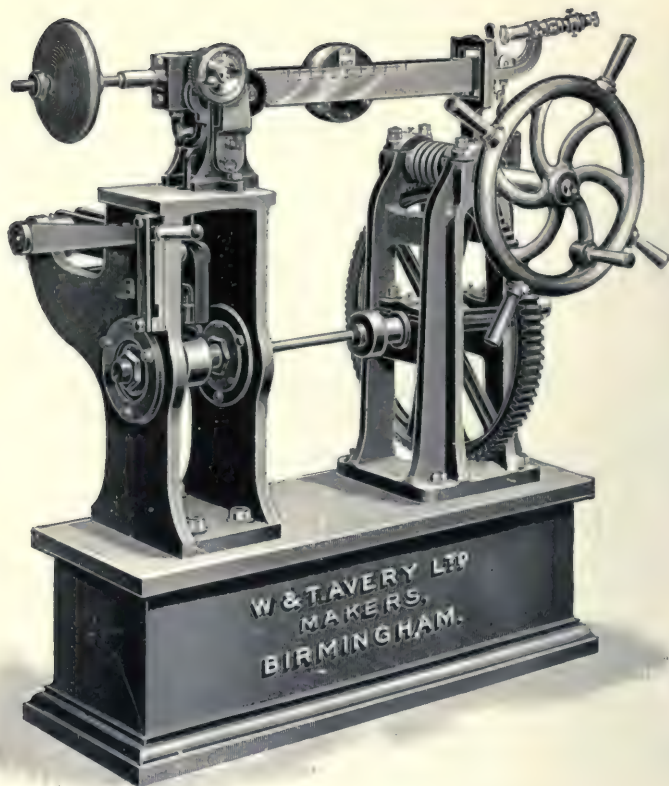
On application, we shall be pleased to send a table of results showing the importance of the Impact Test in addition to Tensile Test, as it is only by combining these tests that the full capabilities of any material can possibly be ascertained.

This Impact Testing Machine is **saving manufacturers considerable sums per annum in their purchases**, as they are able to test the various samples of materials offered for specific purposes, and have through this Impact Test found that in many cases much less costly materials give better results, and are *more suitable* for their purposes than higher priced materials. These qualities could not be discovered by any other than Impact Test.

Over all Dimensions : Height, 6 ft. ; Width, 3 ft. 8 in. ; Depth, 1 ft. 6 in.

Full Scale Drawing and Specification on Application.

SOHO FOUNDRY, BIRMINGHAM.



No. 608

Torsion Testing Machine.

**Specimen after testing by Torsion on Avery's Machine
at the University of Birmingham, 15th May, 1902.**



RESULT OF TEST:—

**Sample of Best Wrought Iron. 8 in. long, $\frac{27}{32}$ in. diameter.
Twisted 4 times or through $1,440^\circ$.
Load at Breaking, 13,620 lb. = 6.08 tons.**

W. & T. AVERY, LIMITED,

Torsion Testing Machine.

No. 608.

Capacity, 10,000 inch lb.

MACHINE for Testing the Torsional Strength of Specimens of Iron and Steel and other Metals, specially designed and constructed for the Department of Engineering, Birmingham University.

The Machine is constructed on an improved principle whereby the power of the Levers can be increased for testing large Specimens; by this means more accurate readings are attainable for smaller Specimens. Specimens up to 1 inch in diameter and 12 inches in length can be tested.

The Torsion is effected by hand through Worm and Wheel Gear, the Test being easily accomplished by one operator.

The Strain is recorded in single lb. by means of a Vernier upon Sliding Poise and a finely graduated Scale attached to the end of the Steelyard, the fine graduations being read by means of a Microscope.

The materials and workmanship are of the very best, and a minimum of friction is obtained by the use of Ball Bearings, the result being a high degree of efficiency.

COPY LETTER FROM
THE PROFESSOR OF ENGINEERING,
Prof. F. W. BURSTALL, M.Sc., M.A., M.I.C.E., M.I.M.E.,
THE UNIVERSITY, BIRMINGHAM.

April 28th, 1905.

Messrs. W. & T. AVERY, LTD.,
BIRMINGHAM.

The Torsion Testing Machine which your firm specially designed and made for the Engineering Laboratory of the University has been in regular use for the last SIX YEARS, and has given most satisfactory results.

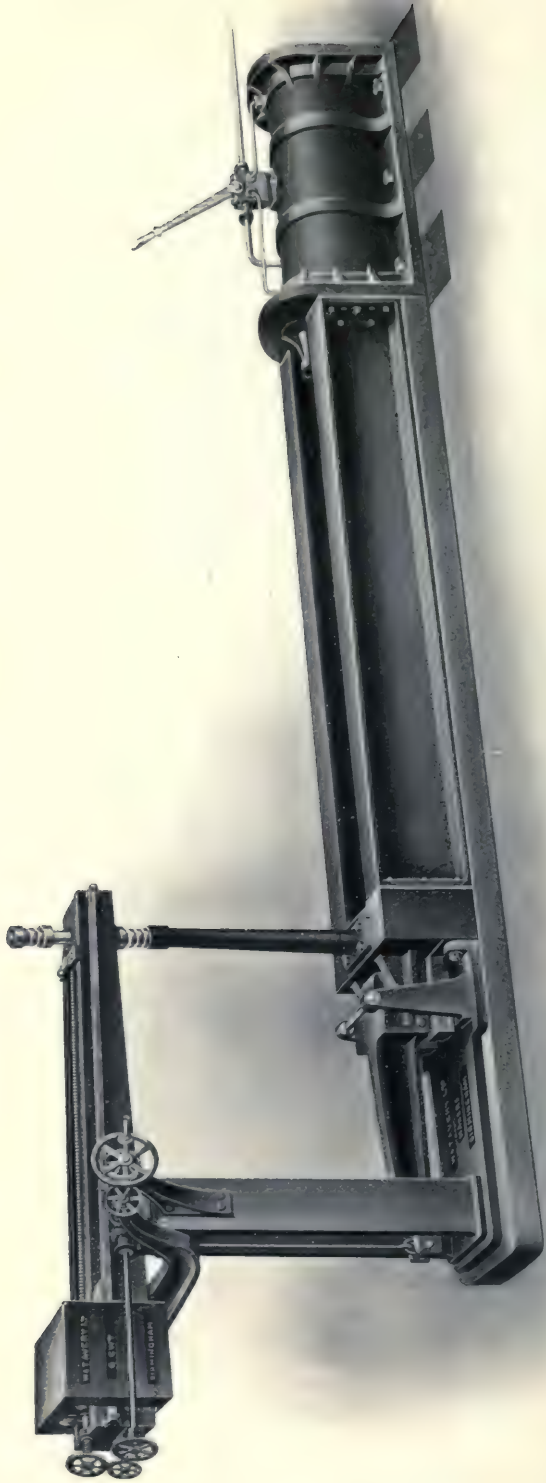
The machine is both sensitive and accurate, and by its construction prevents any bending action affecting the Torsion Specimen, a defect which is often found in torsion testing machines.

The machine is well made, as no repairs of any kind have been done since the machine was delivered.

Yours truly,

F. W. BURSTALL.

SOHO FOUNDRY, BIRMINGHAM.



No. 616.

Hydraulic Chain Testing Machine.

No. 616

Capacity, 10 tons to 100 tons.

STRONG and Substantial **Chain Testing Machine**, designed in accordance with the Board of Trade requirements.

The Machine has a substantial Frame or Bed in which the Chain to be tested is placed, and at one end of this Frame is a double-acting Hydraulic Cylinder, by means of which the Strain is applied; at the opposite end is the Indicating Apparatus, which consists of a Main Lever with connections, and a Graduated Steelyard with a Sliding Poise.

The Steelyard is machined, and has a Graduated Scale Plate, which is machine-divided.

The Poise which traverses the graduations of the Steelyard has a Vernier Scale for fine readings. It has four turned Rollers, which travel upon Machined Tracks on top of the Steelyard, thus avoiding friction.

The Poise is moved along the Steelyard by a central Screw worked through gearing by a Hand Wheel, on Avery's improved method, which ensures the pressure of the hand having no effect on the readings, the meeting points of the gearing being at the Fulcrum Knife-edge.

The Knife-edges and Bearings throughout are of best Cast-steel, accurately planed, hardened, and lapped, and the recesses into which they fit truly machined.

The materials and workmanship are of the best quality, the meeting surfaces planed, and the whole of engineering finish.

When ordering or inquiring about this machine, give the following particulars:—

- (1) Maximum Test required.
- (2) Maximum Length of Chain to be Tested.
- (3) Dimensions of Links for all sizes of Chains to be Tested.
- (4) State whether Accumulator Pressure is available or not, and if so, give pressure per square inch.

SOHO FOUNDRY, BIRMINGHAM.



No. 614.

W. & T. AVERY, LIMITED.

Hydraulic Machine.

For Proving and Testing Wire and Hemp Ropes and Cables.

No. 614

Usual Capacities. 5, 10, 15, and 20 tons.

THIS Machine has been specially designed for **proving** Wire and Hemp Ropes **at any part of their length** without destroying the Ropes, and in addition for **testing** specimen lengths of Rope.

For Proving up to a Specified Strain a Rope afterwards to be used, the Rope is passed through the Gripping Dies without being cut, and the Section between the Dies is **proved** up to the desired strain, any number of such sections can be proved without destroying the Rope; this is invaluable for insuring the safety of Rope actually in use, or intended for use.

For Testing the Breaking Strain a section of the Rope is cut off and tested to destruction.

The Machine is entirely Self-contained, the pressure being supplied by means of an Hydraulic Hand Pump carried under the Frame, and the whole Machine mounted on four wheels, the front pair of which are made to swivel to facilitate removal from place to place.

The strain applied is indicated on an Automatic Dial, the Ultimate Strain being indicated by a Loose Registering Finger.

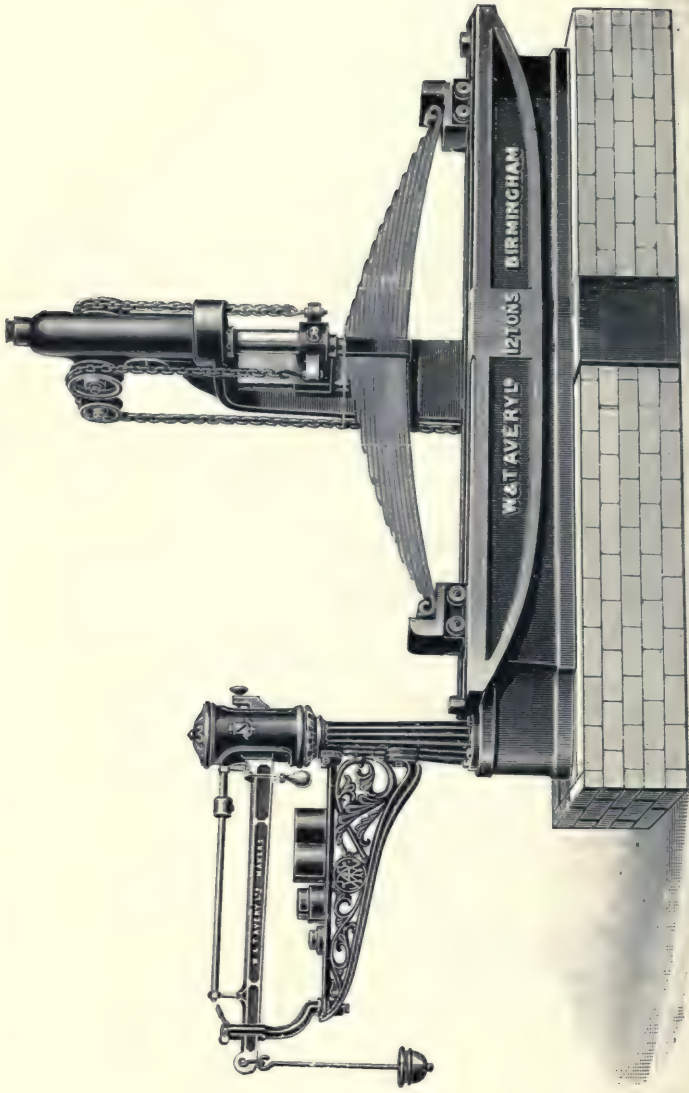
A Graduated Elongation Scale indicates the **Extension** of the Specimen under test.

When ordering or enquiring about this Machine the following particulars should be given :—

- (1) Maximum Capacity.
- (2) Length of Specimens to be tested to destruction.
- (3) Maximum extension to be allowed for.
- (4) Circumference of Ropes to be tested.

This Machine is also made as a fixed Machine, *i.e.*, without wheels.

SOHO FOUNDRY, BIRMINGHAM.



No. 612

W. & T. AVERY, LIMITED,

Hydraulic Spring Testing Machine.

For Testing Laminated Springs.

No. 612

Usual Capacities, 10, 12, and 15 tons.

STRONG Self-contained **Testing Machine**, designed for ascertaining the Deflective Strength of Laminated Springs for Locomotives, Carriages, Motor Wagons, &c.

The Springs are placed on Trolleys, which travel along the Platform, and the Pressure is exerted on the Springs by means of an Hydraulic Cylinder and Ram—the Pressure being indicated on the Steelyard.

The Machine is contained in a substantial Cast-iron Frame, with Weighing Levers of strong section fitted with Continuous Knife-edges and Bearings of best hardened Steel, and with strong Cast-iron Platform, having planed tracks for the Trolley; the Trolleys are of Cast-iron, fitted with turned Rollers and Axles.

The Pressure is indicated by means of a Steelyard, with Loose Proportional Weights, the finer adjustments being made with a Sliding Poise on the Steelyard.

The Tare Weight of the Spring being tested is counter-balanced by a separate Adjustable Poise.

An additional Graduated Scale indicates the Deflection of the Specimen.

The Machine illustrated is designed for Testing Laminated Springs of **all lengths up to nine feet.**

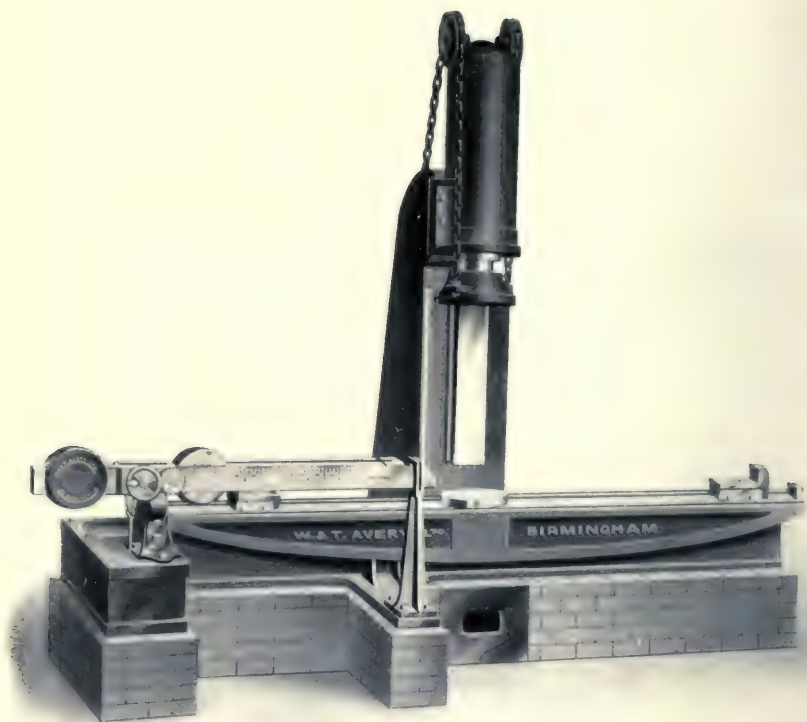
If desired, the machine can be adapted to test Coil Springs as well as Laminated Springs.

Drawings, Specification, and Prices on Application.

When ordering or inquiring about this Machine state whether Accumulator Pressure is available or not, and if so state pressure per Square Inch.

As Supplied to Railway Companies, Spring Manufacturers, &c.

SOHO FOUNDRY, BIRMINGHAM.



No. 623.

Improved Spring Testing Machine.

As supplied to the G.N. Railway, &c.

W. & T. AVERY, LIMITED,

Avery's Improved

Hydraulic Spring Testing Machine.

For Testing Laminated and Coil Springs.

No. 623

Usual Capacities, 10, 12, and 15 tons.

SPECIALLY Sensitive Spring Testing Machine, with Improved Steelyard, the **Sliding Poise being propelled** from the Headstock **by means of a Hand Wheel** and Screw Gearing, which **ensures absolutely accurate results** as the Steelyard can be kept sensitively balanced and the Pressure of the Hand, Jerks, &c., are entirely avoided.

The Steelyard is graduated FROM ZERO TO THE FULL CAPACITY, thus dispensing entirely with Loose Weights. The Sliding Poise is provided with a VERNIER SCALE by means of which very fine and accurate readings are obtained.

An additional Graduated Scale indicates the Deflection of the Specimen.

The Tare Weight of the Specimen being tested is counter-balanced by a separate Adjustable Poise.

The 10 Ton Machine illustrated will test Laminated Springs of all lengths up to 9 feet and Coil Springs up to 10 inch diameter.

For testing, the Laminated Springs are placed on Trolleys which travel on a Platform; the Coil Springs rest on a seating at the centre of the Platform; the Trolleys have turned Rollers and Axles and run on planed Tracks on the Platform.

The Pressure is exerted on the Springs by means of an Hydraulic Cylinder and Ram.

Drawings, Specifications, and Prices on application. When ordering or inquiring about this Machine state whether Accumulator Pressure is available or not, and if so state pressure per square inch.

SOHO FOUNDRY, BIRMINGHAM.



No 617

W. & T. AVERY, LIMITED,

Hydraulic Testing Machine.

For Testing Coil Springs in Compression.

For Springs up to 15 in. diameter and 36 in. high.

No. 617.

Capacity, 10 tons.

STRONG Self-contained Hydraulic Machine for testing Coil Springs in Compression.

The Pressure is applied by means of an Hydraulic Cylinder and Ram worked by a Hand Pressure Pump, and the Strain recorded through Levers supporting a Floating Platform on which the Spring rests—the Recording Steelyard being of Improved Pattern dispensing entirely with loose weights.

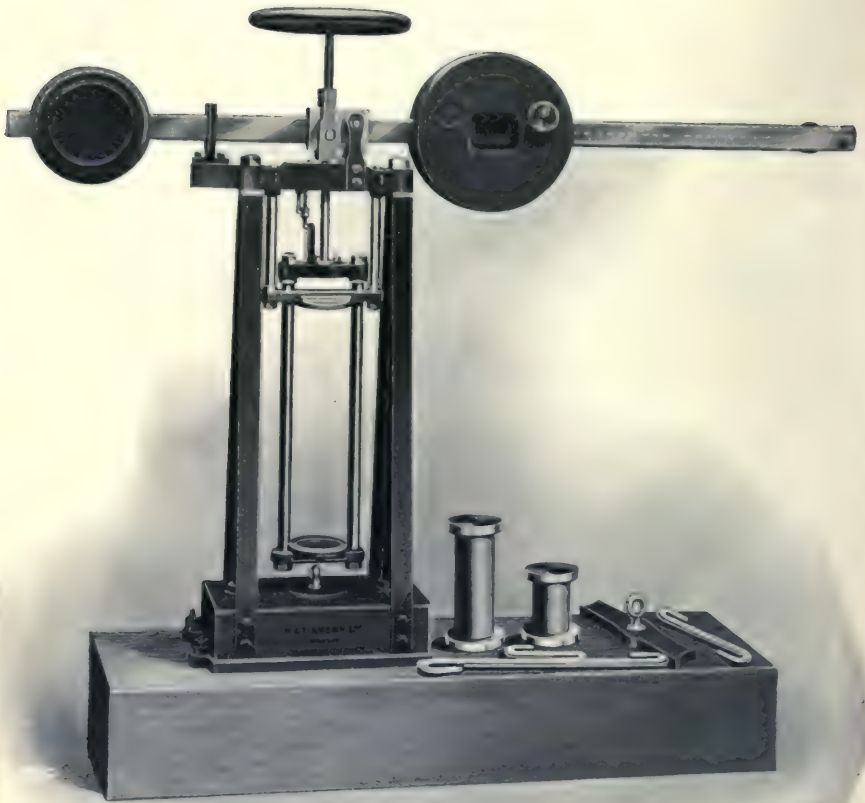
An additional Graduated Scale indicates the Deflection of the Spring under Compression.

The return of the Ram is effected by means of Balance Weights. The Tare Weight of the Springs is counter-balanced by means of a separate Poise upon the Steelyard.

When ordering or inquiring about this Machine please give the following particulars:—

- (1) Maximum Capacity.
- (2) Dimensions of Largest and Smallest Springs to be tested.
- (3) Maximum Deflection required.

SOHO FOUNDRY, BIRMINGHAM.



No. 613

As supplied to Woolwich Arsenal, Spring Manufacturers, &c.

W. & T. AVERY, LIMITED,

Spring Testing Machine.

For Tensile and Compressive Tests.

No. 613

Capacities, 20 and 40 cwt.

HAND **Testing Machine** for ascertaining the Tensile and Compressive Strengths of Spiral Springs for Safety Valves, &c.

The Strain is exerted by means of a Turned and Polished Hand Wheel, and the Pressure applied is indicated on a Steelyard, the Extension or Compression being shown on a Graduated Scale.

With Strong Wrought-iron Steelyard, **Machined and Polished Bright**, fitted with Hardened Steel Knife-edges, and graduated up to the full capacity of the Machine, thus dispensing entirely with Loose Weights. The Steelyard is provided with a Sliding Poise, by means of which the Steelyard is kept in equilibrium and the Strain indicated.

To ensure the Strain being steadily and evenly applied, and the most accurate results attained, a small Hand Wheel is fitted to the Poise for propelling the latter.

The Steelyard has a separate Poise for counterbalancing the Weight of the Spring and Tools used in Testing.

The Machine is provided with Tools easily interchangeable for making Tensile or Compressive Tests, and Distance Blocks and Rods are supplied to allow of Springs of various lengths being tested.

The Materials and Workmanship throughout are of the Best Quality and Finish, and the Machine is thoroughly Tested before leaving our Works.

When ordering or inquiring about this Machine, please give the following particulars :--

- (1) Maximum Capacity.
- (2) Dimensions of Largest and Smallest Springs to be tested.
- (3) Maximum Extension of Springs.
- (4) Maximum Compression of Springs.

SOHO FOUNDRY, BIRMINGHAM.



No. 604

W. & T. AVERY, LIMITED,

Improved "Table Pattern"

Cement Testing Machine.

No. 604

Capacity, 1,000 lb.

SPECIALLY Sensitive "Table Pattern" Testing Machine for Cement, Concrete, &c.

The Test is applied by means of Fine Shot flowing into a Receiver at the end of the Steelyard, which ensures the Strain being evenly and steadily applied, thus attaining the most accurate results. The shot is automatically cut off at the moment the specimen breaks.

The Breaking Strain of the Specimen is ascertained by unhooking the Receiver and Suspending it from the other end of the Steelyard; the Receiver is then weighed on the Steelyard which gives the Strain (in lbs.) at which the specimen broke.

This avoids the use of a separate Weighing Machine and is very much simpler.

Fitted with new pattern Self-adjusting Steel Grips for holding the Briquettes, so designed that the Strain is applied in true alignment, thus preventing any tendency to a lateral strain, which would "tear" the Briquette and give inaccurate results.

Gun-Metal Moulds for making Briquettes of one inch square section are provided at extra cost.

AS SUPPLIED TO CORPORATIONS, CEMENT WORKS, &c.

SOHO FOUNDRY, BIRMINGHAM.

Specification of 300-Ton Horizontal Testing Machine.

**Specially designed and constructed
for the University of Birmingham.**

**The Machine will test whole members of Constructional Work
to destruction, the form of test being either by
Tension, Compression or Bending.**

FOR THE TENSION TEST. The specimen is of a maximum length of 28 ft. and may be of the headed type of the usually prescribed proportions and accurately turned to size, or Bars direct from the Rolls may be inserted in the Machine, the Bars being secured by Grip Wedges.

THE COMPRESSION TEST allows of Columns up to 30 ft. being tested with "free" or "fixed" ends as desired.

THE BENDING TEST will allow of a Steel Girder or a Wooden Beam being tested up to the full Capacity of the Machine, viz. : 700,000 lb., and for spans of any length up to 20 ft.

THE STRAIN IS APPLIED by means of a double-acting Hydraulic Cylinder worked by an Accumulator supplying water at 1,000 lb. per square inch pressure, the return stroke of the Ram being attained by means of the Town Supply of 85 lb. per square inch.

THE LOAD INDICATION IS SHOWN upon a Steelyard which is graduated up to the full capacity—700,000 lb., thus dispensing entirely with loose weights. The Poises are propelled by means of a central Screw and Hand Wheel.

The Machine is provided with an Autographic Stress Strain Indicator by which the behaviour of the Specimen during a test is recorded.

The Knife-edges of the Main Levers are all proportioned to give a length of not less than 1 inch for every 5 tons of Load. They are made of the finest Crucible Cast Steel hardened and accurately ground, and set to Gauge.

The distance between any two Knife-edges of the Lever is arranged to be not less than 10 inches, this provision securing the greatest Accuracy and Sensitiveness for the Machine.

W. & T. AVERY, LIMITED,

Code Words for Weighbridges.

Codes used, 5th Edition, A.B.C. A1.

No. 124. **Wagon Weighbridge**, with Improved Steelyard, Pattern C, as described on page 3.

Capacity.	Size of Platform.	Code Word.
5 tons	12 ft. × 6 ft. 6 in.	Miterone.
5 "	12 ft. × 7 ft.	Mitescant.
10 "	12 ft. × 7 ft.	Mitichero.
10 "	14 ft. × 8 ft.	Mitigamus.
15 "	14 ft. × 8 ft.	Mitologo.
20 "	14 ft. × 8 ft.	Mitregent.

If required with Relieving Apparatus add the word "Relieving" after the Code-word.

If required in any other Standard (instead of English tons cwts. qrs. lb.) state the Standard required after Code-word.

If required with Steelyard graduated in 2 or 3 Standards, add the word "Polygonal" and the Standards required after the Code-word.

If required to print the Weight on Tickets add the word "Printer" after the Code-word.

If required to print the Weight in 2 Standards add the word "Duplex" and the Standards required to the Code-word.

EXAMPLES—

Miterone Metric = 124 C, 5,000 Kilog. 12 ft. × 6 ft. 6 in.

Miterone Polygonal English Indian = 124 P, 5 Ton, 12 ft. × 6 ft. 6 in. graduated in English and Indian.

SOHO FOUNDRY, BIRMINGHAM.

Code Words for Platform Weighing Machines.

Codes used, 5th Edition A.B.C. A1.

No. 112a (page 50). To weigh with loose Proportional Weights, English cwt., qr., and lb.

To Weigh ...	2	3	4	5 cwt.
Code-word ...	Monticule.	Montirung.	Montoncino.	Moqueado.
To Weigh ...	7	10	12	15
Code-word ...	Moquifero.	Morabtano.	Morailles.	Moraleggio.
				20 cwt.
Code-word ...	Morangal.			

No. 104 A (page 52). To weigh with loose Proportional Weights in English tons, cwt., qr., lb.

To Weigh ...	7	10	12	15	20 cwt.
Code-word ...	Moratoria.	Morbidato.	Morbillous.	Morbonia.	Morchioso.

No. 132 (page 56). With Cast-iron head, to weigh with loose Proportional Weights in English cwt., qr., lb.

To Weigh ...	...	4	4	7	11 cwt.
Size of Platform ...		20 × 17	22 × 17	26 × 19	28 × 22 in.
Code-word ...		Mordebam.	Mordechin.	Mordevate.	Mordicus.

No. 195 (page 57). To weigh with loose Proportional Weights in English.

To Weigh ...	400	600	800	1000 lb.
Code-word ...	Mordiscare.	Morditrice.	Morenula.	Moretum.
To Weigh ...	1200	1500	2000	2500 lb.
Code-word ...	Morfondre.	Morigerate.	Moriuntur.	Mornamos.

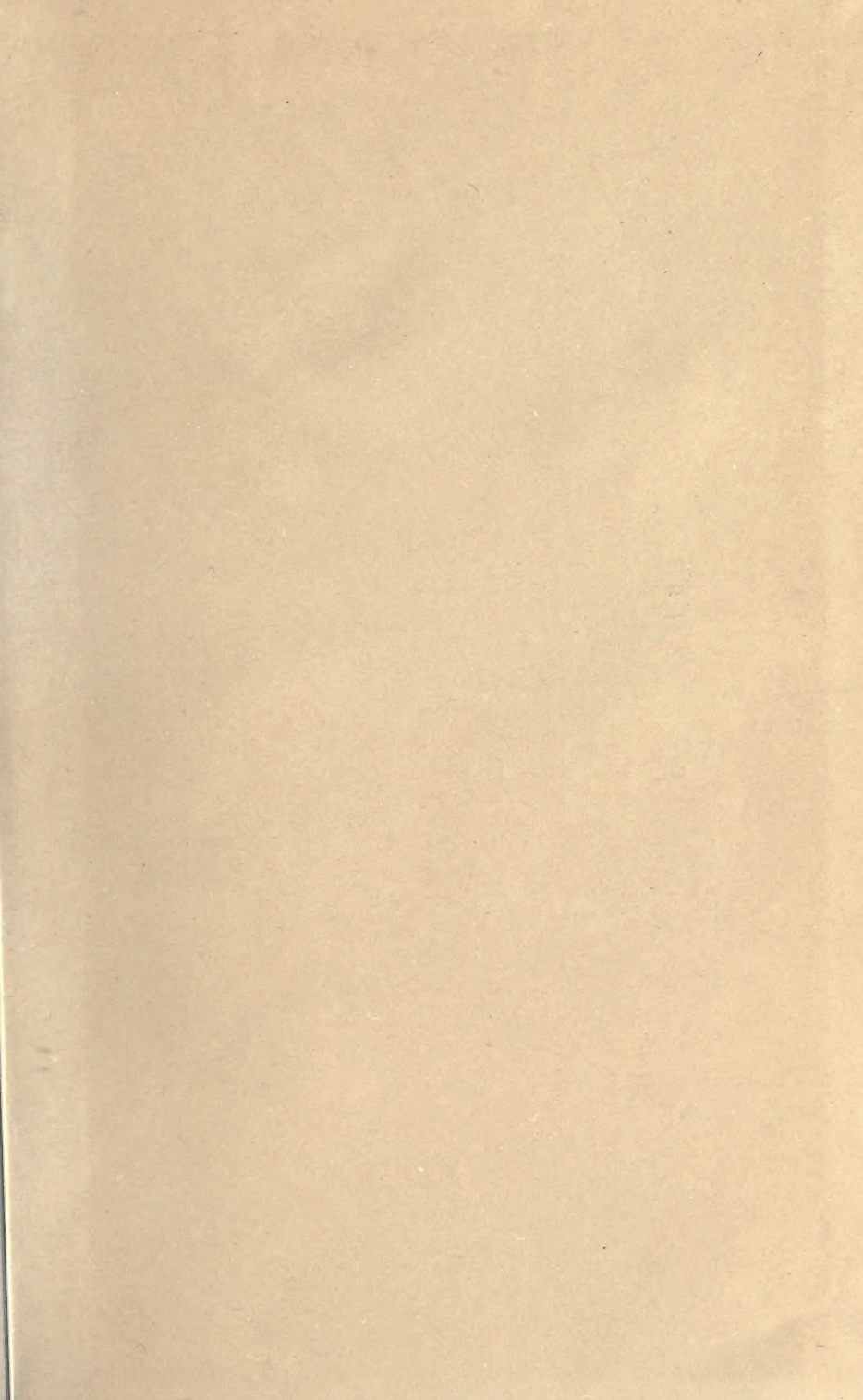
If to weigh in any other Standard add the Standard after Code-word, or if in 2 Standards add both.

EXAMPLES —

Morabtano Decimal = 112a, 10 cwt. size, but to weigh in English Decimals only up to 1,000 lb.

Morabtano English Metric = 112a, 10 cwt., to weigh in both English and Metric.

W. & T. AVERY, LIMITED,



WEIGHING
MACHINISTS BY
ROYAL WARRANT



OF APPOINTMENT
TO HIS MAJESTY
THE KING.

W. & T. AVERY, L^{TD}

SOHO FOUNDRY, BIRMINGHAM.



**LARGEST MAKERS
OF WEIGHBRIDGES
IN THE WORLD.**