HENRY G. ASHTON,
Founder of
The Ashton Valve Company.

Established 1871. Capital, $150,000 Incorporated 1877.

JOHN AVERY, President. FRED A. CASEY, Vice-President
ALBERT C. ASHTON, Secretary and Treasurer.

THE ASHTON VALVE COMPANY

MANUFACTURERS OF THE

ASHTON LOCK-UP "POP" SAFETY VALVES

FOR LOCOMOTIVE, STATIONARY, MARINE,
AND PORTABLE BOILERS

Ashton Water Relief Valves, Hydraulic Relief Valves, Cylinder Relief and Snifting Valves,

Blow-off Valves, Steam Vehicle Fittings, Ashton Chime Whistles,

ASHTON PRESSURE AND VACUUM GAGES

ALSO

REVOLUTION COUNTERS, ENGINE REGISTERS, LOCOMOTIVE, AND MARINE CLOCKS, PRESSURE RECORDING GAGES, GAGE TESTERS, WATER GAGES, GAGE COCKS, WATER COLUMNS, TEST PUMPS, THERMOMETERS, PYROMETERS,
AND HIGH GRADE ENGINE AND BOILER STEAM SPECIALTIES IN GENERAL

MAIN OFFICE AND WORKS:

BOSTON, MASS., U. S. A., - 271 Franklin Street

STORES:

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LONDON, ENGLAND, 63 Crutched Friars.

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NORFOLK, VA.


AWARDED AT THE SIXTEENTH EXHIBITION 1887
AWARDED AT THE TWELFTH EXHIBITION 1874
AWARDED AT THE THIRTEENTH EXHIBITION 1878

Introductory.

WE TAKE great pleasure in presenting to our friends in the trade our newly-revised catalogue for 1906, wherein we have endeavored to specifically cover more particularly the valuable points in our *Ashton Pop Safety Valves and Gages,* thus bringing to notice the meritorious features of these acknowledged high grade goods by concise detailed information, fully illustrated by valuable cuts. "Time rolls swiftly by," and the almost thirty years that The Ashton Valve Company has expended in developing their most valuable specialties has been fully appreciated, and their products still hold an unequaled reputation. Every year genius brings forth some feature of improvement, either in device or application, and it has been our constant endeavor to keep in touch with this advance and progress, so that the vast Railroad and Marine service, Municipal and Manufacturing Power Plants, as well as innumerable smaller steam users, shall be equipped with the most modern devices obtainable, and at a reasonable cost when compared with the quality of manufacture. The large increase in volume of trade has compelled us to make substantial additions to our factory, situated in the heart of the manufacturing centre, giving us increased floor space where we can more readily handle the new devices.

Following the general expansion of export trade in the United States, we have enlarged our field, and now have agencies in the principal foreign cities, and these, together with our agencies in the large American cities, allow us to keep abreast of the ever-increasing trade.

We have always used the highest grade of material and skilled labor in the construction of our Valves and Gages, refusing to sacrifice the quality of our product in order to compete with the low prices quoted by some of our competitors; so the Ashton goods have become standard, and Consulting and Mechanical Engineers, Master Mechanics, and Chiefs of Power Plants, in preparing specifications for new works, should always see that the plant is carefully provided with Ashton goods.

We desire to express our hearty thanks to friendly patrons, hoping our service in the past will merit their continued favors in the future.

THE ASHTON VALVE COMPANY.

The Ashton Lock-up Pop Safety Valves.

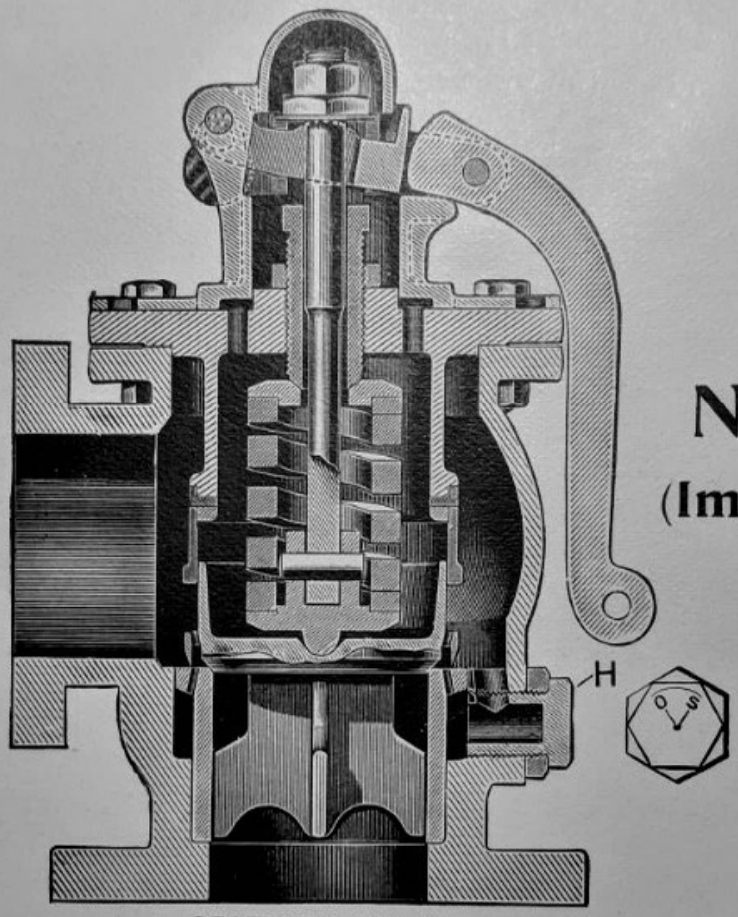
GENERAL DESCRIPTION.

THE mechanical principles upon which our valves are constructed, and the philosophy embodied in their proportions, make them the most perfect and efficient safety valves of which we have any knowledge. When of suitable capacity, these valves give instant and perfect relief to the boiler, and it is impossible to accumulate pressure above the point at which they are set. They are sensitive in action and always reliable. At the given pressure the valve will rise, and cannot be stopped blowing until the relief is given, when the valve will close itself, being perfectly automatic in its working, with nothing to disarrange or get out of order.

The Ashton Pop Safety Valves have now been on the market for more than thirty years, during which time they have met with unusual success and held an unequaled reputation. It has always been the policy of the company to make their product in quality of material and workmanship the best possibly attainable in the state of the art. The result is that Ashton goods are recognized as being the most reliable and durable. Their points of mechanical superiority are explained in detail on the following pages, 11, 12, and

The Ashton Improved Lock=up Pop Safety Valve.

(Patented.)



SECTIONAL VIEW.

No. 3.
(Improved.)

POINTS OF MECHANICAL SUPERIORITY.

BEVEL SEATS.

ALL Ashton Valves are made with bevel seats at an angle of 45 degrees, same as United States Government standard. Bevel seats always keep tighter than flat seats, and are easier to grind in or face off when repairs are necessary.

COMPOSITION, OR NICKEL SEATS.

Our standard seat is made of an extra high quality composition metal equal to United States Government standard, with great wearing qualities, and free from corrosion. *Nickel seats* of the highest grade, however, are furnished, when preferred.

The Ashton Improved Lock-up Pop Safety Valve.

FOR LARGE STATIONARY AND PORTABLE BOILERS.

Thirteen Highest Premiums awarded, both Gold and Silver Medals.

(Patented.)

No. 3.
(Improved.)

Particularly adapted for Boilers for Mills, Factories, Electric Light and Power Plants, Pumping Stations, etc.

This valve has an acknowledged reputation not equaled by any other pop safety valves now on the market. It embodies many valuable patented improvements, including the following:

SPECIAL FEATURES.

Bevel seats at angle of 45 degrees and of highest grade composition steam metal. Nickel seats, extra quality, furnished when desired. Pop chamber with knife-edge pop lip, which wears evenly with valve seat. Encased spring chamber, protecting spring from steam and forming upper guide for valve. Springs of Jessop's steel wound by hand in our own factory. Pivoted top and bottom disks for spring, to insure a true bearing on valve. Screw plug pop regulator to easily regulate pop from outside without taking valve apart. Compound adjustable cam lever, readily

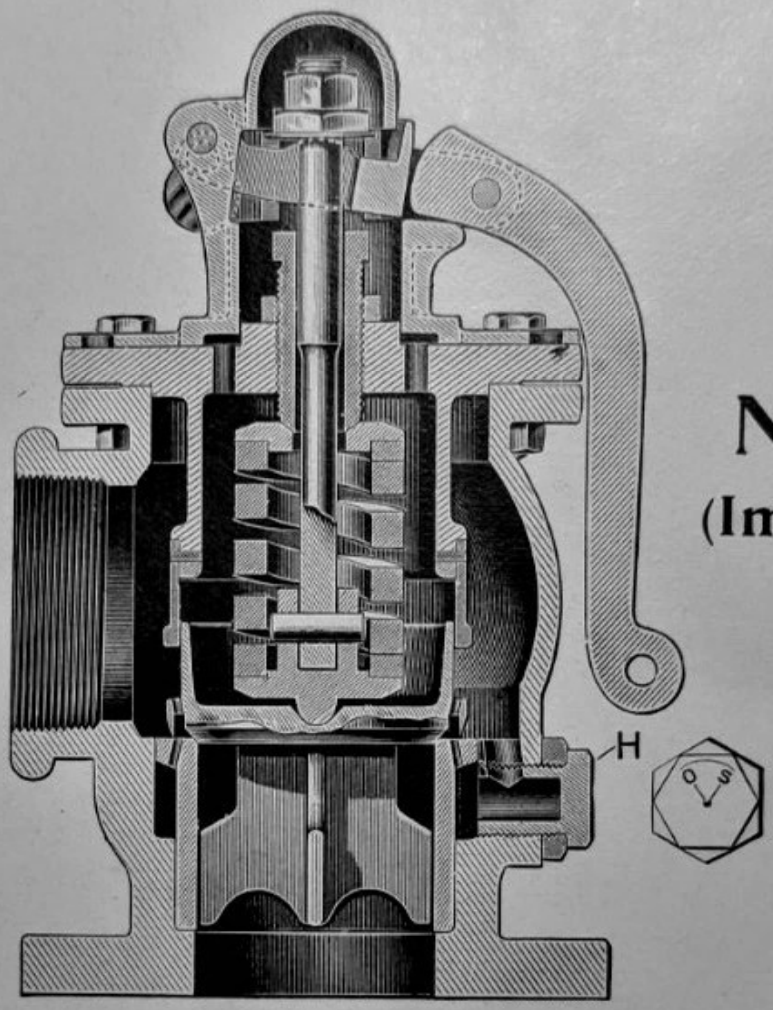
The Ashton Improved Lock-up Pop Safety Valve

FOR LARGE STATIONARY AND PORTABLE BOILERS.

Adopted by the United States Government, recommended by leading architects and engineers with a record of more than thirty years' service.

(Patented.)

Valves sent on trial subject to approval only if entirely satisfactory.



No. 3.

(Improved.)

DIRECTIONS.

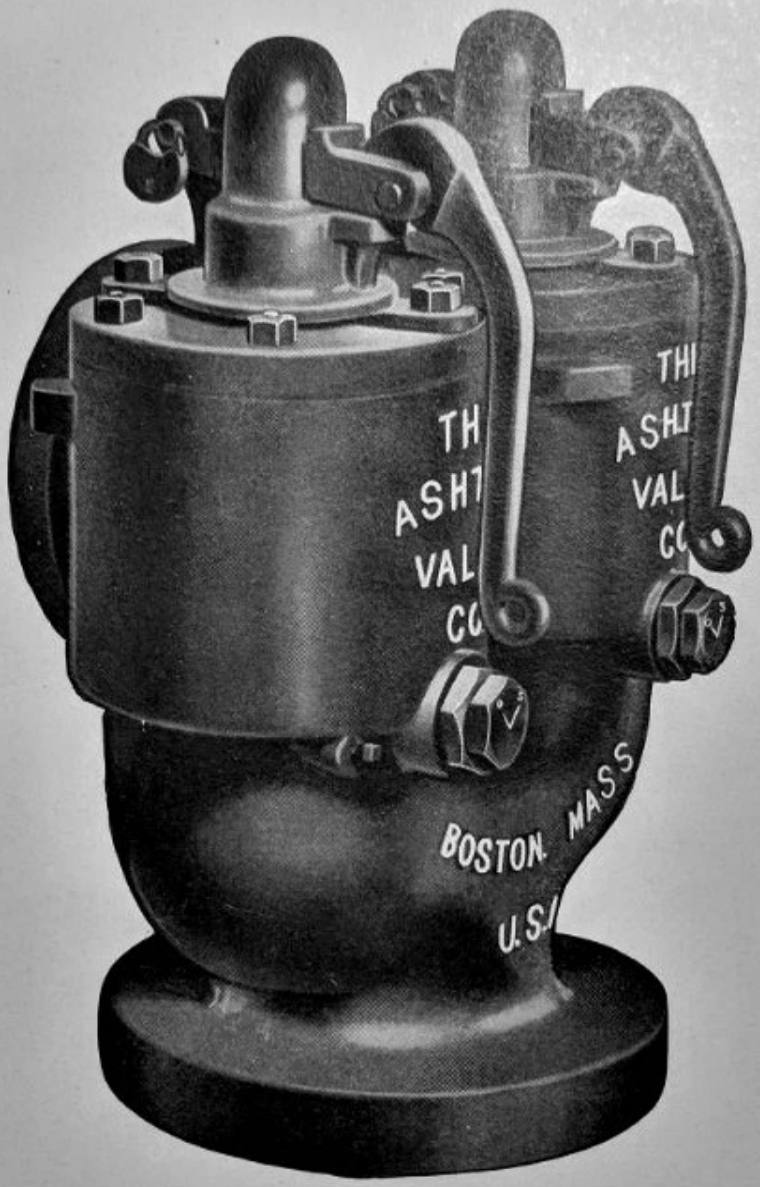
TO CHANGE SET PRESSURE unlock padlock and remove lock, pin, and lever. Take off cap by unbolting, thus exposing pressure screw. Slack check nut on screw and turn screw downward for increased pressure or upward for less pressure. Afterwards set up check nut. When it is desired to change set pressure more than fifteen pounds above or below original set pressure, new springs should be ordered to obtain the greatest efficiency.

TO CHANGE "POP," or the amount of reduction in pressure when the valve operates, it is *not necessary* to take the valve apart in any way. This can be accomplished by means of the patent screw plug pop regulator H on the outside back part of the valve. If more pop is desired, slack the check nut and turn regulator slightly to the left, so that letter S stands nearer perpendicular, or for less pop turn regulator to the right until letter O is nearer perpendicular. One-sixth of a turn of this regulator gives the full range of adjustment.

PRICE LIST.

Size Valve	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in.	5½ in.	6 in.
Price	$30	$40	$55	$64	$70	$80	$85	$105	$125
Diameter of Inlet Flange	7 in.	8 in.	9 in.	10 in.	10 in.	12 in.	12 in.	14 in.	14 in.

The Ashton
Twin Stationary Pop Safety Valve.



No. 5.
(Twin.)

It is fast becoming the practice in the large stationary boiler service, particularly in connection with water tube boilers, and where it is not feasible to apply one large valve, to equip boilers with valves made in the twin form, the two valves having a total area equal to that of the proper sized single valve. By this form of construction but one valve connection is necessary on the boiler, and with the valve parts made in one casting, and having one common discharge outlet, there is therefore but one outlet connection.

The above cut shows the Ashton Twin Stationary Valve, which is made with iron body and interior working parts same as the No. 3 style valve, as explained in detail on pages 11, 12, and 13.

PRICE LIST.

Size Valve ...	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in.	5½ in.	6 in.
Price	$70	$90	$125	$145	$155	$175	$190	$235	$280
Diameter Inlet Flange	8¼ in.	9 in.	10 in.	12 in.	14 in.	15 in.	15 in.	16 in.	17 in.

The Ashton Pop Safety Valves.

FOR SMALL STATIONARY AND PORTABLE BOILERS.

(Patented.)

No. 6.

VALVE WITHOUT CAP OR LEVER.

No. 7.

VALVE WITH CAP ONLY.

THESE valves are made of high-grade composition metal, and the springs of Jessop's steel. They give perfect relief, are solid in construction, and durable.

No. 6. VALVE has patented knife-edge pop lip, encased spring, pivoted disks, and open discharge outlet.

No. 7 VALVE is similar, but is furnished with top cap to cover and protect pressure screw.

TO CHANGE PRESSURE on these valves, slack check nut and turn pressure screw down for increased pressure or upward for less pressure, then set up check nut. When it is desired to change set pressure more than 15 pounds above or below original set pressure, new springs should be ordered to obtain the greatest efficiency.

PRICE LIST.

Size Valve	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.	3 in.
No. 6 Valve. Price	$4.50	$6.50	$8.50	$10.00	$20.00	$32.00	$40.00
No. 7 Valve. Price	5.00	7.00	9.00	10.50	20.50	33.00	41.00

The Ashton
Lock-up Pop Safety Valves.

FOR SMALL STATIONARY AND PORTABLE BOILERS.

(Patented.)

No. 8.

VALVE WITH LOCK-UP, LEVER, AND OPEN DISCHARGE.

No. 9.

VALVE WITH LOCK-UP, LEVER, AND PIPE OUTLET.

THESE valves are recommended for small-size stationary or portable boilers They are made throughout of the best composition metal, with the exception of the springs, which are of Jessop's steel; automatic in relief, durable, and efficient.

No. 8 VALVE has lock-up attachment, trip lever, patented knife-edge pop lip, encased spring, pivoted disks, and open discharge outlet.

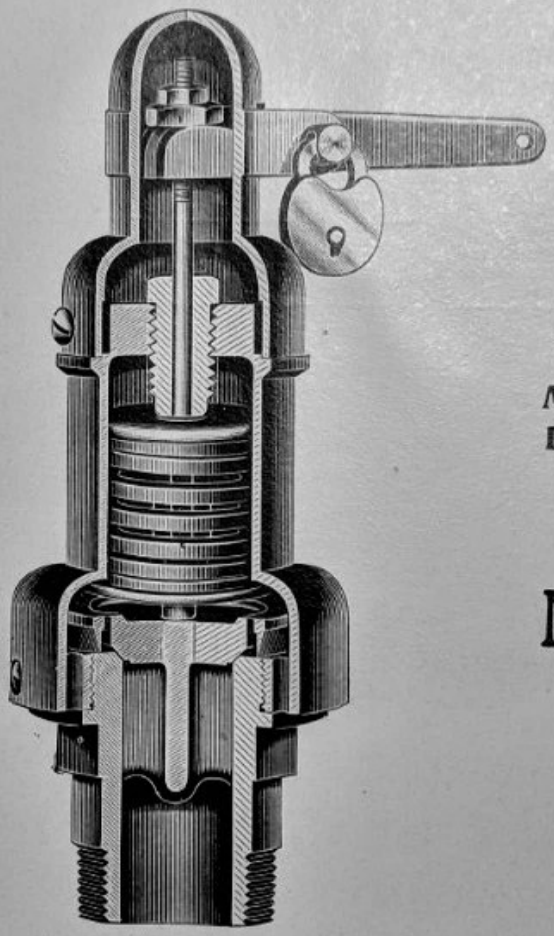
No. 9 VALVE is the same as the No. 8 Valve, but with the additional improvement of having pipe outlet.

PRICE LIST.

Size Valve	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.	3 in.
No. 8 Valve. Price	$6.00	$8.00	$10.00	$12.00	$22.00	$34.00	$48.00
No. 9 Valve. Price	7.00	9.00	11.00	14.00	25.00	40.00	50.00

The Ashton Special
Steam Heating Pop Safety Valves.

(Patented.)



The Original Massachusetts District Police Pop Safety Valve.

No. 14.

The above valve, as shown in section, is especially adapted for use on low-pressure boilers in the steam-heating service, where the pressure does not exceed fifty pounds per square inch. It has many valuable features, the following being among the most prominent: Under Discharge Outlet, which prevents dust or dirt getting into the valve and clogging the interior working parts; Lock-up Attachment, which insures it against being tampered with by evil disposed persons, or otherwise; Trip Lever, which makes it possible at all times to try the valve. This valve is made of our usual high-grade composition metal, highly polished, and the spring of Jessop's Steel.

The Police Valve.

THE ASHTON POLICE VALVE is the original valve, as approved by the Massachusetts District Police, and is the same as the No. 14 style, shown in the above cut, with the exception that it is so made that it is absolutely impossible to set it at a pressure over 15 pounds, and fully complies in every respect with the Revised Engineers' Law, as passed by the Massachusetts State Legislature (Chapter 546, Acts of 1896). Low-pressure boilers, in the *State of Massachusetts*, equipped with this valve, do not require licensed engineers to operate them.

PRICE LIST.

Size Valve	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.	3 in.
Price	$6.00	$8.00	$10.00	$12.00	$22.00	$34.00	$48.00

Write for Discounts.

Rule for Size:—One square inch of safety-valve area for

Hartford Statistics.

Figures furnished by the Hartford Steam Boiler Inspection and Insurance Company, Hartford, Conn., from the reports to them from their inspectors among the various steam plants in the country. Look at the results:

Year.	Safety Valves Overloaded.		Safety Valves Defective.	
	Whole No.	Dangerous.	Whole No.	Dangerous.
1887	433	139	423	146
1888	473	146	542	176
1889	542	167	713	221
1890	535	159	795	254
1891	675	193	804	242
1892	701	210	947	301
1893	723	203	942	300
1894	835	267	1,159	378
1895	954	270	1,209	369
1896	900	270	1,264	326
1897	764	292	1,066	317
1898	691	263	913	251
1899	972	433	1,028	275
1900	1,003	398	1,077	354
1901	1,180	438	932	323

From organization of the Company to January, 1902:

Total number of safety valves found overloaded 12,789
Total number of safety valves defective 15,591
Total number of safety valves found to be in a *dangerous* condition 7,215

MORAL. — Use the Ashton Lock-up Pop Safety Valves, that cannot be tampered with or overloaded, and the construction of which is the most simple, durable, and reliable of any made. The Ashton fills

The Ashton
Cam Lever Marine Pop Safety Valve.

Our Marine Pop Valves are extensively used, have exceptional merit, and possess an unequaled reputation. During the past few years a large number of famous American Steamship and Steam Ferry Companies, together with several Foreign Transportation Companies, have adopted the "Ashton" as their standard in preference to the cheaper class of valves heretofore used.

They have received the official indorsement of the Chief Engineer of the United States Navy, and have been applied to many of the latest battleships, cruisers, and gunboats.

The Ashton Marine Valve embodies all the valuable features of the Ashton Pop Safety Valves, described on pages 11, 12, and 13, and in addition has our patent Cam Lever attachment whereby the valve can be lifted off its seat by hand, even more than the requirement of the government. It is one of the few valves that conforms promptly, fully, and efficiently to this requirement. (See page 24).

The Ashton
Noiseless Marine Pop Safety Valves.

By a special method of application the Standard Ashton Marine Pop Valve, embodying as it does our patent blow-back head, described on page 13, can be made to give perfectly noiseless relief, which feature is of inestimable value in marine service. This special method for accomplishing this greatly desired result is obtained by piping the outlet of the valve down the inside of the hull and out into the water below the surface water-line, where the steam from the valve as it blows off is discharged *noiselessly* and *unseen.* THERE IS NO EFFECTIVE BACK PRESSURE on top of the valve.

The Ashton
Cam Lever Marine Pop Safety Valves.

The General Rules and Regulations as prescribed by the United States Board of Supervising Inspectors of Steam Vessels, as amended, requires that all pop safety valves shall be equipped with a lever capable of lifting the valve off its seat one-eighth the diameter of the valve opening. The seats of all such valves shall be beveled at an angle of 45 degrees.

All pop safety valves shall have an area of not less than one square inch of valve area to every three square feet of grate surface, with the exception of water-tube or coil and sectional boilers required to carry a pressure exceeding 175 pounds per square inch, in which case one square inch of valve area to six square feet of grate surface is allowable.

Valves in twin form are permissible, providing the combined area of such valves is equal to that required for one valve.

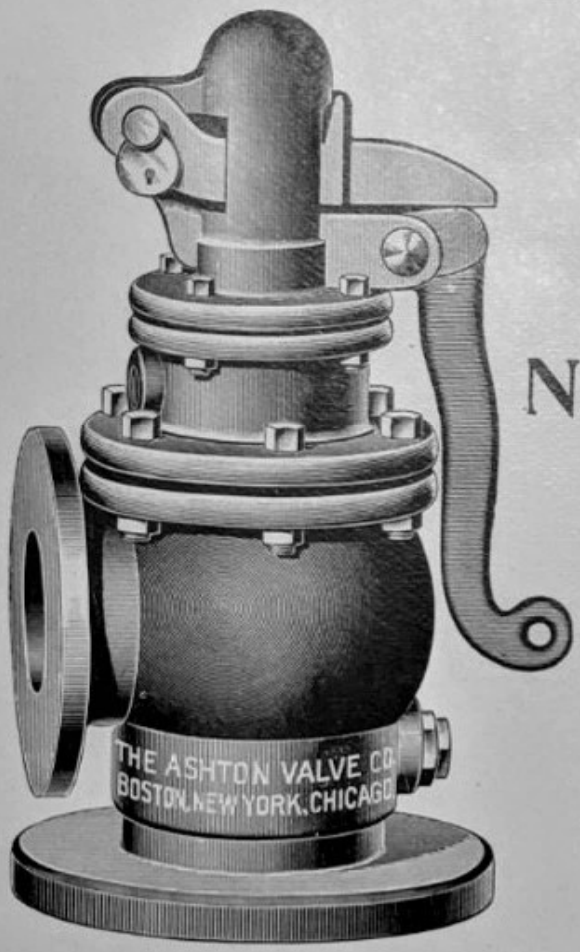
In all cases pop safety valves shall be approved by the Board of Supervising Inspectors.

The Ashton Cam Lever Marine Pop Safety Valves, as illustrated and described on pages 23 to 29 inclusive, fully comply with the above Rules and Regulations of the United States Board of Supervising Inspectors.

The Ashton
Cam Lever Marine Pop Safety Valve.

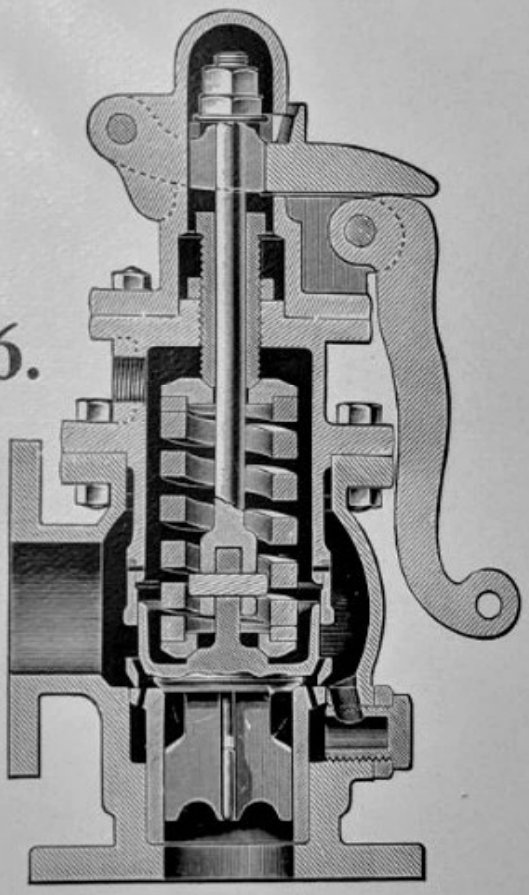
WITH LOCK-UP ATTACHMENT.

(Patented.)



No. 16.

IRON MARINE VALVE.



Adopted by the United States Board of Supervising Inspectors of Steam Vessels. Approved and accepted by the United States Navy Department and Lloyd's Register.

This valve is especially adapted for marine service on steamships, towboats, steam yachts, etc., and is the standard valve on many of the large steamship lines. It is in use on several of the latest United States battleships, cruisers, and gunboats. having been accepted by the Chief Engineer of the United States Navy. Explained in detail on pages 11, 12, and 13.

The several advantages in the Ashton Cam Lever Marine Pop Valve, as explained on page 23, show conclusively the superiority of the valve, and give it the high reputation it possesses.

Unless otherwise stated, all marine valves above 2-inch size are made with flanged inlet and outlet.

In ordering always state highest working pressure.

"Nickel Seated" valves furnished when desired.

PRICE LIST.

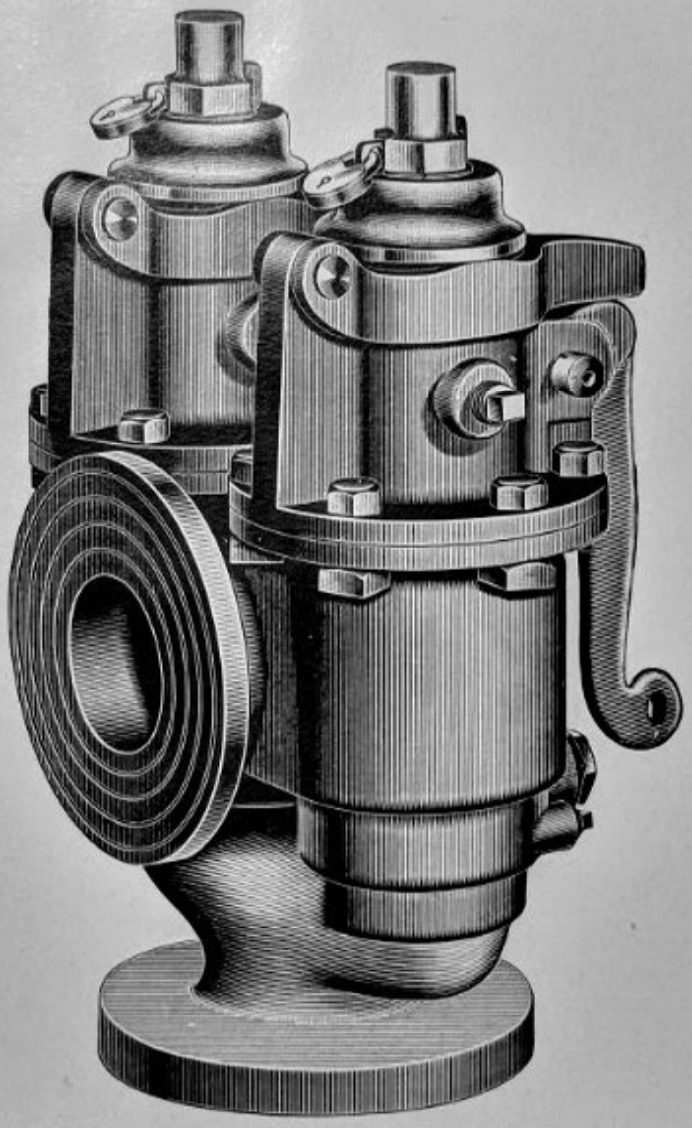
Size Valve	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in.	5½ in.	6 in.
Price	$38	$48	$66	$75	$84	$95	$102	$125	$150
Inlet Flange.....	...	8 in.	9 in.	10 in.	10 in.	12 in.	12 in.	14 in.	14 in.
Outlet Flange....	...	7 in.	7½ in.	8 in.	8½ in.	9 in.	9½ in.	10 in.	10½ in.

The Ashton Twin Cam Lever Marine Pop Safety Valve.

WITH LOCK-UP ATTACHMENT.

(Patented.)

No. 16A. (Twin.)



Adopted by the United States Board of Supervising Inspectors of Steam Vessels. Approved and accepted by the United States Navy Department and Lloyd's Register.

The valve as shown in the above cut is designed throughout to meet the demand where it is desired to use an iron body valve of the twin form. These valves are made under the same patents as our No. 16 valve, as shown on page 26.

The several meritorious features in the Ashton Twin Cam Lever Marine Pop Valves are more fully explained on pages 11, 12, 13, and 23.

These valves are also made in triplex and quadruple pattern.

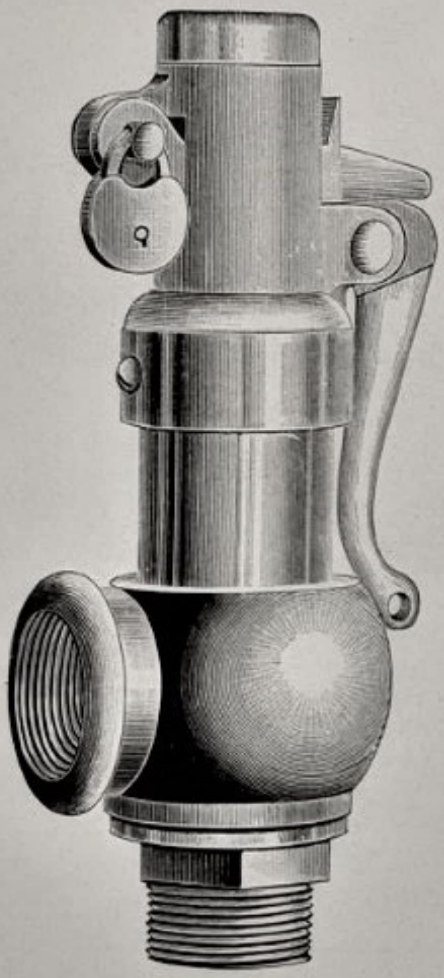
PRICE LIST.

Size Valve	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in.	5½ in.	6 in.
Price (Iron Body)..	$85	$110	$150	$170	$190	$215	$230	$280	$340
Diam. Inlet Flange.	8¼ in.	9 in.	10 in.	12 in.	14 in.	15 in.	15 in.	16 in.	17 in.
Diam. Outlet Flange	7½ in.	8½ in.	9 in.	9 in.	10 in.	11 in.	11½ in.	11½ in.	12 in.

The Ashton
Cam Lever Marine Pop Safety Valve.

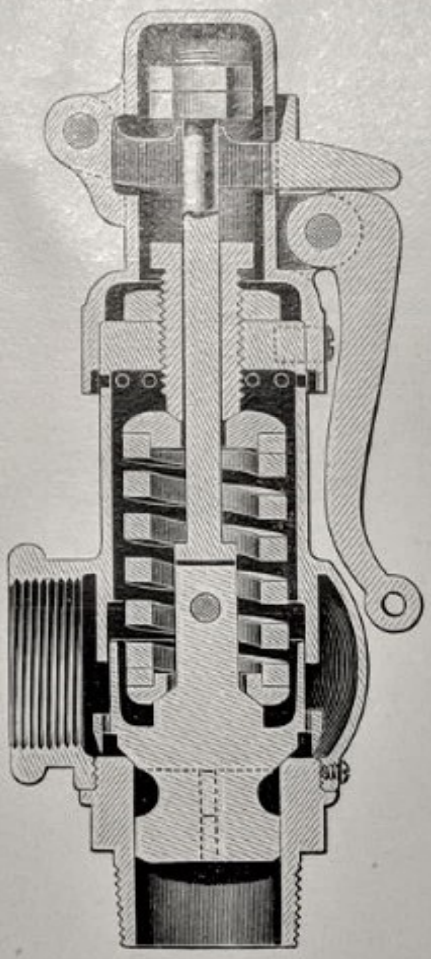
WITH LOCK-UP ATTACHMENT.

(Patented.)



No. 15.

COMPOSITION
YACHT VALVE.



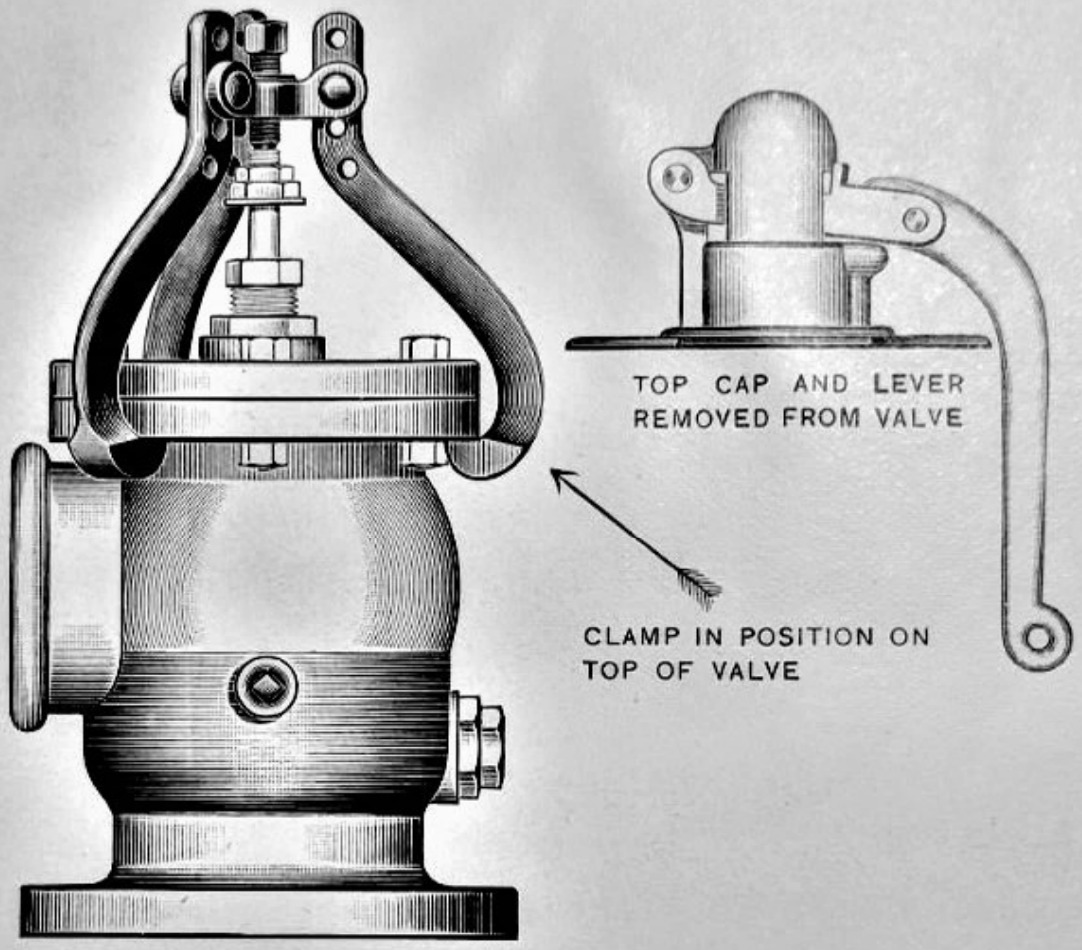
This valve is made of composition metal, finely finished, and is recommended more especially for steam yachts. It has bevel seat, encased spring, cam lever lifting-attachment, and fully complies with the rules and regulations of the United States Board of Supervising Inspectors of Steam Vessels. The valve has pipe outlet, so that the steam discharge may be carried outside boiler room. These valves are made with flanged connections to order, at special prices.

PRICE LIST.

Size Valve	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.	3 in.	3½ in.
Price	$7.20	$9.60	$12.00	$14.40	$25.00	$40.00	$55.00	$70.00

Write for Discounts.

The Ashton
Valve Testing Clamps.



These are furnished with our Stationary and Marine Pop Safety Valves when desired, at no extra expense. They are of special value when boilers are tested, for by their use the Pop Safety Valve does not have to be taken off, nor is it necessary to in any way change the original adjustment of the set pressure of the valve, thus saving the valve spring from excessive and undue strain. The clamps are easily applied, after first removing the valve cap, by placing the ends of the clamp arms beneath the flange of the valve top and then setting down the clamp screw on to the top of valve stem, thus holding the valve rigidly on its seat. After test is over, remove clamp and replace cap on valve, when it will be found that valve will work perfectly at exactly same pressure as originally set.

Don't forget to remove clamp after test is

The Ashton Standard Yokes.

No. 11.

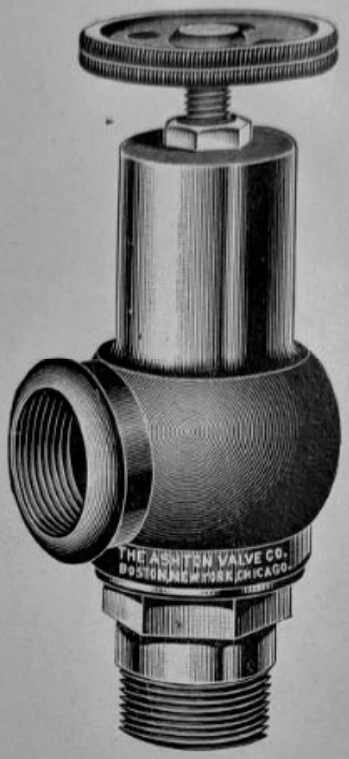
The Ashton Standard Yokes as illustrated above are made of the same quality metal as our No. 3 and No. 16 valves, and are guaranteed to be free from blow holes and other defects. They are of an extra heavy pattern, and particular attention is given that they may meet the requirements as demanded by the users of safety valves.

PRICE LIST.

Size	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in.	5½ in.	6 in.
Price.....	$14	$18	$22	$24	$26	$30	$35	$42	$50
Diameter Top Flanges	7 in.	8 in.	9 in.	10 in.	10 in.	12 in.	12 in.	14 in.	14 in.
Diameter Bottom Flanges	8 in.	8 in.	9 in.	11 in.	12 in.	13 in.	14 in.	15 in.	16 in.
Diameter Inlet Hole	3 in.	3½ in.	4¼ in.	5 in.	5¾ in.	6⅜ in.	7 in.	7⅞ in.	8½ in.

The Ashton Water Relief Valve.

SMALL COMPOSITION PATTERN.



No. 24.

This valve is made of our standard high grade composition metal, finely finished, and is adapted for the same service to which the No. 22 style valve is applied, only on a smaller scale. It is automatic in relief, and equipped with hand wheel for easy adjustment, being also fitted with spring of Jessop's steel.

DIRECTIONS.

To change pressure, turn wheel down for more and *vice versa* for less pressure.

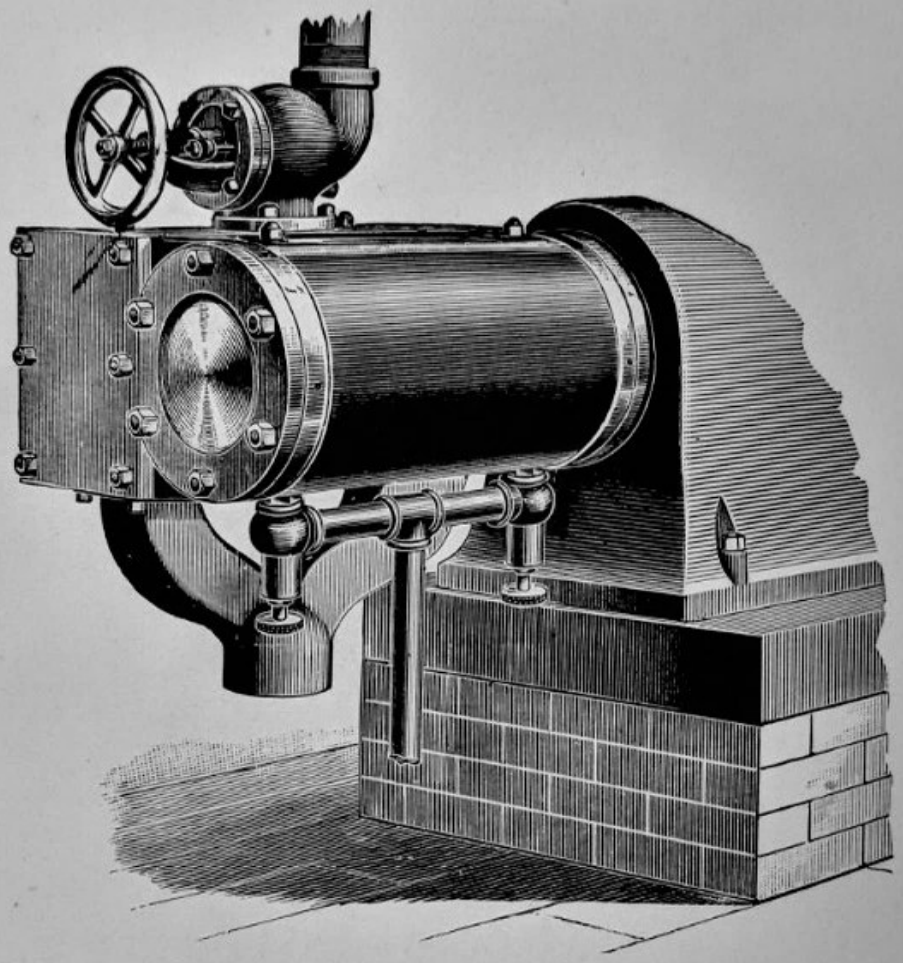
PRICE LIST.

Size Valve .	1/8 in.	1/4 in.	3/8 in.	1/2 in.	3/4 in.	1 in.	1 1/4 in.	1 1/2 in.	2 in.	2 1/2 in.	3 in.
Price	$5.00	$5.00	$5.50	$5.50	$7.00	$9.00	$12.50	$16.50	$23.00	$40.00	$65.00

Write for Discounts.

The Ashton Cylinder Relief Valve.

No. 10.



With an Ashton Cylinder Relief Valve of sufficient size applied to each end of a steam-engine cylinder, perfect safety is assured. No danger of blowing cylinder heads out or doing other damage by the accumulation of water in the cylinder. This valve is provided with wheel top, so that the set pressure can readily be changed as desired. When specially requested, these valves are made with side connection on bottom part for indicator attachment.

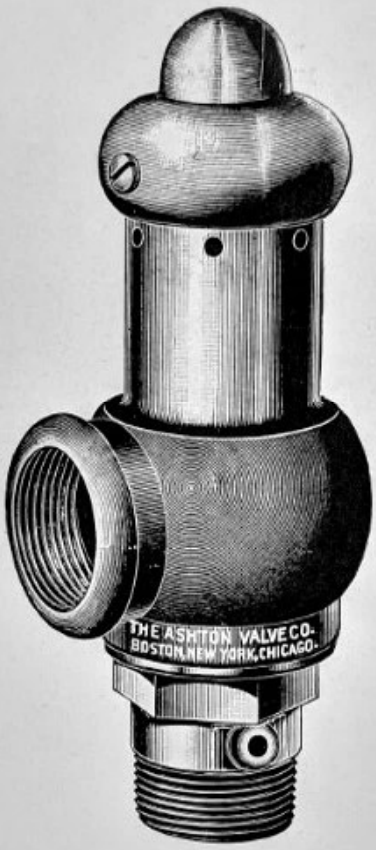
In ordering state highest pressure, the usual custom being to set the valves to relieve at from 10 to 15 pounds higher than highest working pressure.

This valve made of composition metal, finely finished throughout, with Jessop's steel springs.

PRICE LIST.

Size Valve.	⅛ in.	¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.
Price	$5.00	$5.00	$5.50	$5.50	$7.00	$9.00	$12.50	$16.50	$23.00	$40.00

The Ashton Snifting Relief Valve.



No. 18.

This Snifting Valve is used on cylinders, condensers, or in any place where a quick-working relief valve is needed. It is made of composition metal with pipe outlet, and similar in construction to the No. 10 Valve shown on opposite page.

As shown in the above cut, this valve is quite commonly made with extra side-pipe connection on bottom part for indicator attachment. This is not furnished, however, unless specified on the order.

Always give highest working pressure when ordering.

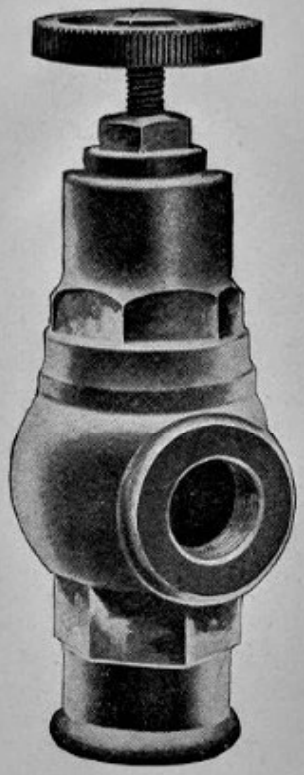
PRICE LIST.

Size Valve	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.
Price	$5.50	$7.00	$9.00	$12.50	$16.50	$23.00	$40.00

Write for Discounts.

The Ashton Ammonia Relief Valve.

(Patented.)



No. 23.

THE ONLY VALVE OF ITS KIND THAT WILL REMAIN TIGHT IN CONTINUED SERVICE.

The ASHTON AMMONIA RELIEF VALVE is made entirely of iron with the exception of the spring, which is of Jessop's steel. The interior valve part is of SPECIAL FORM and makes an ABSOLUTE TIGHT SEATING on an inserted lead ring, which special feature is not found in other valves and overcomes the trouble of the LEAKING OF THE AMMONIA, GAS, OR LIQUID, which is not only expensive, but very objectionable.

This valve has both inlet and outlet connections on the base casting, whereby it can be taken apart without disturbing the piping.

PRICE LIST.

For Pressures up to 20 Pounds. All Connections Screwed.

Size Valve.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.	3 in.
Price.....	$6.50	$8.00	$10.00	$15.00	$18.00	$26.00	$45.00	$65.00

For Pressure up to 300 Pounds. Either Flanged or Screwed Connections.

Size Valve.	1½ in.	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in.	5½ in.	6 in.
Price.....	$30	$40	$60	$75	$80	$85	$105	$125	$140	$150

The Ashton Hydraulic Relief Valve.

FOR EXTREME HIGH-PRESSURE SERVICE.

No. 25.

Our Hydraulic Valves are made to suit any pressure, and are extensively used on hydraulic presses and pumps, or wherever an automatic high pressure relief is required. They are solidly constructed, of material of great tensile strength, and so made that they can be taken apart to grind in the seat or otherwise clean the valve part, without breaking the inlet or outlet connection.

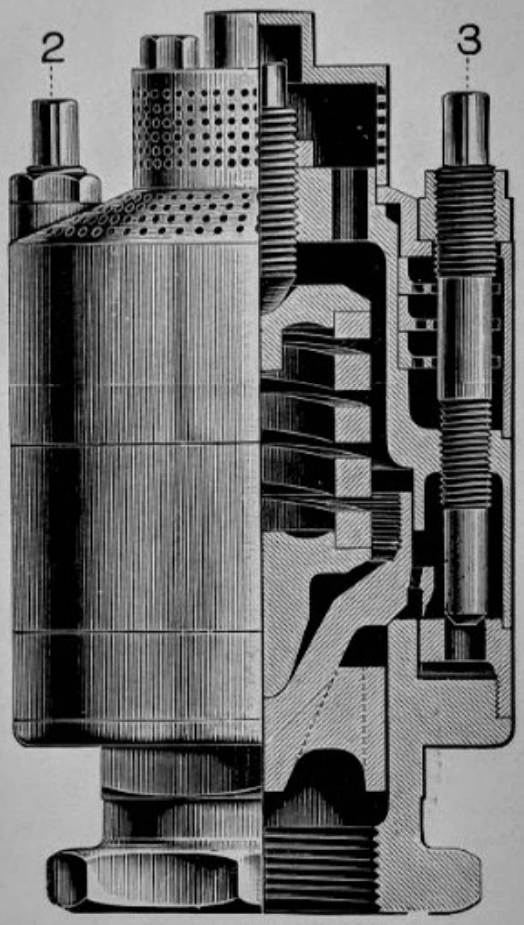
They are made in all sizes, usually of our high grade composition metal, with the springs of Jessop's steel.

In ordering the size valve and highest working pressure should always be stated, and whether flanged or screwed connections.

Prices on Application.

The Ashton Improved Locomotive Muffler Pop Safety Valve.

(Patented.)



SECTIONAL VIEW.

No. 30.

OUR MUFFLER PATENTS.

June 3, 1884.
Dec. 13, 1892.
Apr. 25, 1893
June 6, 1893.
Apr. 2, 1895.

The only muffler having a practical and efficient top outside adjustment for regulating the pop; saves time and expense, increases efficiency and durability. Ashton Muffler patents control the only practical method of regulating the pop without taking valve apart or removing it from the locomotive.

Ever since the introduction of the first Ashton Patented Muffler Valve there has been a steady and ever-increasing interest among railroads in the adoption of this style valve, until now it is by far the greatest in demand. The quiet yet efficient relief given by the muffler in contrast with the noisy open pop valve is universally appreciated, and railroads are fast adopting muffler valves for the working valves on their engines. In some states the law requires the use of them on all locomotives.

Ashton Improved Muffler Valves are guaranteed to give unequaled efficiency and durability, showing lowest cost for repairs.

SPECIAL NOTICE.

We will at any time send one or more of either of our different styles of locomotive valves on trial, subject to approval only if satisfactory after having been in actual service.

These valves are made with Special Threads, to fit any size dome connections, thus enabling a railroad to keep its Standard.

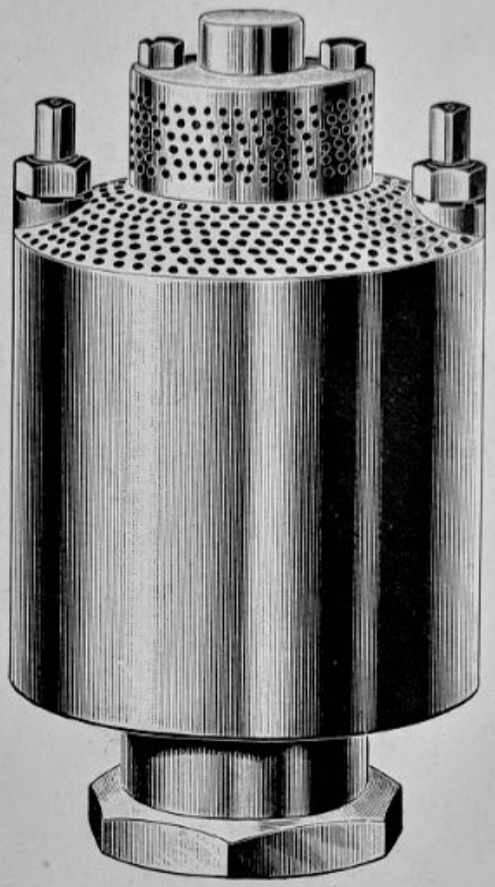
DIRECTIONS.

TO CHANGE "POP," slack check-nut on either one or both of the top regulators (numbered 2 and 3), and screw down for increased "pop" or contrary for less "pop."

TO CHANGE SET PRESSURE, first unbolt and remove top cap, thus exposing the pressure

The Ashton Improved Locomotive Muffler Pop Safety Valve.

(Patented.)



For instructions how to adjust valves, see opposite page.

No. 30.

Valuable patented improvements have recently been made to the Ashton Locomotive Muffler Pop Safety Valves, and we would especially call the attention of our railroad friends and prospective customers to the several practical advantages over the former style and over any other make now on the market. In railroad practice it is well known that to get the greatest efficiency and durability from pop safety valves, the pop (or difference between the opening and closing pressures) should be occasionally regulated, as, for instance, shortly after the valve has been put into use and got down to good working order, and also after having been repaired, or in case the spring has materially lightened up. Heretofore means have been provided for making this necessary regulation of the pop, but no thoroughly practical way had been devised to accomplish the desired result without taking the valve apart and changing the set pressure, or else removing it from the locomotive. Ashton patents, however, now embody a form of regulation adjustable from the outside top part of the muffler casing, which is always accessible and does not require the valve to be taken apart or to be removed from the engine. All that it is necessary to do is to turn either or both of the two regulating posts, marked 2 and 3, as shown, to the right or left, according to whether the pop is desired to be more or less, and this regulation can all be done while steam is on the boiler and the locomotive in service. This gives a great saving in time and makes it possible to keep the pop safety valve always in perfect working order, which means less repairs and greater durability besides increased efficiency.

PRICE LIST.

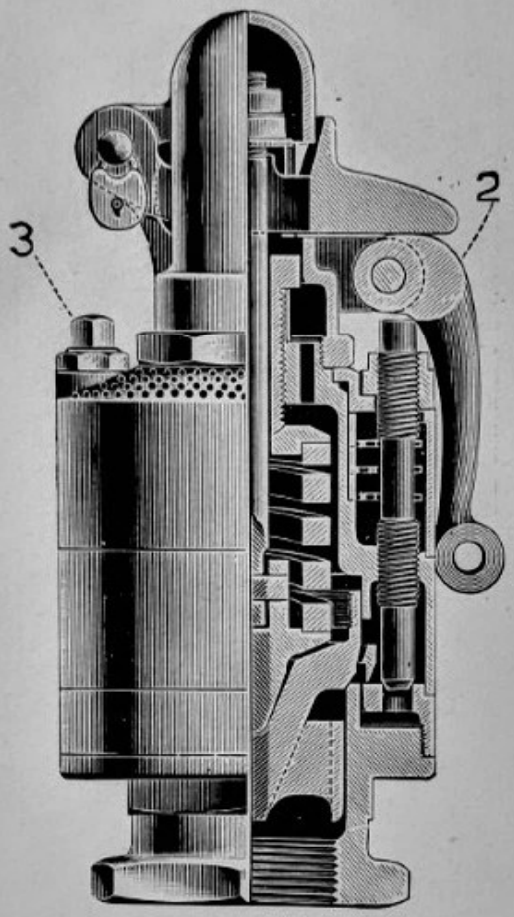
Size Valve	2½ in.	2¾ in.	3 in.	3½ in.
Price	$88	$93	$97	$100

Write for Discounts.

The Ashton Improved Cam Lever Locomotive Muffler Pop Safety Valve.

(Patented.)

No. 30A.



SECTIONAL VIEW.

Muffler Valves sent on trial subject to approval only if satisfactory, and can be returned at our expense if found otherwise.

The above Muffler Valve is fitted with Cam Lever attachment, by which means it can be easily tripped by hand, the same as the No. 29 style valve, as shown on page 44.

DIRECTIONS.

TO CHANGE "POP," slack check-nut on either one or both of the top regulators (numbered 2 and 3), and screw down for increased "pop," or contrary for less "pop."

TO CHANGE SET PRESSURE, first unlock and take out fork; then remove top cap by unscrewing, thus exposing the pressure-screw; then slack check-nut, and turn pressure-screw down for increased or upward for less pressure; afterwards set up check-nuts, etc. When it is desired to change set pressure more than fifteen pounds above or below original set pressure, new springs should be ordered to obtain the greatest efficiency.

PLEASE NOTE FOLLOWING SUGGESTIONS.

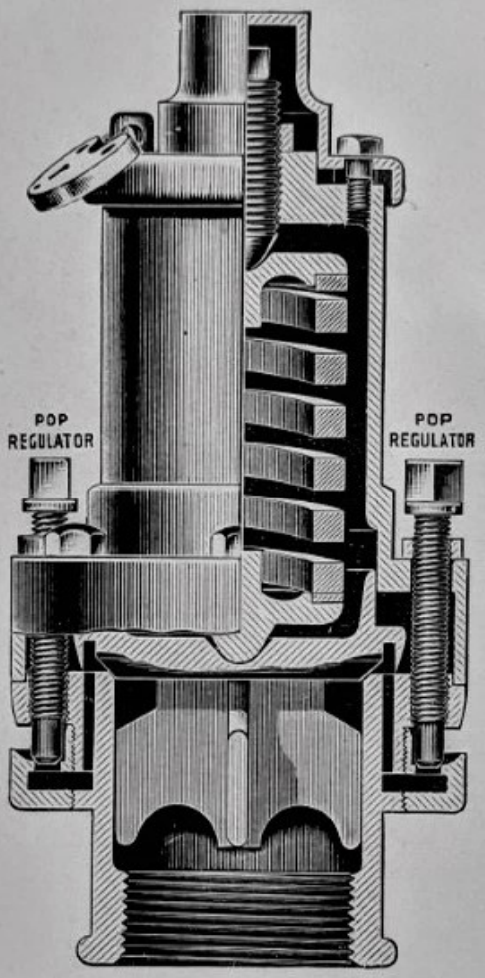
Our Pop Safety Valves are set at our works at the required pressure; but if, after being in use a few days, they should blow off at a slightly lower pressure (as is likely to be the case with any new valve), please see that the pressure is set back promptly to the original pressure again. If allowed to run light, it causes the valve to remain on a balance, and hammer to its injury. When adjusted in this way once or twice, as needed, the muffler should run for years without further readjustment.

PRICE LIST.

Size Valve	2½ in.	2¾ in.	3 in.	3½ in.
Price	$98	$103	$108	$117

The Ashton Improved Locomotive Open Pop Safety Valve.

(Patented.)



Locomotive Open Pop Valves sent on trial subject to approval if satisfactory; can be returned at our expense if found otherwise.

No. 28.

The only open pop valve having a practical and efficient top outside adjustment for regulating the pop; saves time and expense, increases efficiency and durability. Our open pop patents control the only practical method of regulating the pop without taking valve apart or removing it from the locomotive.

The Ashton Open Pop Valve stands without a peer in points of construction, efficiency, and durability. No other open pop valve holds an equal reputation on the railroads of this or foreign countries. It is the only valve of its kind made with the following important improvements: *Outside adjustment* for regulation of pop; lock-up attachment. Knife-edge pop lip wearing evenly with the valve seat, giving an unvarying pop. Encased spring chamber forming an upper guide for the valve above the seat and enclosing the spring, thus protecting it from the great volume of steam, making its life so much longer. *Downward discharge outlet* so arranged that cinders will not get into the valve to clog it. Spring made of Jessop's unequaled cast steel.

DIRECTIONS.

TO CHANGE "POP" or reduction in pressure between opening and closing of valve, slack check-nut on either one or both of the top pop regulators, and screw down for increased "pop" or contrary for less "pop."

TO CHANGE SET PRESSURE, first unlock and remove top cap, thus exposing the pressure screw; then slack check-nut and turn pressure screw down for increased or upward for less pressure; afterwards set up check-nuts. When it is desired to change set pressure more than fifteen pounds above or below original set pressure, new springs should be ordered to obtain the greatest efficiency.

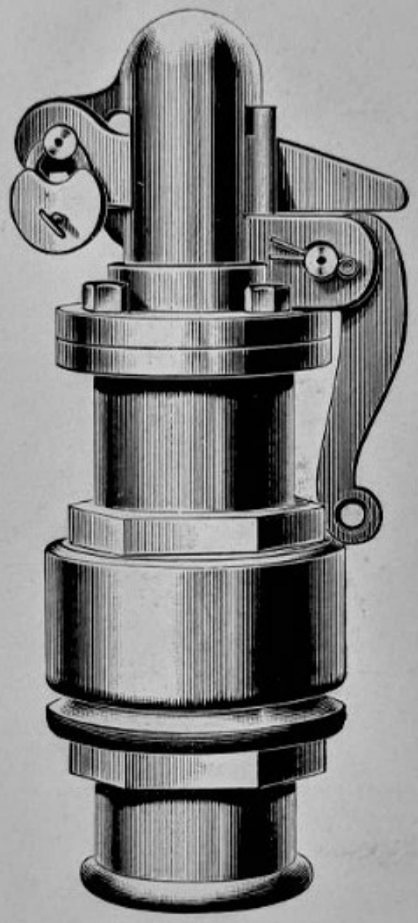
PRICE LIST.

Size Valve	2½ in.	2¾ in.	3 in.	3½ in.
Price				

The Ashton Cam Lever Locomotive Open Pop Safety Valve

(Patented.)

No. 29.



Our Cam Lever Open Pop Valve, as shown above, is virtually the No. 28 Valve described on the opposite page, with the addition of the Cam Lever attachment on top. This valve is oftentimes used on locomotives as an auxiliary to the No 28 Open Pop or No. 30 Muffler Valve. In such cases this Cam Lever Valve is usually set to work at a few pounds higher pressure. The Cam Lever makes it possible to trip the valve easily by hand, or by means of a rod attached to the lever it is possible to trip the valve from the cab.

DIRECTIONS.

TO CHANGE SET PRESSURE. Unlock and remove top cap, exposing pressure screw. Slacken check nut on screw and turn screw to right for more pressure, or *vice versa*. When it is desired to change set pressure more than fifteen pounds above or below original set pressure, new springs should be ordered to obtain the greatest efficiency.

TO CHANGE "POP." If less "pop" is desired, drill a few additional holes on top of valve lip; or if more "pop" is wanted, plug up some of the holes.

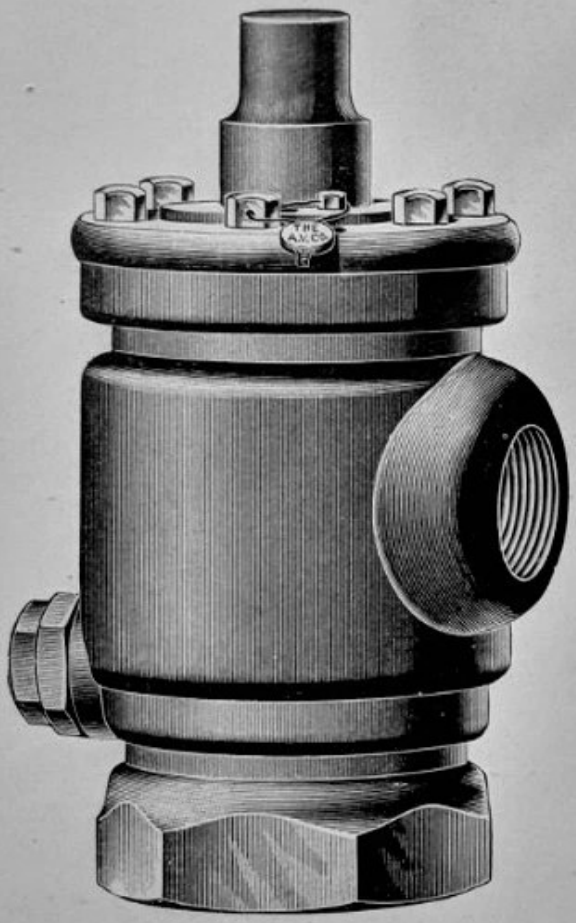
PRICE LIST.

Size Valve	2½ in.	2¾ in.	3 in.	3½ in.
				$78.00

The Ashton
Noiseless Blow-back Pop Safety Valves.

FOR LOCOMOTIVES.

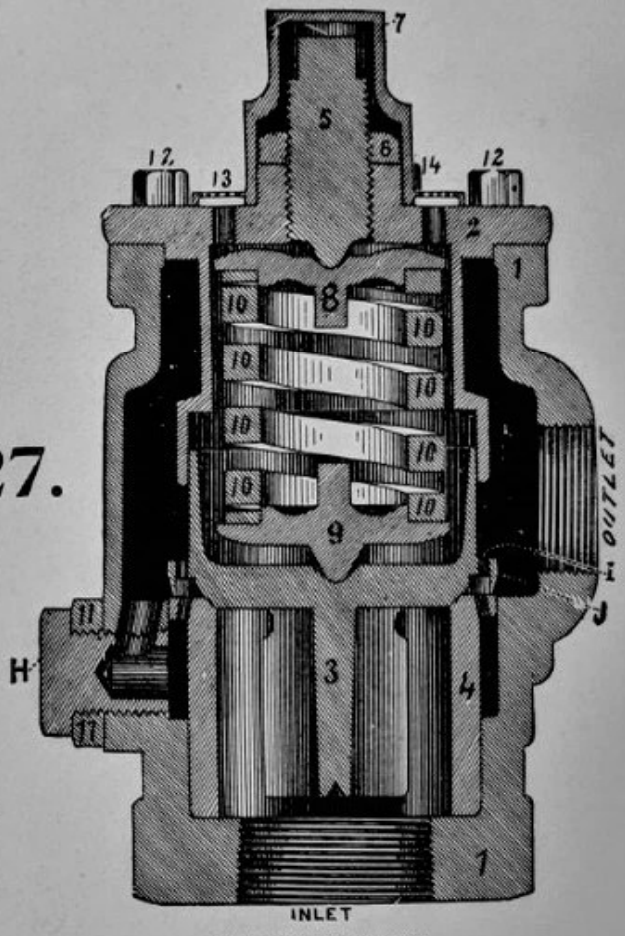
(Patented.)



EXTERIOR VIEW.

No. 27.

BLOW-BACK
VALVE.



INTERIOR VIEW.

Made in sizes 2¾ and 3 inches.

The only perfectly noiseless system of boiler relief known. It stops the noise; saves what was wasted. It utilizes the steam by heating the feed-water. The escaping steam is not seen or heard. It induces carefulness and economy to both engineer and fireman. It lessens the scaling of boilers.

On heavy grades a locomotive will make time, where it failed to do so without the valve. It is the best safety valve made. It cannot stick or corrode on its seat, and relieves the boiler instantly, with only a slight reduction of steam. All other pop valves, by continued use, change their pop and blow down steam; *ours do not.*

We offer to apply one without cost to any railroad, and leave it to demonstrate itself under any conditions, and then take it off if it does

The Ashton Noiseless Locomotive Blow-back Pop Safety Valve.

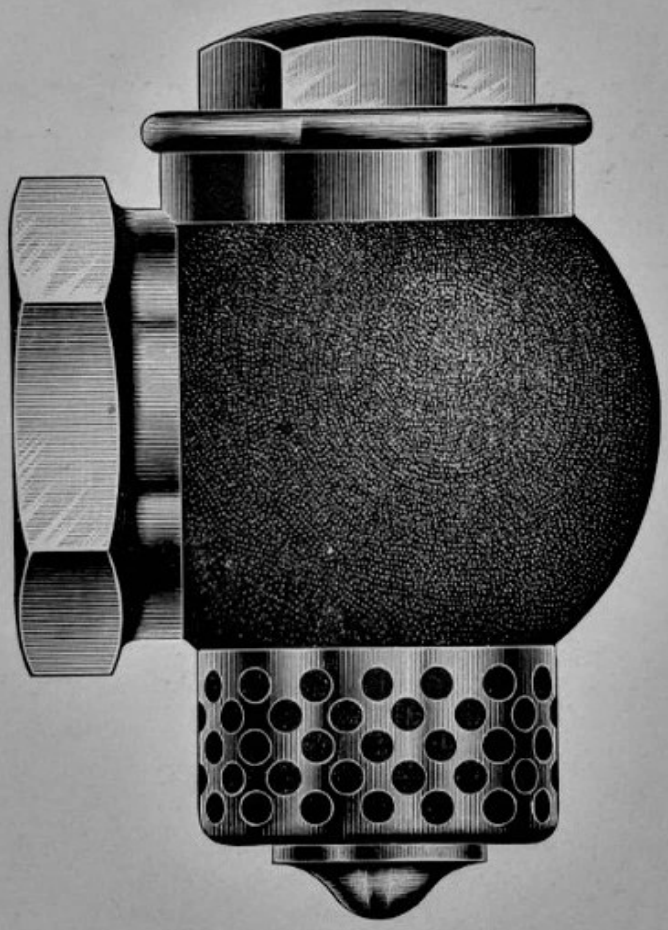
The above cut illustrates the usual way of piping the discharge from the Blow-back Valve to the feed-water in the tender. It is equally applicable to pipe the valve into the smoke-arch or direct to a muffler, though a saving of fuel is effected only when piped to the tank as a feed-water heater.

List of Fittings to be used in applying the Ashton Noiseless Blow-back Safety Valve to Locomotives.

35 to 40 feet 1½-inch pipe (furnished by railroad).
1 brass offset (according to build of engine).
1 bent pipe (for dome).
1 distributor (for tender).
1 pair hose clamps.
1 set hose connections.
3 feet four-ply hose.
6 elbows, 1½ inch, malleable.
2 unions, 1½ inch, "
2 lock-nuts, 1½ inch, "
1 2-inch extra heavy nipple.
1 nipple, 1½ inch, 4 inches long.
1 nipple, 1½ inch, 10 " "
1 ⅛-inch pet cock (brass).

The Ashton Locomotive Steam Chest Vacuum Valve.

No. 35.

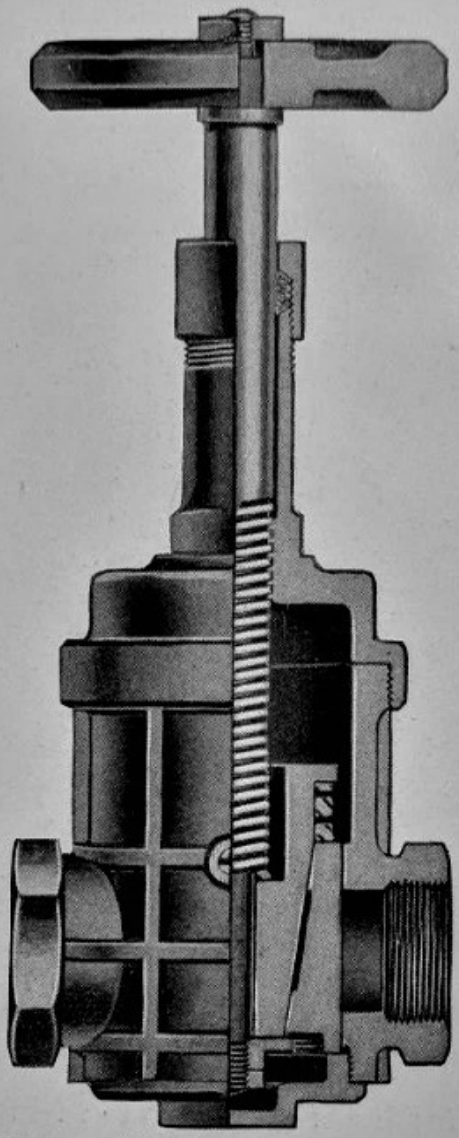


This valve, as above shown, is largely used on the steam chests of locomotive cylinders. Its purpose is to prevent a vacuum forming in the cylinders when the locomotive is running after the steam has been shut off. It is also possible to adapt this valve to many other uses where it is desired to have a vacuum relief valve.

Price, $5.00 each.

The Ashton Improved Blow-off Valve.

(Patented.)



A high grade valve that will close tight and not stick, yet always easy to operate.

The least affected by scale or dirt, and guaranteed the most durable on the market.

No. 12.

The Ashton Improved Blow-off Valve, as shown in the above cut, is made with the interior working parts of our standard high grade composition steam metal, and is particularly designed with a view to tightness, durability, and economy of space.

It is made in the form of a split piston or plug, nicely fitted to a cylindrical chamber in the body of the valve. When the piston is screwed down to close the valve, the interior wedge, as fitted to the spindle, is brought in contact with a spiral spring, pressing the piston to the bottom, immediately after which the wedge expands the split piston to fit the cylinder absolutely tight. The virtue of this spring is to prevent the wedge from expanding the piston before it has fully bottomed. In opening the valve the first movement of the spindle releases the expanding force of the wedge on the piston, and afterwards raises it so as to give a full straightway opening.

This valve does not depend on the pressure of the boiler to make it tight, has a full area of opening, and is not materially affected by sediment same as most other blow-off valves. It is made of composition in sizes up to and including the two inch pattern, and in larger sizes with iron body, either flanged or screwed.

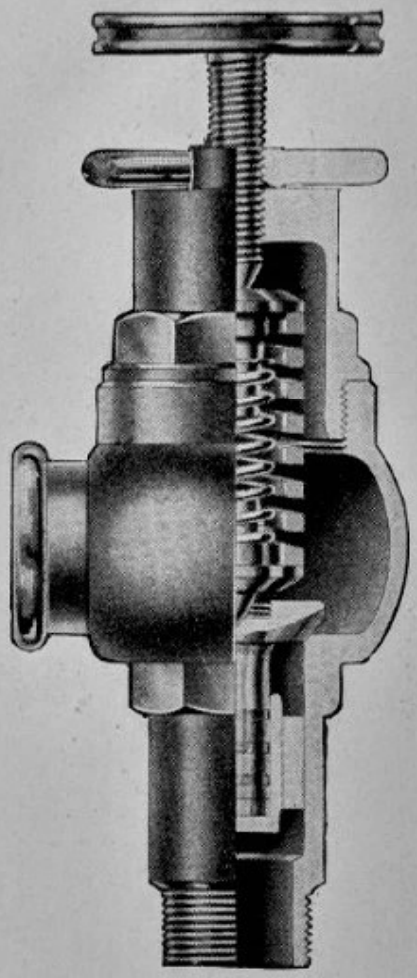
PRICE LIST.

Size Valve.....	1 in.	1½ in.	2 in.	2½ in.	3 in.
Composition	$28.00	$36.00	$44.00	....	....
Iron			44.00	$55.00	$67.50

The Ashton
Car Heating Relief Valve.

WITH ADJUSTABLE DOUBLE SPRING.

(Patented.)



No. 33.

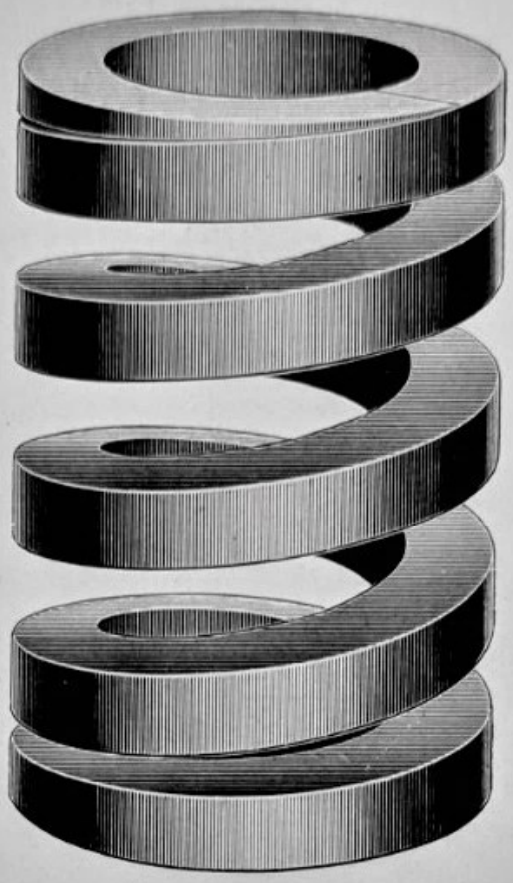
Patented
Dec. 30, 1902.

The Ashton Double Spring Relief Valve, as shown in the above cut, is made with two springs one inside the other, the outer and larger spring being subjected to tension at all times while the smaller and inside spring is only under tension at higher pressures. With this double spring arrangement the valve has a long range of adjustment, and is as efficient at seventy pounds pressure as at five pounds, which are the extremes at which it is usually desired to have the valve operate. This is a particularly meritorious feature, as a single spring valve is not practical for these extremes. Our Relief Valve is also made with the joint above the valve outlet, whereby the interior parts are always easily accessible for cleaning or otherwise, without disturbing the outlet pipe, which is a feature of much advantage. It is made with a suitable size wheel for hand adjustment, and is fitted with cross-bar check nut.

We make this valve of our standard high grade composition metal throughout, with the exception of the spring, which is of Jessop steel.

The Ashton Pop Safety Valve Springs.

All the springs used in the Ashton Pop Safety Valves are manufactured by hand at our own works of the highest quality of cast steel; Jessop's steel, as imported from Sheffield, England, being used exclusively.



Each spring is made and tempered separately, so that every part comes directly under the eyes of the workmen. They are ground square and true on the ends, and afterwards tested to stand at least double the strain that they will ever be put to in actual service.

The life of a Pop Safety Valve is in its spring.

Price List of Springs, for Various Size and Style Ashton Valves.

Size of Valve, inches.	No. 3 Style Valve.	Nos. 6, 7, 8, 9, 14, 15 Style Valves.	Nos. 10, 18, 23, 24 Style Valves.	No. 16 Style Valve.	Nos. 22, 23 Style Valve.	Nos. 27, 28, 29, 30 Style Valves.	Nos. 31, 32 Style Valves	No. 33 Style Valve.
1/8	....	....	....	....	....	....	$0.50	....
1/4	....	....	....	....	....	....	.60	....
3/8	....	....	....	....	....	....	.75	....
1/2	....	....	$1.00	....	....	...	1.00	....
3/4	....	$1.00	1.50	....	....	....	1.50	....
1	....	1.50	2.00	....	....	....	...	....
1 1/4	....	1.50	2 50	....	....	....	....	$3.00
1 1/2	....	2.00	3.00	....	$5.00	....	....	....
2	$3.00	2.50	4.50	$4.00	5.50	$5.00	....	....
2 1/2	3 00	3.00	5.00	6.00	6.00	6.00	....	....
3	4 00	3.50	6.00	8.00	10.00	7.00	...	....
3 1/2	5.50	....	....	10 00	11.00	7.50	....	....
4	7 00	....	....	12.00	12 50	....	....	....
4 1/2	8.50	....	....	15.00	14.00	....	...	....
5	10.00	....	...	18.00	16.00	....	....	....
5 1/2	11 00	....	....	21.00	20.00	....	....	....
6	12 00	....	...	24.00	25.00	....	....	...

Subject to Discount.

SPECIAL SPRINGS.

We manufacture for special purposes springs of various styles, far superior to the cheap grades,

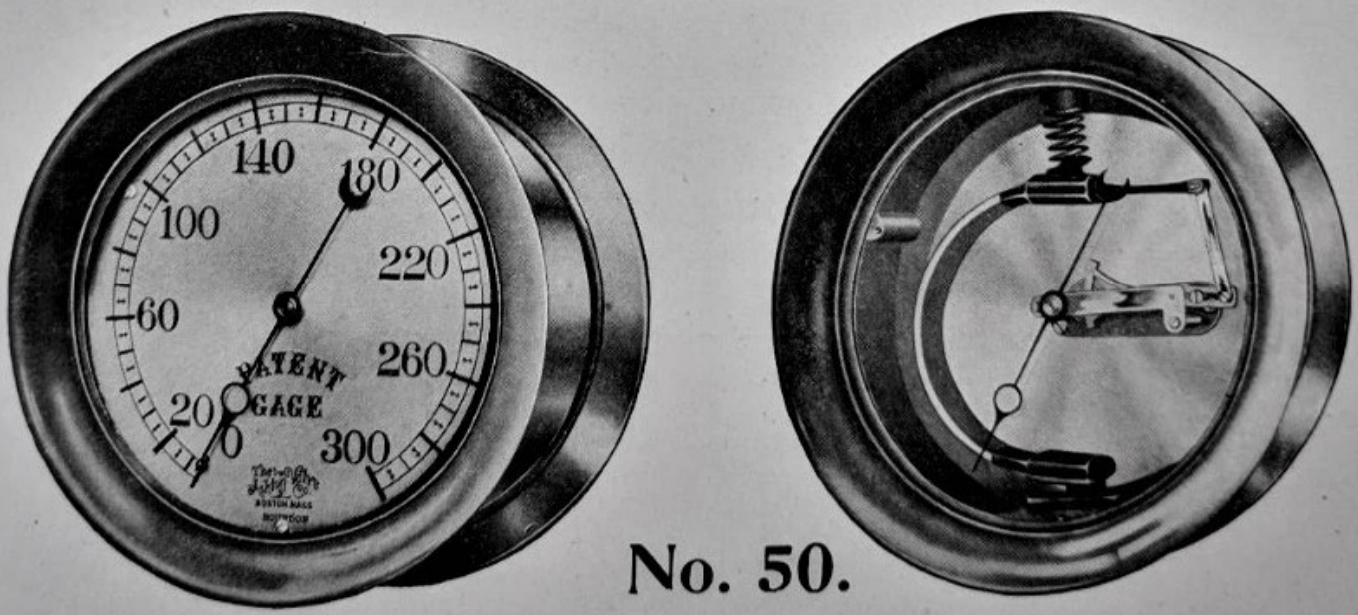
The Ashton Improved Pressure and Vacuum Gages.

GENERAL DESCRIPTION.

Ashton gages are carefully and conscientiously made, and the product of the best of material and skilled labor combined. Their reputation is second to none, and we warrant them to be superior in quality, durability, and accuracy. They are made with solid drawn-brass seamless tubes. The movements are of solid construction, and non-corrosive, having German silver pinions and arbors. Every dial is marked up separately and accurately to exactly match the mechanism of the gage on which it is used, and the letters and figures are indented so they can be easily read, and will not wear off. The springs are well seasoned to prevent setting. When desired, name is marked on dials at no extra expense. A siphon must invariably be used on all steam gages, so that nothing but water will enter the gage

The Ashton Patent Steam Gage.

WITH AUXILIARY SPRING.



No. 50.

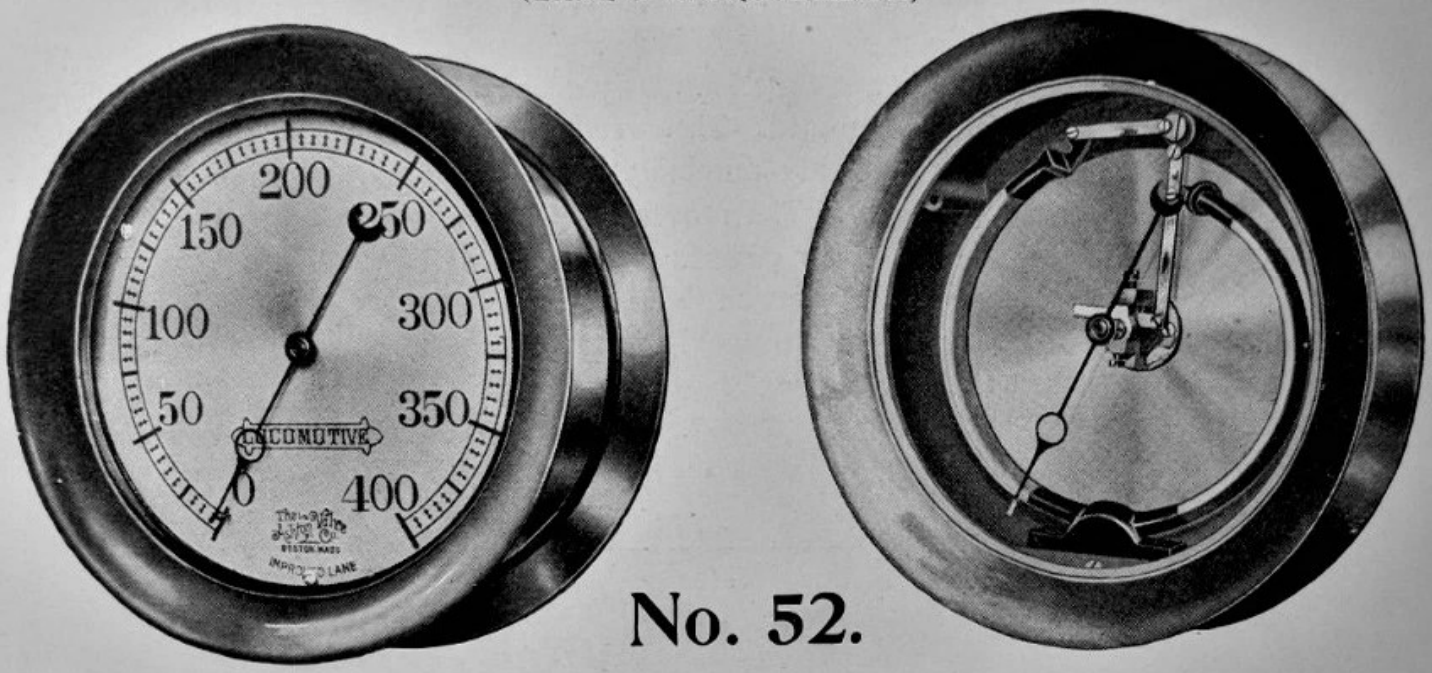
The above gage is tor special conditions, where our regular No. 51 and 52 styles are not adapted, due to extreme high pressure or excessive vibration.

Non-setting. Non-freezing. Non-corrosive. Accurate and reliable.

Prices, Same as No. 52 Gage on Page 56.

The Ashton Improved Double Spring Bourdon Steam and Pressure Gages.

(LANE'S IMPROVEMENT.)



No. 52.

Springs of Solid Drawn Seamless Tube.

ADAPTED FOR LOCOMOTIVE AND MARINE SERVICE PORTABLE AND STEAM FIRE ENGINES.

This gage is made with the Lane Improvement of the double spring, and is much preferable to the ordinary single-spring gage. Many of the objectionable features of the Bourdon Gage are obviated in this gage, there being less vibration of the hand, and with the short springs prevents freezing up in case of exposure.

PRICES, INCLUDING COCK.

Size.	Iron Case, Japanned.	Iron Case, N.P. Ring.	Brass Case.	N.P. Case.	Brass Deep Case, O G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring.
24 inch Dial,	$230.00	$236.00	$280.00	$300 00		
20 " "	155.00	160 00	200.00	215.00		
18 " "	125.00	128.00	170.00	182.50		
16 " "	105 00	107.00	140 00	150 00		
14 " "	90.00	91.50	115.00	122.50		
12 " "	55.00	56.50	80.00	84.00	$85.00	$89.00
10 " "	37.00	38.00	45.00	48.00	49.00	52 00
8½ " "	25.00	25.75	34.00	36.50	37.50	40.00
6¾ " "	18 00	18.60	22.00	24.00	25.00	27.00
6 " "	15.00	15.50	18.00	19.50	20.75	22.25
5½ " "	12.00	12.25	14.00	15.25	16.25	17.50
5 " "	11.00	11.20	13.00	14.00	15.00	16.00
4½ " "	10.00	10.20	12 00	13.00	13.75	14.75

The Ashton Improved Double Spring Locomotive Steam Gage.

WITH VERTICAL READING ADJUSTABLE DIAL.

No. 66.

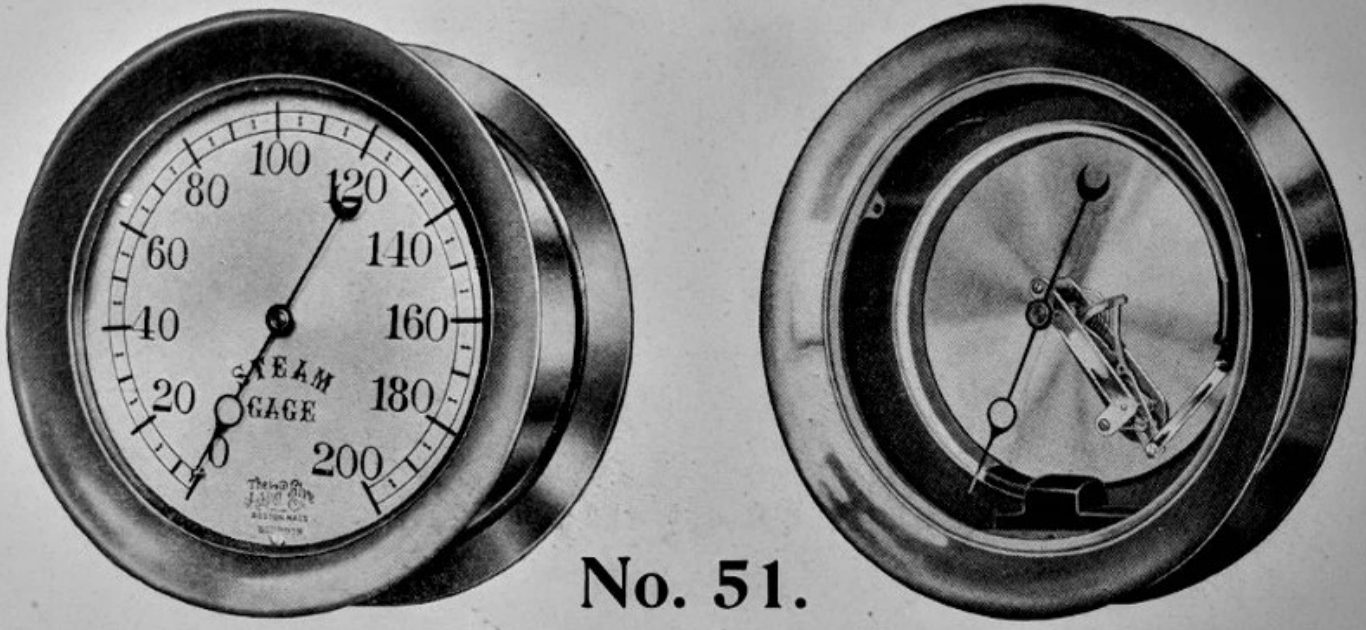
The Ashton Vertical Reading Dial Gage, as above shown, has been designed to meet a demand for a locomotive steam gage that by a simple dial adjustment will always show the highest working pressure of the locomotive at the top of the dial, and the gage hand always in a vertical position at maximum pressure, same as shown in cut. By the adoption of this gage the engineer knows at a glance what is the working pressure of the locomotive he is assigned to take charge of, and by simply noting the relative position of the gage hand, without regard to the dial graduations, can readily observe how close the pressure is being carried to the maximum.

PRICE LIST.

Size.	Brass Case.	Iron Case.
6¾ inch Dial	$22.00	$18.00
6 " "	18.00	15.00
5½ " "	14.00	12.00
5 " "	13.00	11.00
4½ " "	12.00	10.00

The Ashton Improved Single Spring Bourdon Steam and Pressure Gages.

ADAPTED FOR USE ON BOILERS, ENGINES, STEAM VEHICLES, PRESSURE TANKS, ETC.



No. 51.

Springs of Solid Drawn Tube.

PRICES, INCLUDING COCK.

Size.	Iron Case, Brass Ring.	Iron Case, N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct Ring.	N. P. Deep Case, O. G. or Oct. Ring.
24 inch Dial,	$200.00	$206.00	$260.00	$280.00		
20 " "	135.00	140.00	190.00	205 00		
18 " "	110.00	113.00	155.00	167 50		
16 " "	90.00	92.00	125.00	135.00		
14 " "	75.00	76.50	100.00	107.50		
12 " "	50.00	51.50	75.00	79 00	$80.00	$84.00
10 " "	32.00	33.00	40.00	43.00	44.00	47.00
8½ " "	22.00	22.75	30.00	32.50	33 50	36.00
6¾ " "	16.00	16.60	20.00	22.00	23.00	25.00
6 " "	13.00	13.50	16.00	17.50	18.50	20.00
5½ " "	10.00	10.25	12.00	13.25	13.75	15.00
5 " "	8.00	8.20	11.00	12 00	12.50	13.50
4½ " "	8.00	8.20	10.00	11.00	11.50	12.50
3½ " "	7.00	7.18	9.00	9.75	10.25	11.00
3 " "	6.00	6.15	8.00	8.60	9.25	9.75
2½ " "	6.00	6.15	8.00	8 60	9.25	9.75
2 " "	6.00	6.15	8.00	8.60	9.25	9.75

Write for Discounts.

In ordering always state size wanted, whether brass or iron case, and maximum pressure.

These gages are made with non-corrosive movements.

An allowance of 10 cents each will be made for cocks if not wanted.

Special net prices on sizes below 5½ inches when ordered in quantities.

For gages with Illuminated Dials, see page 71

The Ashton Improved Vacuum Gages.

No. 53.

Springs of Solid Drawn Tube.

The Ashton Improved Vacuum Gages are graduated to accurately indicate vacuum in square inches of mercury.

PRICES, INCLUDING COCK.

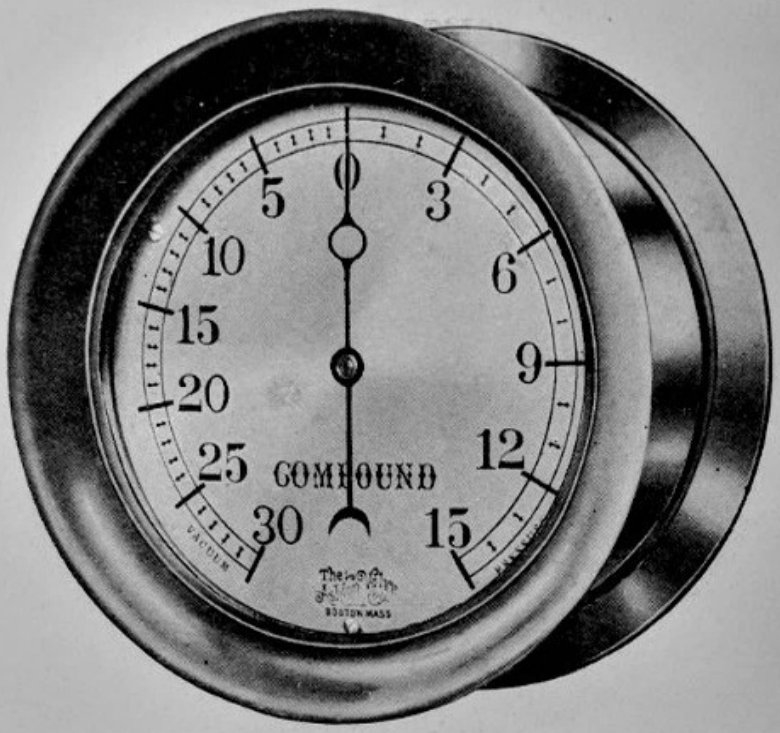
Size.	Iron Case, Brass Ring	Iron Case, N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct Ring.
24 inch Dial,	$200.00	$206.00	$260.00	$280.00		
20 " "	135.00	140.00	190.00	205.00		
18 " "	110 00	113.00	155.00	167.50		
16 " "	90.00	92.00	125.00	135.00		
14 " "	75.00	76.50	100.00	107.50		
12 " "	50.00	51.50	75 00	79.00	$80.00	$84.00
10 " "	32.00	33.00	40.00	43.00	44 00	47.00
8½ " "	22 00	22.75	30.00	32 50	33 50	36 00
6¾ " "	16.00	16.60	20.00	22.00	23.00	25.00
6 " "	13.00	13.50	16.00	17.50	18.50	20.00
5½ " "	10 00	10.25	12.00	13.25	13.75	15.00
5 " "	8.00	8.20	11.00	12 00	12.50	13 50
4½ " "	8.00	8.20	10.00	11 00	11.50	12.50
3½ " "	7 00	7.18	9.00	9.75	10.25	11.00
3 " "	6.00	6.15	8 00	8.60	9.25	9.75
2½ " "	6.00	6.15	8 00	8 60	9.25	9.75
2 " "	6.00	6.15	8.00	8.60	9.25	

Write for Discounts.

In ordering state whether nickel plated, brass, or iron case is wanted.

The Ashton Compound Pressure and Vacuum Gages.

No. 54.



Springs of Solid Drawn Tube.

These gages for indicating either pressure or vacuum are graduated for pressure in pounds per square inch, and for vacuum in inches of mercury column, fifteen pounds pressure being equal to about thirty inches of vacuum. If a pressure exceeding fifteen pounds is required, it should be stated in ordering.

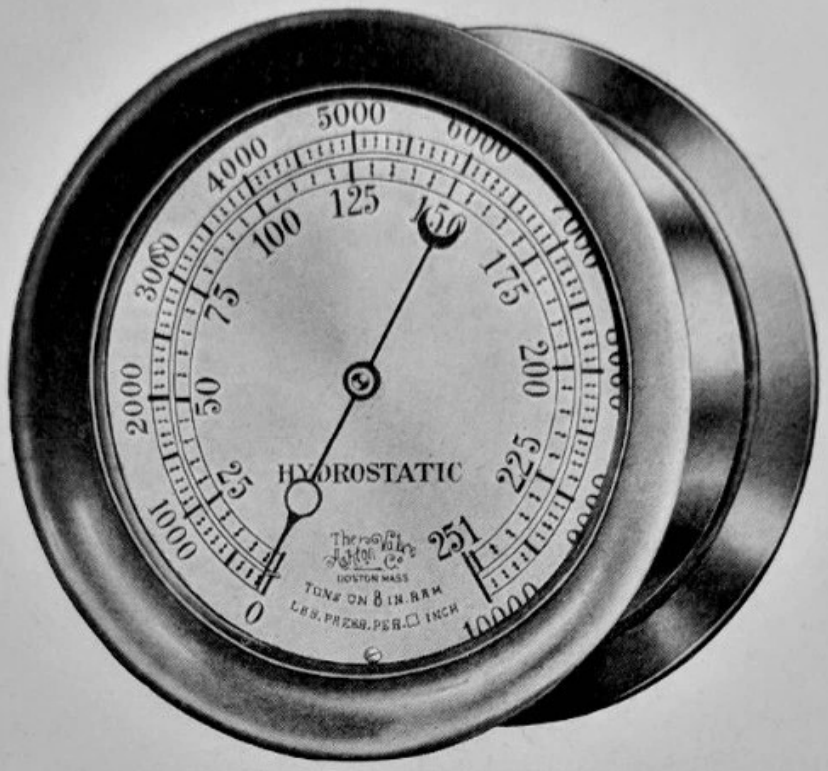
PRICES, INCLUDING COCK.

Size.	Iron Case, Japanned.	Iron Case, N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring
12 inch Dial,	$60.00	$61.50	$80.00	$84.00	$85.00	$89.00
10 " "	40.00	41.00	50.00	53.00	54.00	57.00
8½ " "	30.00	30.75	40.00	42.50	43.50	46 00
6¾ " "	20 00	20.60	25.00	27.00	28.00	30.00
6 " "	16.00	16.50	20 00	21.50	23.00	24 50
5½ " "	14.00	14.25	16.00	17.25	18.50	19.75
5 " "	14.00	14.25	16.00	17.25	18.50	19 75
4½ " "	12.00	12.20	14 00	15.00	16.00	17.00
3½ " "	10.00	10 18	12.00	12.75	13.75	14.50

Write for Discounts.

Always use a siphon, so that nothing but water will enter the gage.

The Ashton Improved Hydraulic Gages.



No. 55.

Our Hydraulic Gages are made with special steel tubes for indicating high pressures above one thousand pounds, and are accurately and carefully tested.

When ordering state maximum pressure required, and if dial is to show pressure in tons on ram, give exact diameter of ram.

PRICE LIST.

Size.	Iron Case, Brass Ring.	Iron Case, N. P. Ring.	Brass Case.	N. P. Case.
12 inch Dial.....	$110.00	$111.50	$125.00	$129.00
10 " "	90.00	91.00	100.00	103.00
8½ " "	70.00	70.75	80.00	82.50
6¾ " "	50.00	50.60	60.00	62.00
6 " "	35.00	35.50	40.00	41.50
5 " "	30.00	30.50	35.00	36.00
4½ " "	25.00	25.50	30.00	31.00
3½ " "	22.00	22.50	26.00	26.75

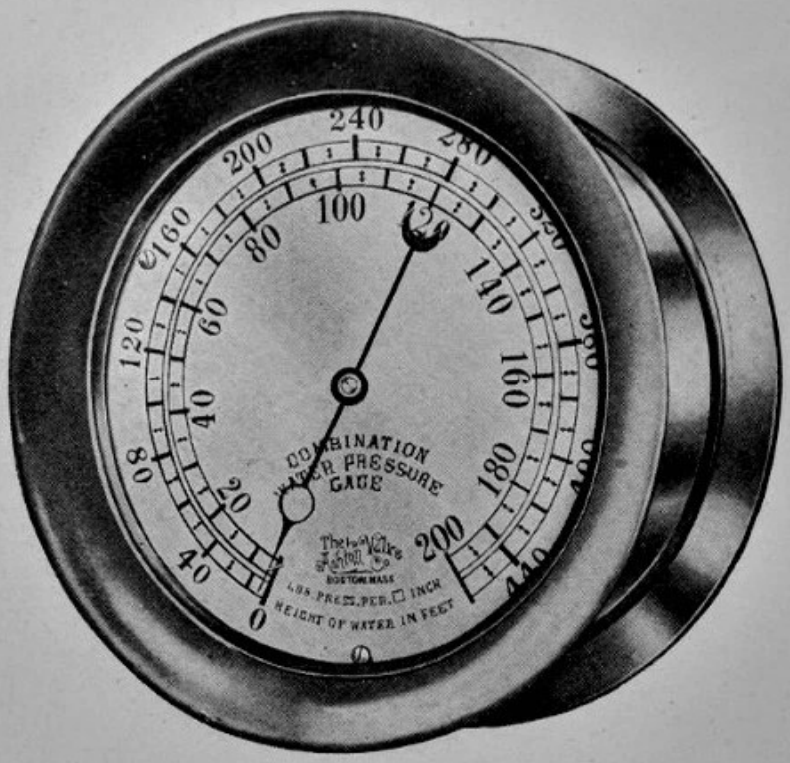
Write for Discounts.

No extra charge for marking tons on ram on dials. For maximum hands add $5 00 to list price. Special prices on Bourdon Brass Tube Hydraulic Gages for pressure not over two thousand pounds.

$8.00

The Ashton Combination Water Pressure Gages.

No. 56.



Springs of Solid Drawn Seamless Tube.

These gages, more especially adapted for water works, pumping stations, etc., are for indicating the pressure of water in pounds per square inch, and the corresponding height of water column.

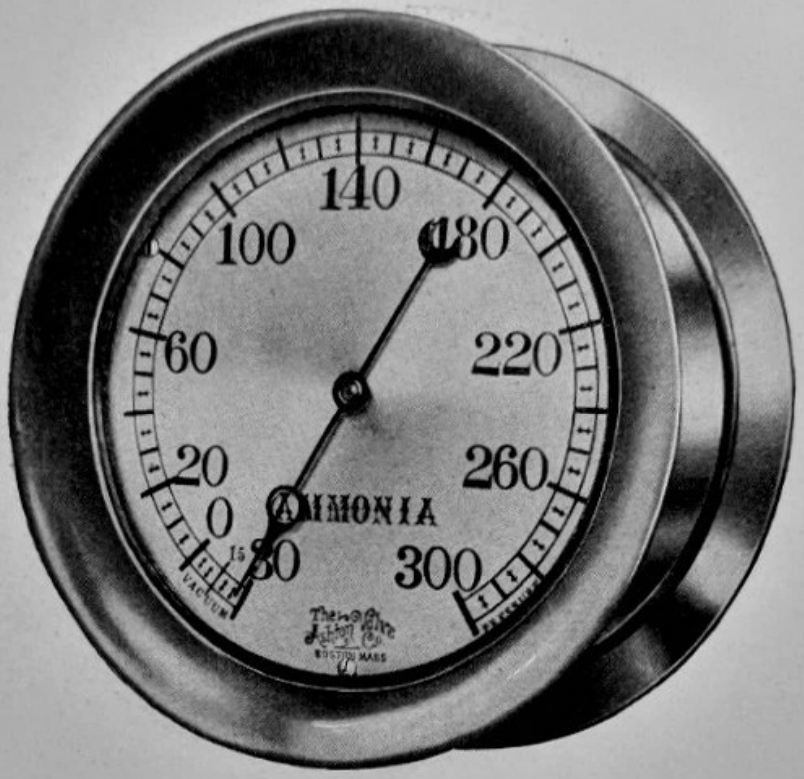
PRICES, INCLUDING COCK.

Size.	Iron Case, Japanned.	Iron Case, N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring.
12 inch Dial,	$60.00	$61.50	$80.00	$84.00	$85.00	$89.00
10 " "	40.00	41.00	50.00	53.00	54.00	57.00
8½ " "	30.00	30.75	40.00	42.50	43.50	46.00
6¾ " "	20.00	20.60	25.00	27.00	28.00	30.00
6 " "	16.00	16.50	20.00	21.50	23.00	24.50
5½ " "	14.00	14.25	16.00	17.25	18.50	19.75
4½ or 5 "	12.00	12.20	14.00	15.00	16.00	17.00

Write for Discounts.

To raise a column of mercury 2.04 inches, or to raise a column of water 27.67 inches, requires one pound pressure.

The Ashton Improved Ammonia Gages.



No. 57.

Our Ammonia Gages are made with all the interior parts of iron excepting the springs, which are of steel, to withstand ammonia or any other gas or acid which attacks the ordinary brass Bourdon spring.

When desired these gages are made to indicate both pressure and vacuum on the same dial, but ordinarily only show pressure.

PRICE LIST.

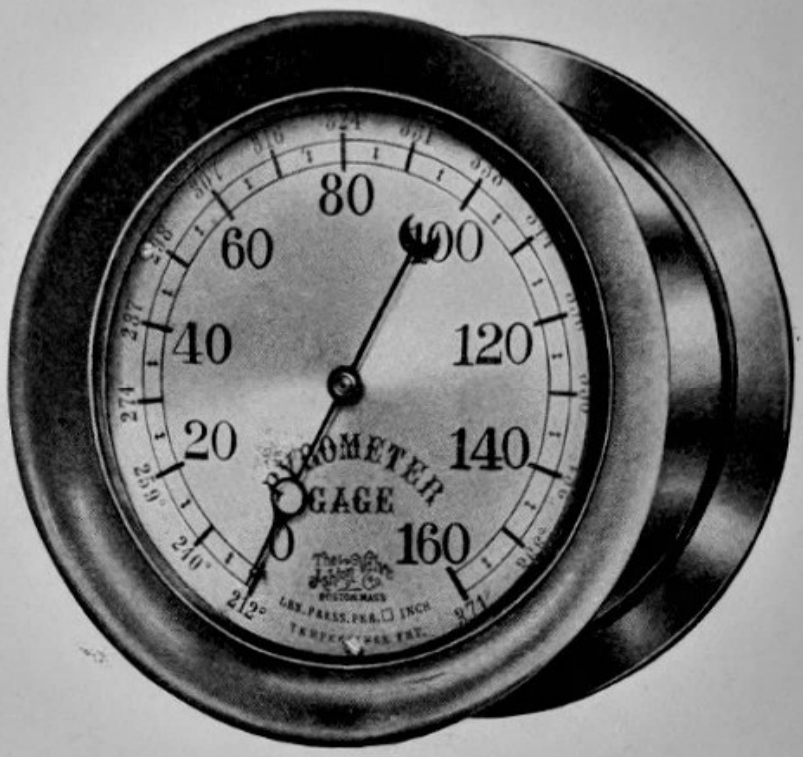
Size.	Iron Case and Ring.	Iron Case, N. P. Ring.
8½ inch Dial	$45.00	$45.75
6¾ " "	40.00	40.60
6 " "	35.00	35.50
5½ " "	30.00	30.50
5 " "	30.00	30.50
4½ " "	25.00	25.50
3½ " "	25.00	25.50

Write for Discounts.

In ordering state whether a compound scale showing pressure and vacuum or

The Ashton Pyrometer Steam Gages.

No. 58.



Springs of Solid Drawn Tube.

For indicating pressure of steam in pounds per square inch, and corresponding degrees of heat. The inner circle indicates pounds pressure per square inch, and the outer circle the corresponding degrees of heat.

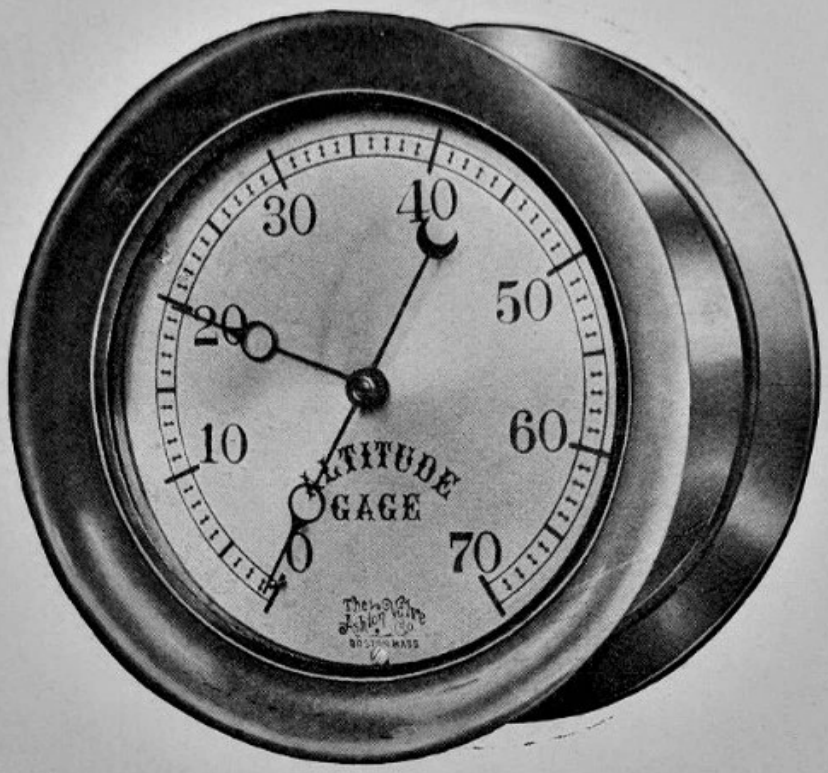
PRICES, INCLUDING COCK.

Size.	Iron Case, Japanned.	Iron Case N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring.
12 inch Dial,	$60.00	$61.50	$80.00	$84.00	$85.00	$89.00
10 " "	40.00	41 00	50.00	53.00	54.00	57.00
8½ " "	30.00	30.75	40.00	42.50	43.50	46 00
6¾ " "	20.00	20.60	25.00	27.00	28.00	30.00
6 " "	16.00	16.50	20.00	21.50	23.00	24.50
5½ " "	14.00	14 25	16.00	17.25	18.50	19.50

Write for Discounts.

In ordering state maximum pressure or temperature required.
A siphon is indispensable with these gages.

The Ashton Improved Altitude Gages.



No. 60.

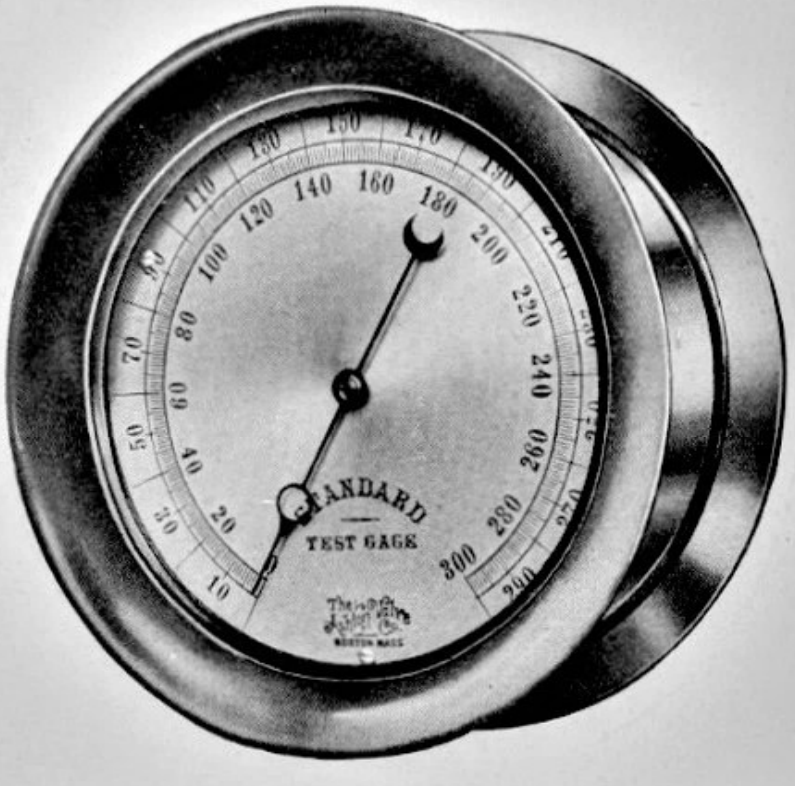
This gage is especially adapted for use on hot-water heaters, to indicate the height of water in the tank or reservoir. The black hand, being actuated by the pressure of the column of water, shows the variations in the height of water in the tank. The red or lazy hand, which is independent from the gage tube, is to be set by the user, when the gage is put up, to indicate the number of feet that the height of the water should be maintained in the tank.

PRICES, INCLUDING COCK.

Size.	Iron Case, Brass Ring.	Iron Case, N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring.
12 inch Dial ..	$60.00	$61.50	$80.00	$84.00	$85.00	$89.00
10 " " ..	40.00	41.00	50.00	53.00	54.00	57.00
8½ " " ..	30.00	30.75	40.00	42.50	43.50	46.00
6¾ " " ..	20.00	20.60	25.00	27.00	28.00	30.00
6 " " ..	16.00	16.50	20.00	21.50	23.00	24.50
5½ " " ..	14.00	14.25	16.00	17.25	18.50	19.75
4½ or 5 " ..	12.00	12.20	14.00	15.00	16.00	17.00

The Ashton Standard Test Gages.

No. 59.



Springs Made of Solid Drawn Seamless Tube.

Our Standard Test Gages are made with the greatest of care and with the best material and workmanship possible in the present state of the art.

Each gage is most carefully adjusted, tested, and graduated by our Weight Gage Tester, and scaled in one-pound marks.

For accuracy, sensitiveness, and workmanship there are no better gages made.

PRICES, INCLUDING COCK.

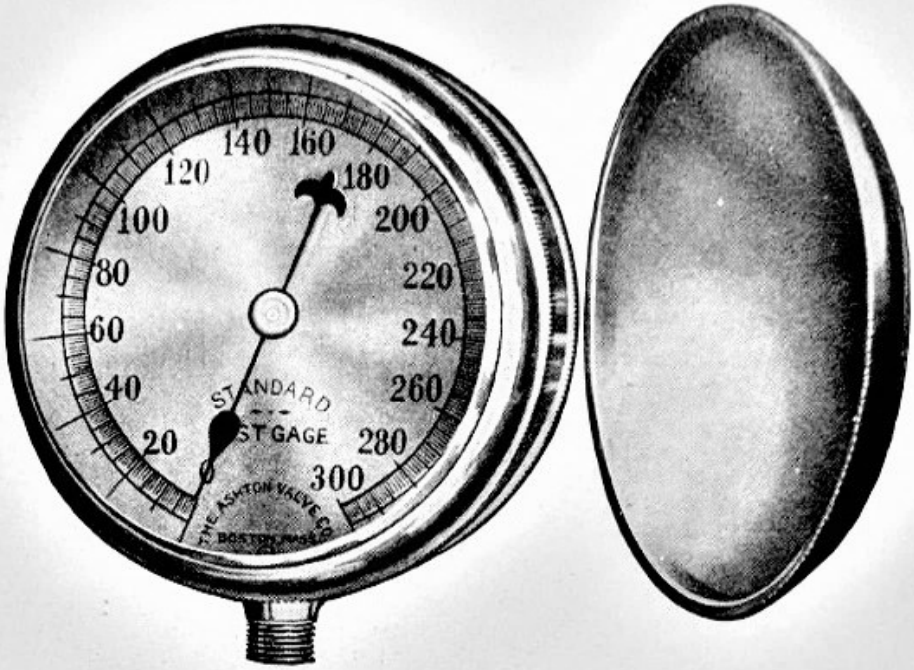
Size.	Brass Case.	N. P. Case.
10 inch Dial	$50.00	$53.00
8½ " "	40.00	42.50
6¾ " "	30.00	32.00
6 " "	25.00	26.50
5½ " "	20.00	21.25
4½ " "	16.00	17.00
3½ " "	14.00	14.75
3 " "	14.00	14.60

Write for Discounts.

For small Pocket Test Gages, see opposite page.

The Ashton Standard Pocket Test Gage.

No. 59A.



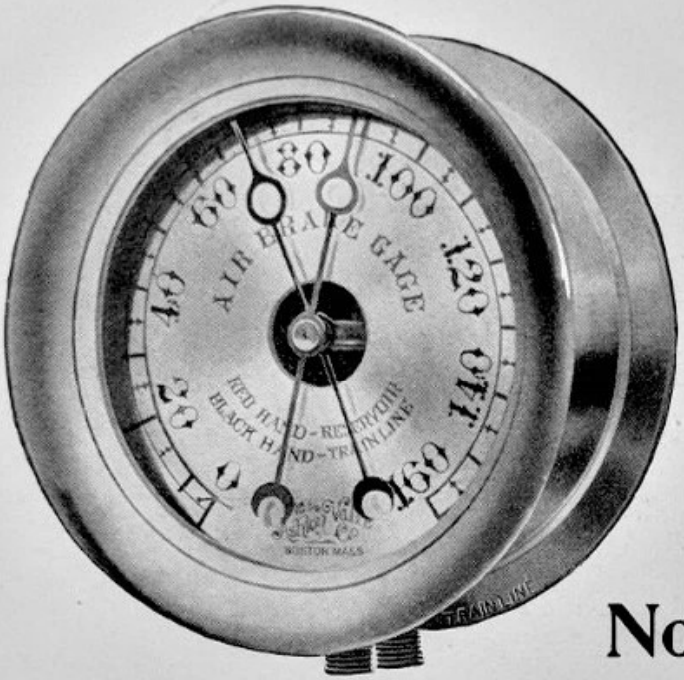
There has long been a demand for a neat, light, and accurate test gage of a suitable size and so constructed that it could be carried in the pocket, hand-bag, or otherwise, without danger of injury. The Ashton Standard Pocket Test Gage, as shown in the above cut, is particularly designed to meet these requirements, being made with a bevel plate-glass front and fitted with a cover to insure perfect protection, and is therefore much appreciated and largely used by air-brake inspectors, boiler inspectors, master mechanics, chief engineers, etc.

This Standard Test Gage, like all other Ashton gages, is made with a spring of solid-drawn seamless tubing, non-corrosive movement, and is the best that high grade material and skilled workmanship can produce. It is made in the three-inch dial size, graduated for any pressure up to and including 500 pounds, with full nickel plate, and weighs, complete with cover, about one pound.

PRICE LIST.

Size.	Brass Case.	N. P. Case.
3 inch Dial	$14.00	$14.60

The Ashton Improved Duplex Air Brake Gages.



No. 62.

Standard Style,

Showing O. G. Ring and
Standard Westinghouse Connections.

High Speed Style,

Showing Flush Ring and
Standard New York Connections.

The Ashton Duplex Air Brake Gages embody the combination in one case of two double-spring Bourdon gages acting independent of each other, each having its separate hand, but registering on the same dial and circle of figures. The hands are of different colors, and, as stamped plainly on the dial, the red hand indicates reservoir pressure, and the black hand indicates train line pressure.

Many valuable and exclusive features of merit have been introduced in these gages, which have won for them an unequalled reputation. They are made with a spring stop-pin at the zero mark, which serves as a cushion to prevent the gage hands from being jarred loose or bent when they strike the pin, due to a sudden release of pressure. The gage movements are of solid construction, with German silver pinions and arbors, and the segments of the train line part of the gages, which has to stand most of the wear, are entirely of German silver and extra heavy. The springs are of seamless drawn tubing.

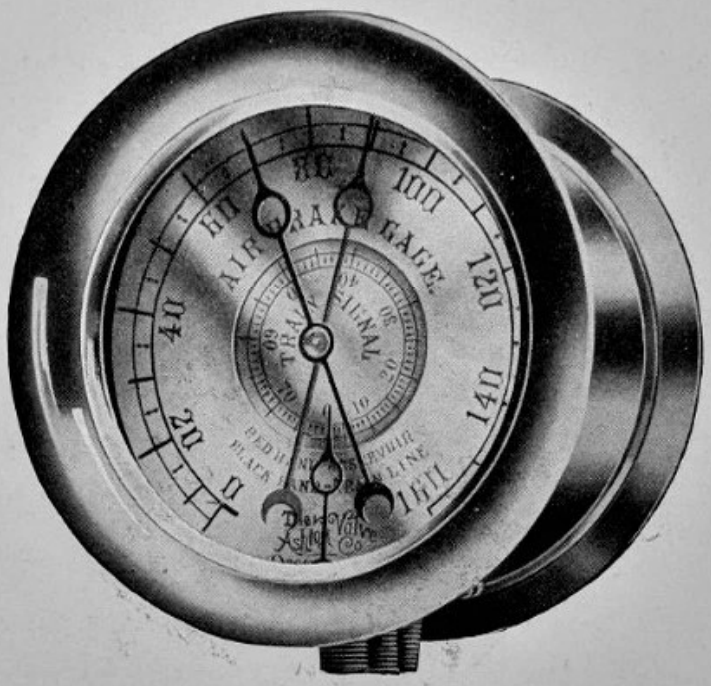
The High Speed Style is specially adapted for the latest high speed brake service, and is made heavier for the higher pressure service used.

In ordering, it should be specified whether Standard or High Speed Style is wanted, also whether with Westinghouse or New York Standard connections.

PRICE LIST.

Size.	Brass Deep Case.	Iron Deep Case.
5 inch Dial	$20.00	$17.50

The Ashton Triplex Air Brake and Train Signal Gages.



No. 62A.

The above cut represents an entirely new idea in locomotive gages, which combines in one gage the usual Duplex Air Brake Gage and the Train Signal Gage which compact form has heretofore never been made. All railroads using the air train signal system will readily appreciate the value of this gage and realize that it dispenses with one less gage in the locomotive cab, and locomotive engineers can at one glance read the pressures on both the air brake and train signal systems. There can be no confusion whatever in reading the gage, as the air brake part has exactly the same hands and dial as used on all duplex air brake gages in the past, while the train signal part is entirely different and distinctive, being represented by a smaller, independently-operated dial in the centre, which registers the pressure by revolving around a fixed pointer at the bottom of the dial. It is confidently believed that the Ashton Triplex Air Brake and Train Signal Gages will meet with general favor and acceptance, and railroads desiring to give them a trial have the privilege of ordering them subject to approval only if entirely satisfactory.

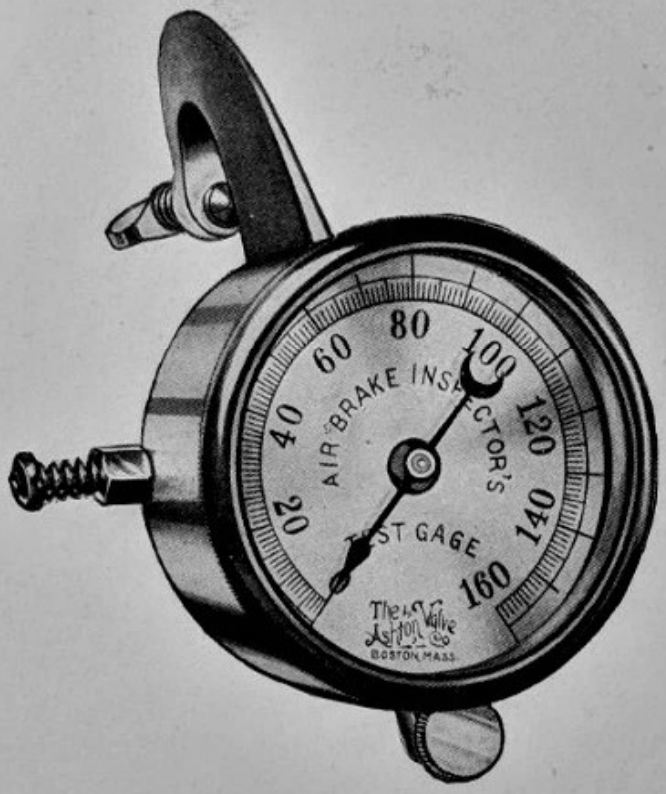
PRICE LIST.

Size.	Brass Extra Deep Case.
5 inch Dial.....	$30.00

The Ashton Improved Air Brake Inspector's Test Gage.

WITH HOSE COUPLING CLAMP ATTACHMENT.

No. 68.



The above gage is a handy, compact form of test gage in combination with hose coupling bracket for ready attachment to air brake or signal line couplings. By the use of this gage air brake inspectors are enabled to make their tests at frequent intervals and unobserved, by connecting it direct to the hose couplings at the rear of the train.

The gage has 2½ inch diameter dial and full nickel plated case. The top and bottom thumb-screw adjustments make possible a perfectly tight connection, and the side valve serves as a drain cock to allow the escape of air pressure between the hose cock and the gage when the cock is shut off after making test.

PRICE LIST.

Size.	Nickel Plated Case.
2½ inch Dial.....	$16.00

The Ashton Illuminated Dial Gage.

No. 69.

The gage, as shown in the above cut, is so constructed that an incandescent electric light may be placed behind it, and by means of a glass back the light is directed through the gage on to the ground glass dial, showing plainly the reading of the pressure marks and the position of the gage hand. The value of such a gage is specially appreciated in poorly-lighted boiler rooms and in cases where it is necessary to run the steam plant at night.

PRICES, INCLUDING COCK.

Single Spring Bourdon Style.

Size.	Iron Case, Brass Ring.	Iron Case, N.P. Ring.	Brass Case.	N.P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring.
12 inch Dial,	$50.00	$51.50	$75.00	$79.00	$80.00	$84.00
10 " "	32.00	33.00	40.00	43.00	44.00	47.00
8½ " "	22.00	22.75	30.00	32.50	33.50	36.00
6¾ " "	16 00	16.60	20.00	22.00	23.00	25.00

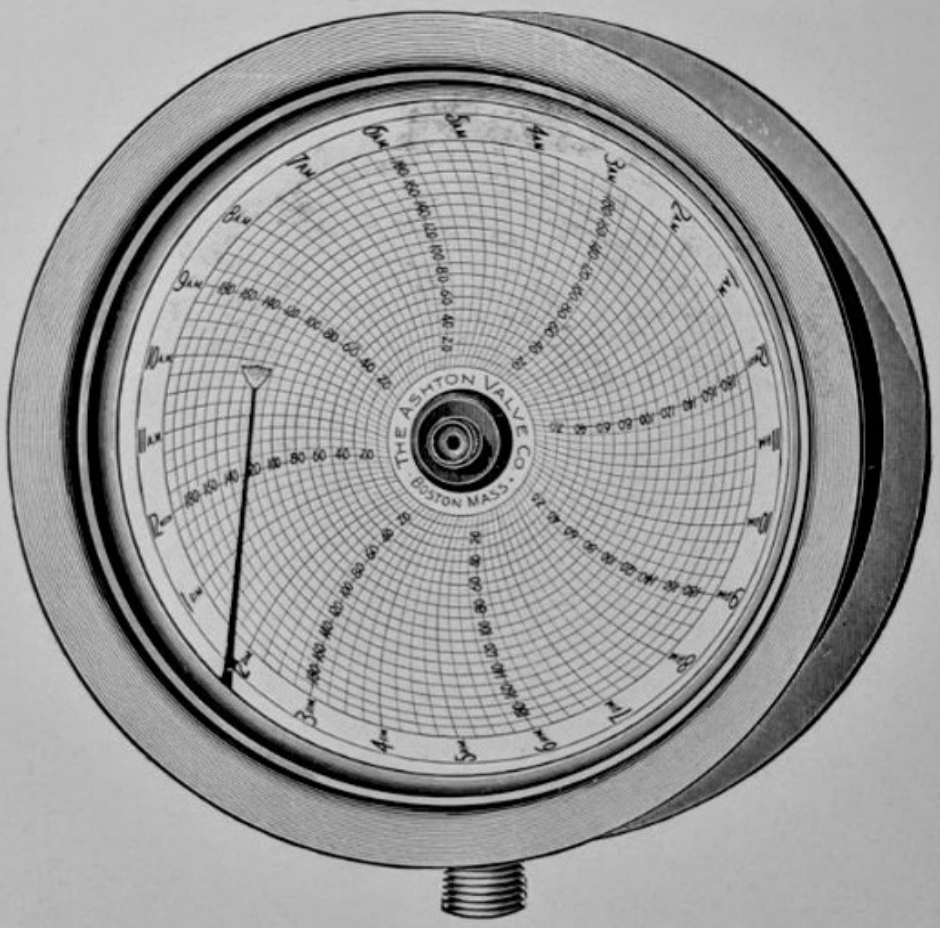
PRICES, INCLUDING COCK.

Double Spring Bourdon Style.

Size.	Iron Case, Brass Ring.	Iron Case, N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring.
12 inch Dial,	$55.00	$56.50	$80.00	$84.00	$85.00	$89.00
10 " "	37.00	38.00	45.00	48.00	49.00	52.00
8½ " "	25.00	25.75	34.00	36.50	37.50	40.00
6¾ " "	18.00	18.60	22.00	24.00	25.00	27.00

The Ashton Improved Pressure Recording Gage.

No. 73.



The Ashton Pressure Recording Gage, as illustrated in the above cut, is a combination, in the latest and most improved form, of a pressure gage and a recording dial or chart. By its use an accurate record is given, showing the exact pressure carried, with its variations both day and night, with the time and duration of all changes.

It is equally adaptable for steam, water, air, or gas pressure, and is a most valuable instrument to have for any conditions in which a record of pressures is desired.

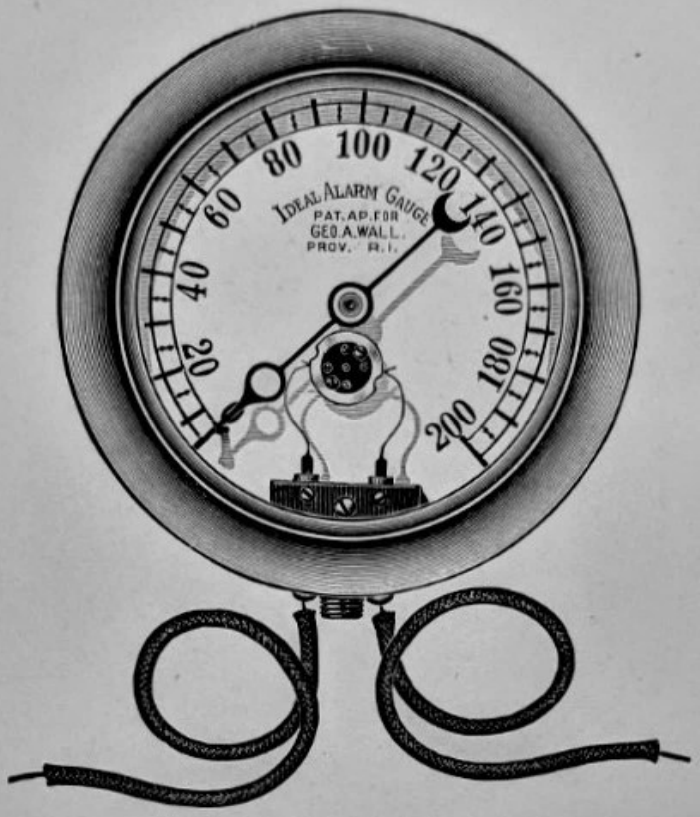
In connection with steam boiler plants these gages serve as an incentive to careful firing, and insure steady steam and greater efficiency and economy. Any omission of duty or carelessness become recorded facts by the use of these gages.

PRICE LIST.

Including One Year's Supply of Paper Dials, Bottle of Ink, and Filler.

Size.	Brass Case.	N. P. Case.
6¾ inch Dial	$40.00	$42.00
8½ " "	50.00	52.50
10 " "	65.00	68.00
12 " "	85.00	89.00

The Ideal Alarm Gage.



No. 78.

PATENT APPLIED FOR.

The Ideal Alarm Gage is a new and improved design of a pressure (or vacuum) gage combined with an automatic electric circuit closing attachment, which can be operated to give an electric bell alarm at any desired pressure and at any distance away from the gage.

There are many important applications for such a gage on boilers or pipe line systems, where an automatic alarm is desired to be given at either a high or low pressure point, or both.

On dry pipe sprinkler systems this gage is of incalculable value, as has already been demonstrated. It takes the place of the usual air gage, as well as the circuit closer, and gives a timely warning against over-pressure and unnecessary flooding of the systems due to leaks or accidents when there is no fire, thus saving what might otherwise result in considerable damage and loss.

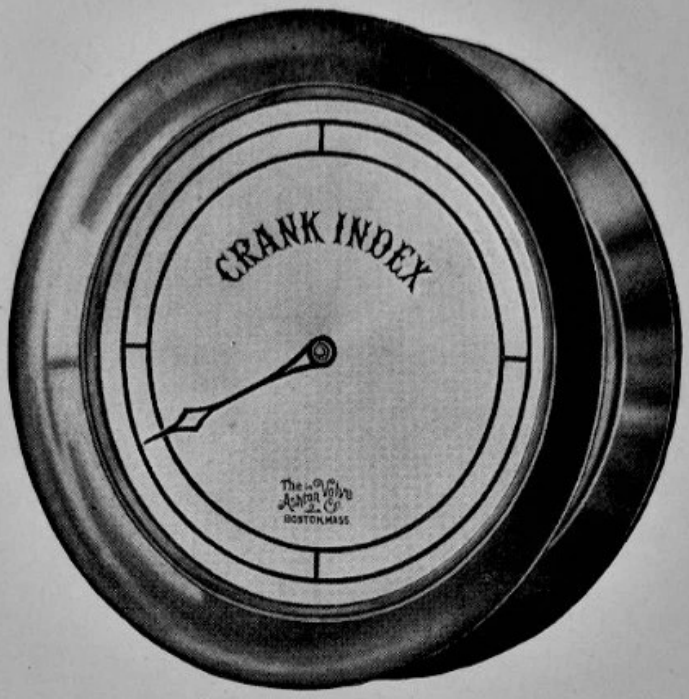
Trial orders are solicited.

PRICE LIST.

Size.	Iron Case.
5 inch Dial	$50.00

The Ashton Crank Index.

No. 67.

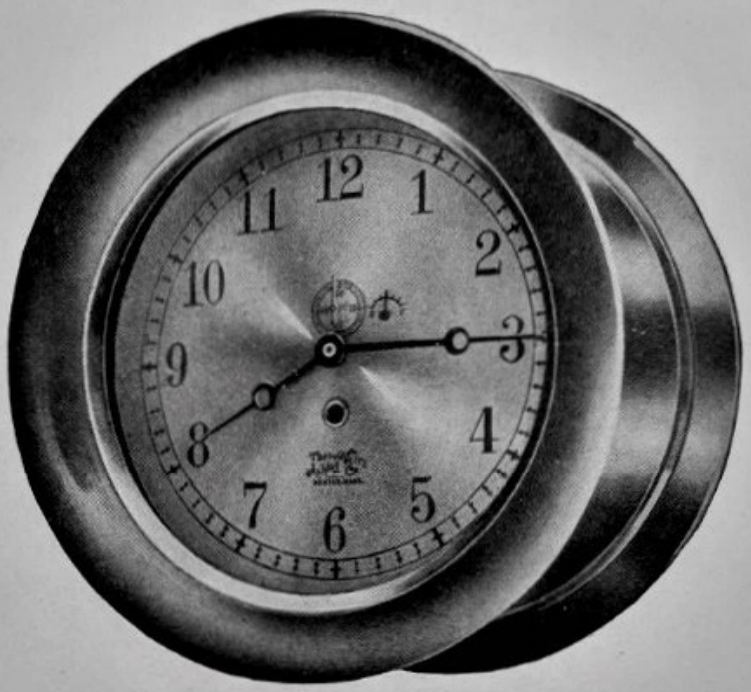


This instrument is used principally in marine service, and is placed in the engine room to indicate to the engineer when working the engines by the starting bar the position of the crank or cross head when either cannot be seen from the engineer's position.

PRICE LIST.

Size.	Brass Case and Ring.
8½ inch Dial	$50.00
10 " "	60.00
12 " "	75.00

The Ashton
Locomotive and Marine Clocks.



No. 63.

The Howard and Boston movements are full jeweled, with chronometer balance, and have patented regulators.

The cases are made with hinged rings and snap latch, or lock and key when desired.

PRICE LIST.

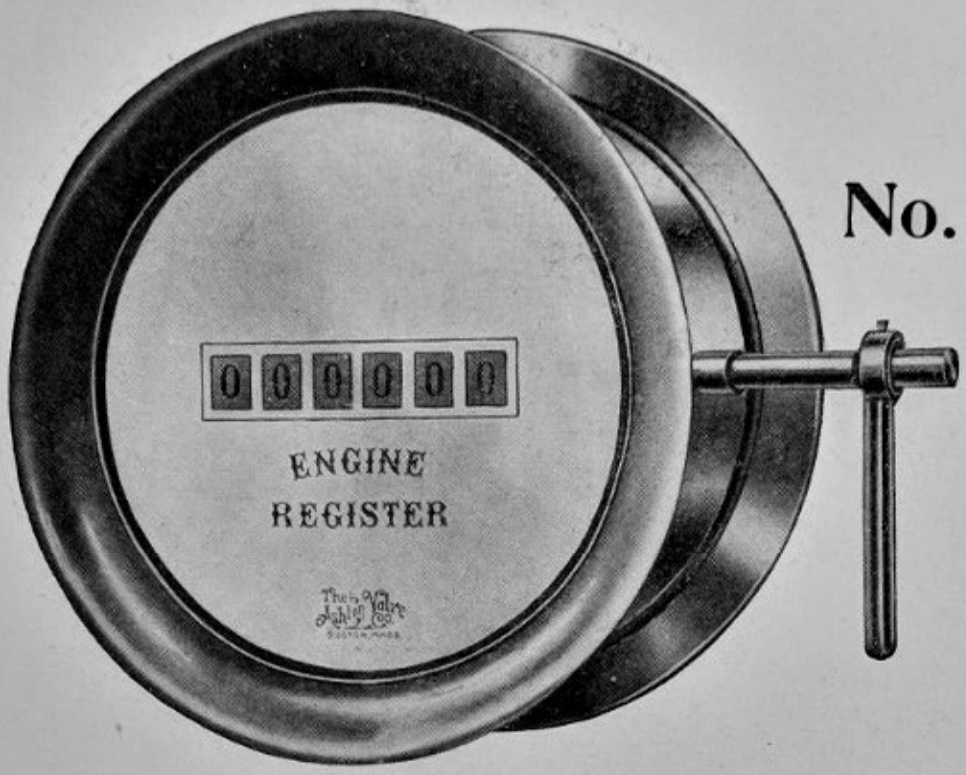
Size.	Movement.	Time.	Brass Case.	N. P. Case, O. G. or Oct. Ring.
12 inch Dial	Howard	8 day	$110.00	$114.00
10 " "	"	"	90.00	93.00
8½ " "	"	"	80.00	82.50
6¾ " "	"	"	70.00	72.00
12 " "	Seth Thomas	"	90.00	94.00
10 " "	"	"	65.00	68.00
8½ " "	"	"	55.00	57.50
6¾ " "	"	"	45.00	47.00
12 " "	Boston	"	90.00	94.00
10 " "	"	"	65.00	68.00
8½ " "	"	"	55.00	57.50
6¾ " "	"	"	45.00	47.00
6 " "	"	"	40.00	41.50
5½ " "	"	"	38.00	39.25
5 " "	"	"	35.00	36.00

Write for Discounts.

The Howard and Seth Thomas Clocks are furnished only in deep cases, but the Boston clock in either deep or shallow cases. Clocks of different sizes from the above list will be charged at the price of the next size larger.

Special net prices on Yankee Clocks.

The Ashton Improved Engine Registers.



No. 64.

These instruments are for either right or left revolutions and reciprocating motions, and work equally well under varying lengths of stroke or revolving motions.

Unless otherwise ordered, they are driven from the right-hand side by a lever, as shown in the cut.

This style register has positive movement, is durable, accurate, and reliable.

PRICE LIST.

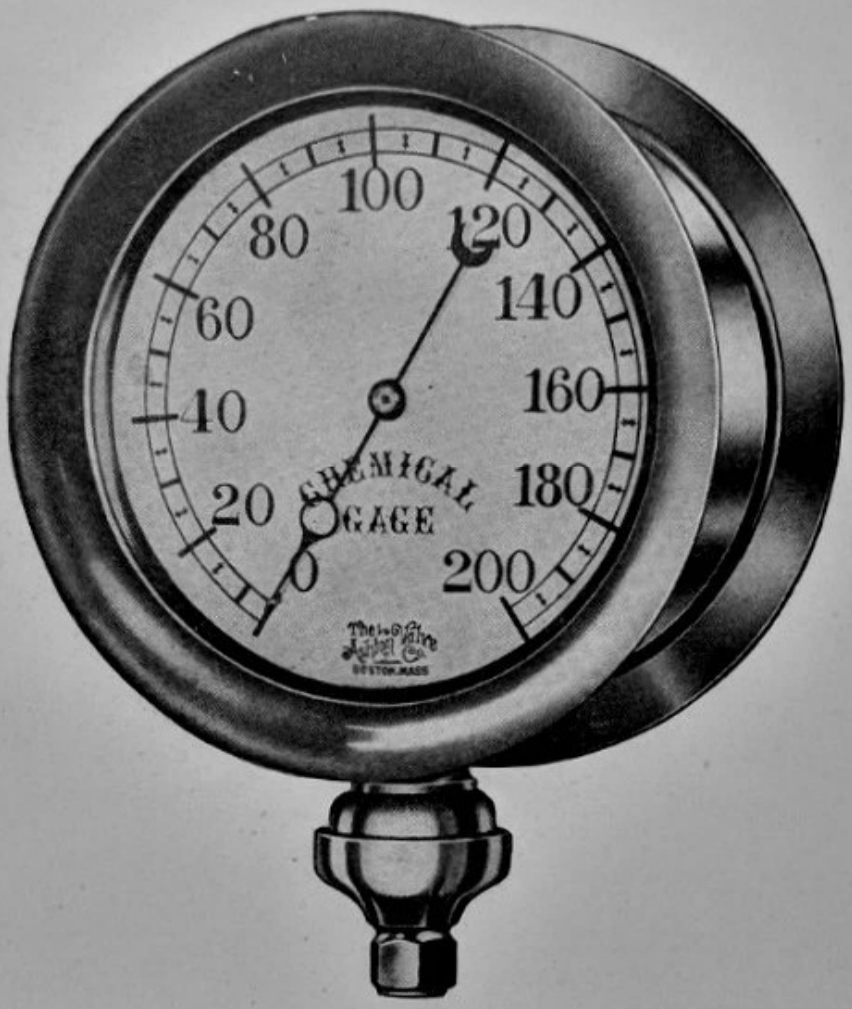
Size.	Brass Case.	N. P. Case, O. G., or Oct. Ring.
12 inch, 8 wheels	$110.00	$114.00
10 " 8 "	95.00	98.00
8½ " 8 "	80.00	82.50
12 " 6 "	100.00	104.00
10 " 6 "	85.00	88.00
8½ " 6 "	70.00	72.50
6¾ " 6 "	60.00	62.00
6 " 6 "	50.00	52.00

Write for Discounts.

Always state number of wheels in ord[illegible]

The Ashton Chemical Gage.

No. 61.



These gages are specially adapted for use in service where the springs of the gages require protection from the corroding action of liquids and chemicals, such as on soda water apparatus, chemical engines, etc., for which ordinary gages cannot be used.

The pressure acts on a tapered volute, or coiled steel spring, which is protected by an elastic diaphragm from direct contact with the pressure. The gage can be repaired very easily.

PRICE LIST.

Size.	Iron Case, Japanned.	Iron Case, N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring
12 inch Dial,	$55.00	$56 50	$80 00	$84.00	$85.00	$89.00
10 " "	37.00	38.00	45.00	48.00	49.00	52.00
8½ " "	25.00	25.75	34.00	36.50	37.50	40 00
6¾ " "	18.00	18.60	22.00	24.00	25.00	27.00
6 " "	15.00	15.50	18.00	19.50	20.75	22.25
5½ " "	12.00	12.25	14.00	15.25	16.25	17.50
5 " "	11.00	11.20	13.00	14.00	15.00	16 00

The Ashton Marble or Slate Tablets.

Style A.

These Tablets, like those on the following pages, are some of the most attractive designs for gages, both as to neatness of appearance and economy of space. They can be furnished in any style of marble or slate desired, and the prices include the necessary acorn nuts and wall bolts. Name Plates are always extra, as per price on page 86.

PRICE LIST.

Size.	Style A.
For two 5 inch Gages	
" " 5½ " "	$3.50
" " 6 " "	4.50
" " 6¾ " "	6.00
" " 8½ " "	7.00
" " 10 " "	12.00
" " 12 " "	14.00

The Ashton
Marble or Slate Tablets.

Style B.

PRICE LIST.

Size.	Style B.
For three 5 inch Gages	$4.50
" " 5½ " "	6.00
" " 6 " "	8.00
" " 6¾ " "	9.50
" " 8½ " "	16.00
" " 10 " "	18.00
	21.00

Marble or Slate Tablets.

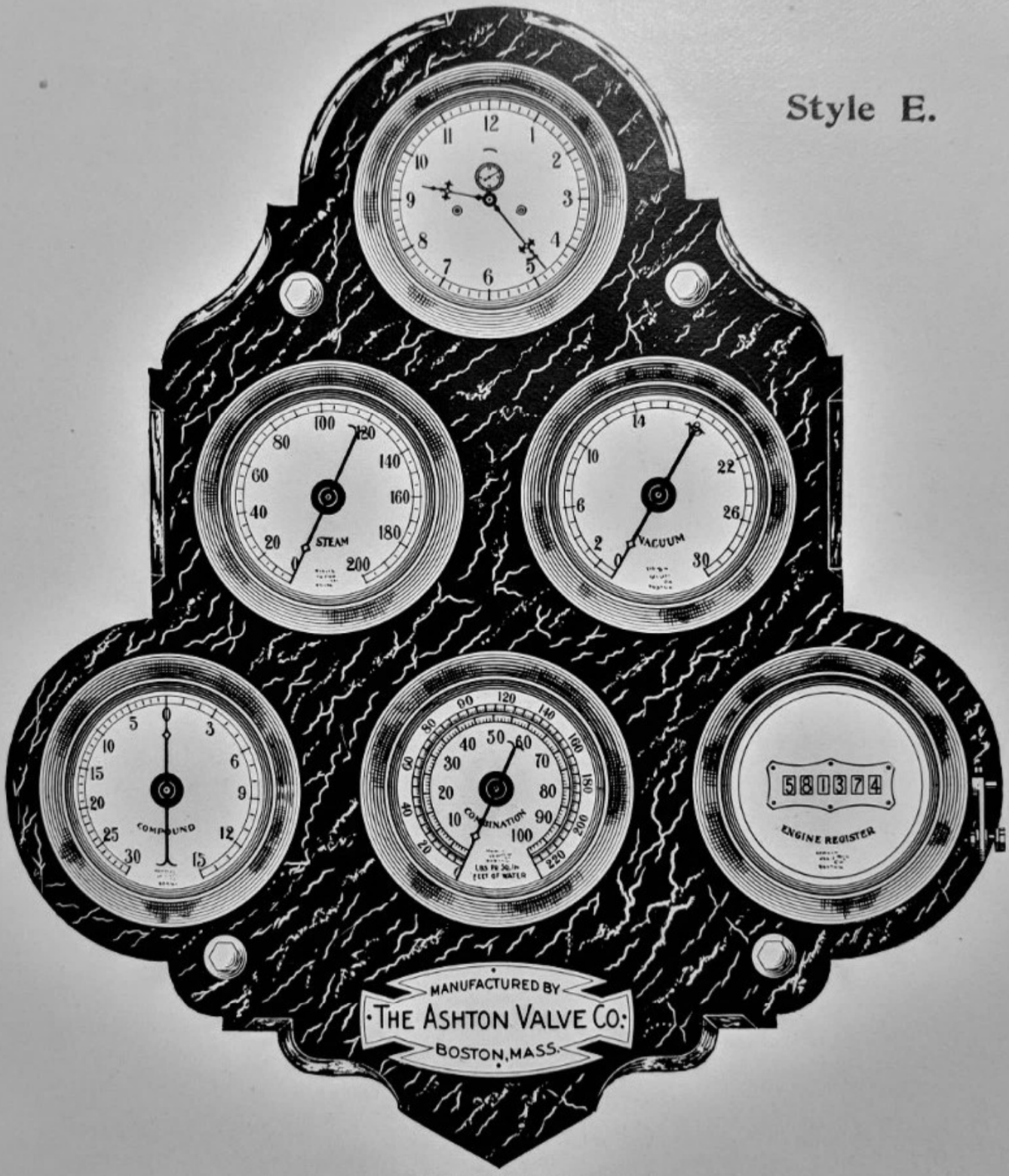
Style D.

PRICE LIST.

Size.	Style D.
For five 5 inch Gages	$8 00
" " 5½ " "	10.00
" " 6 " "	14.00
" " 6¾ " "	16.50
	25.00

Marble or Slate Tablets.

Style E.



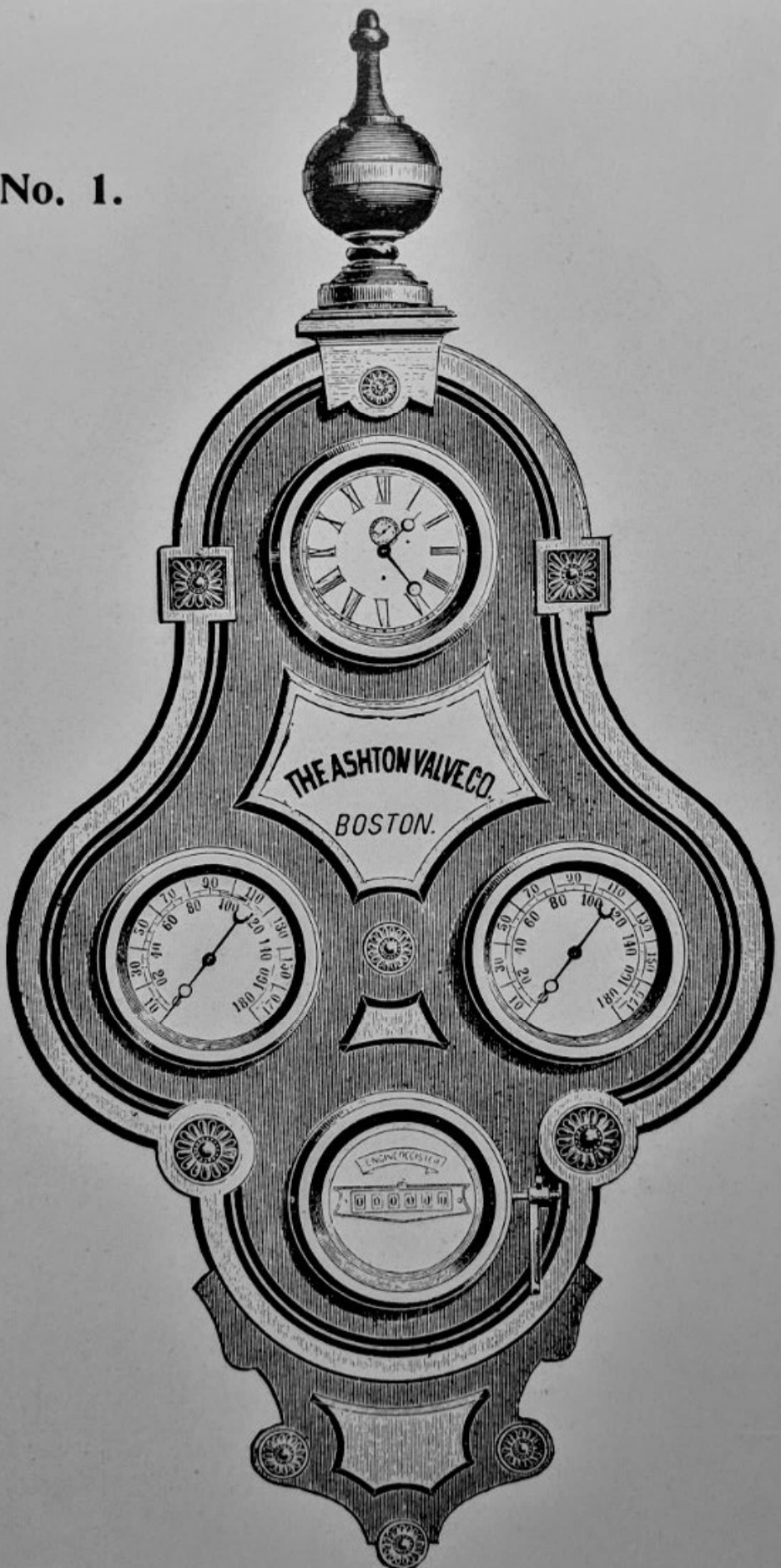
PRICE LIST.

Size.	Style E.
For six 5 inch Gages	$11.50
" " 5½ " "	14.00
" " 6 " "	17.25
" " 6¾ " "	20.25
" " 8½ " "	31.50
" " 10 " "	41 00
" " 12 " "	45.00

For prices of Name Plates see page 86.

Gage Frame for Set of Four Instruments.

Style No. 1.



Gage Frame for Set of Five Instruments.

Style No. 2.

The Ashton Inspectors' Testing and Proving Outfit.

The above outfit is particularly designed to meet the requirements of Boiler and Power Plant Inspectors, Mechanical and Chief Engineers, as it is accurate, durable, light weight, and easily portable. The outfit consists of the following nickel-plated instruments: Three-inch Standard Test Gage, Screw Test Pump, Gage Hand Puller, Hand Set, Lever Handle Union Gage Cock and Screw Driver, all neatly and compactly contained in velvet-lined leather case, fitted with lock and handle. The approximate weight of this outfit is eight pounds.

Price, $45.00 each.

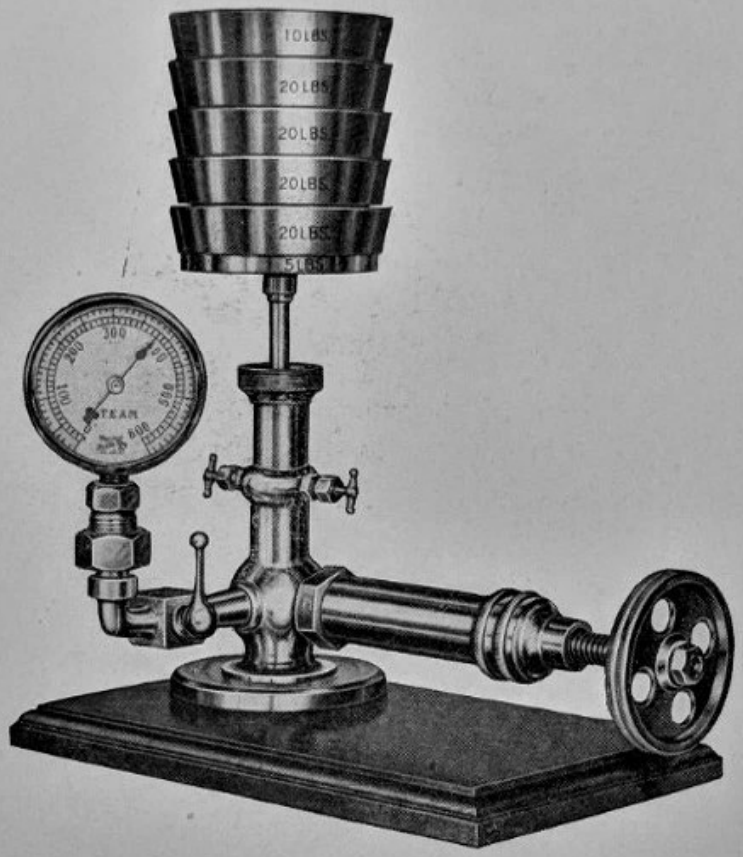
Write for Discounts.

The Ashton Improved Pressure Gage Tester.

WITH DOUBLE AREA PISTON FOR WIDE RANGE OF PRESSURE.

(Patented.)

No. 79.



The above cut represents our Improved Gage Tester, being an instrument for accurately testing and correcting pressure gages by means of weights. As a standard for measuring pressures it is equal in accuracy to a mercury column, yet much more convenient and less expensive.

The patented improvement of the double area piston makes it a superior instrument to any other, giving an unusual wide range of pressure by the use of only a few small size weights. The weight piston and cylinder into which it fits is made in two different diameters, one being half the diameter of the other, so that by a handy means of adjustment, as explained in the directions on the opposite page, the pressure may be exerted either on the large or small area of the piston, the latter giving four times the pressure of the former without any change of weights.

Price, $100.00 each,

which includes Tester complete, with weights for testing to one thousand pounds, and furnished with screw driver, hand puller, hand set, oil can, and six nipples for attaching gages, all packed in two separate cases provided with substantial handles, so as to be easily carried.

The gage shown in the cut is not furnished with Tester, being used only for illustration.

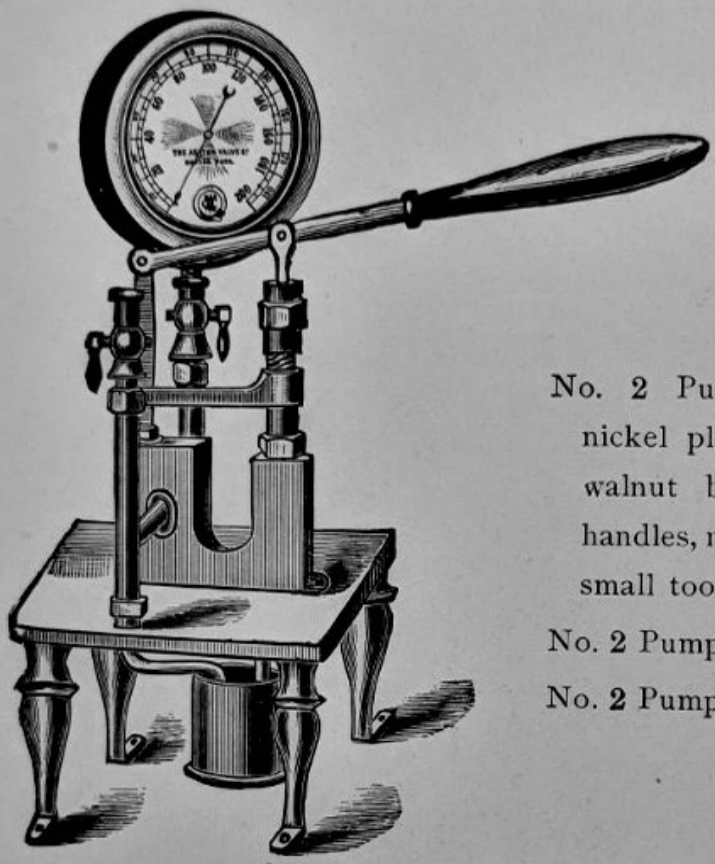
The Ashton
No. 1 Standard Lever Test Pump.

This Pump and Stand make a very complete and substantial apparatus for testing gages. It is made with three connections, so that two gages can be tested and compared with the test gage at the same time, and is suitable for pressures up to three hundred pounds. Railroads and others using large numbers of gages will find this pump specially desirable.

Price without gage, $50.00.

For price of Test Gages see pages 66 and 67.

The Ashton
No. 2 Lever Pump and Test Gage.



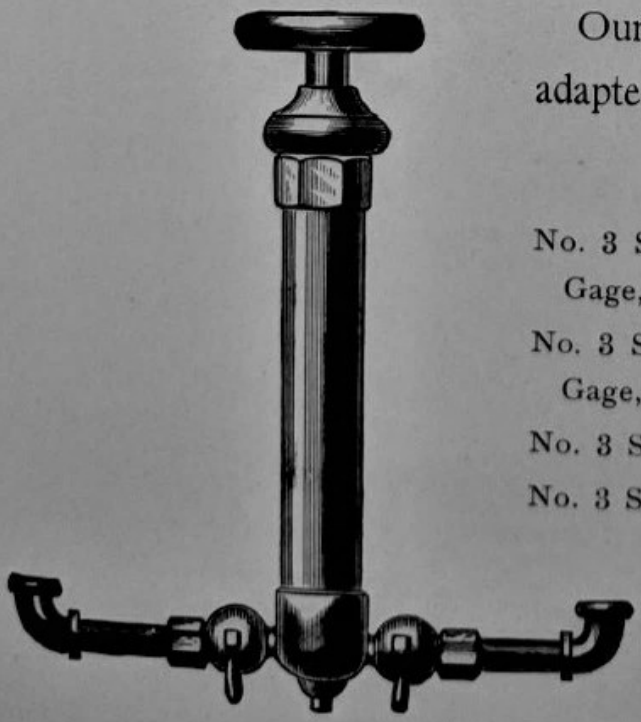
Our No. 2 Pump is compact, neat, and durable.

It occupies only a space of nine inches square.

PRICE LIST.

No. 2 Pump and Gage complete, nickel plated, in velvet-lined black walnut box, with lock, key, and handles, nickel-plated trimmings, and small tools	$75.00
No. 2 Pump only, nickel plated	50.00
No. 2 Pump only, plain brass	40.00

The Ashton
No. 3 Screw Pump and Test Gage.



Our No. 3 Screw Pump is especially adapted for Boiler Inspectors.

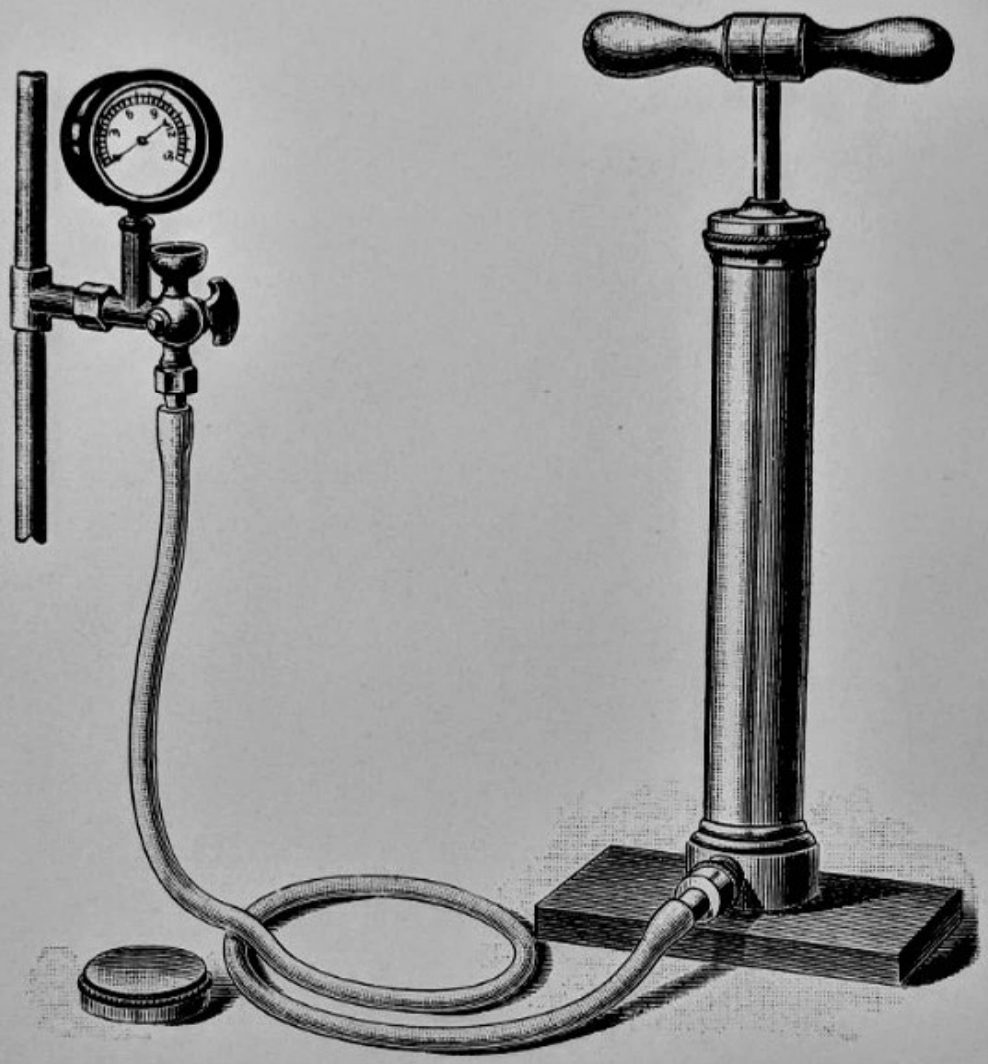
PRICE LIST.

No. 3 Screw Pump and 3½-inch Test Gage, all nickel plated	$30.00
No. 3 Screw Pump and 3½-inch Test Gage, plain brass	28.00
No. 3 Screw Pump only, nickel plated,	14.00
No. 3 Screw Pump only, brass	12.00

For price of Test Gages see pages 66 and 67.

The Ashton
Gas Proving Pumps and Gages.

No. 77.



These Pumps and Gages are for gasfitters' use in testing pipes for leakages. The Gages are usually furnished with covers as a protection to the glass.

PRICE LIST.

Pump, Gage, Ether Cup, and Hose, complete	$16.00
Pump and Hose only	8.00
Brass Case Gage, 3-inch dial, with cover	5.00
Ether Cup and Cock	3.00

The Ashton Common Steam Whistles and Whistle Valves.

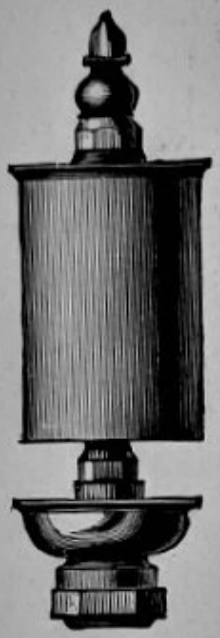


Fig. 1.
Without Valve.

No. 90.

Fig. 2.
With Side Valve.

PRICE LIST.

Diameter of Bell.	Size of Steam Pipe.	Whistle Fig. 1.	Whistle Fig. 2.	Whistle Valves.
1 inch	½ inch	$2.20	$3.10	$2.50
1¼ "	½ "	2.75	3.75	2.50
1½ "	½ "	3.00	4.00	2.50
2 "	¾ "	4.35	5.50	3.00
2½ "	¾ "	5.25	6.50	3.00
3 "	1 "	7.25	8.50	3.50
3½ "	1 "	9.50	11.50	3.50
4 "	1¼ "	12.00	15.00	5.00
5 "	1½ "	19.00	22.50	6.00
6 "	2 "	24.00	33.00	9.00
8 "	2½ "	70.00	95.00	18.00
10 "	2½ "	150.00	210.00	27.00

Write for Discounts.

The Ashton Improved Single Bell Chime Steam Whistles.

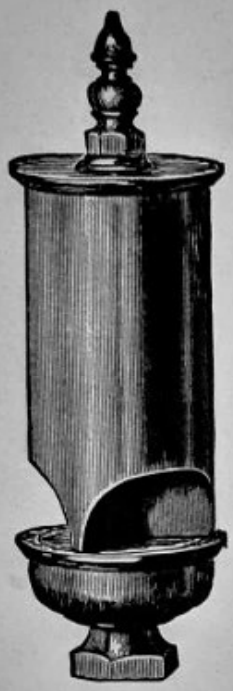


Fig. 1.
Without Valve.

No. 91.

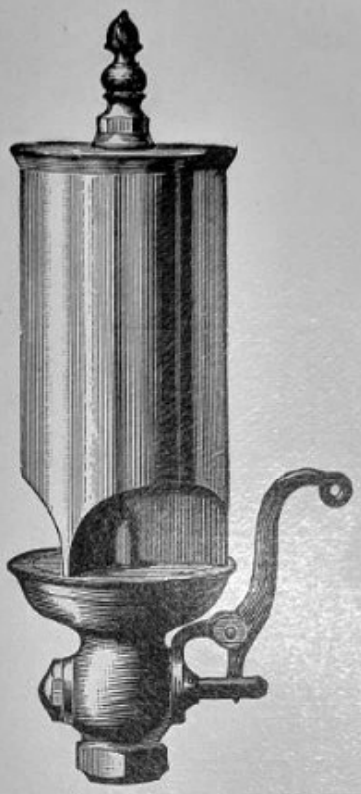


Fig. 3.
With Side Valve.

Ashton Chime Whistles produce an agreeable sound in contrast to the harshness of the common whistle, and besides are far more penetrating. They are solid in construction and of best steam metal, insuring great durability and satisfaction.

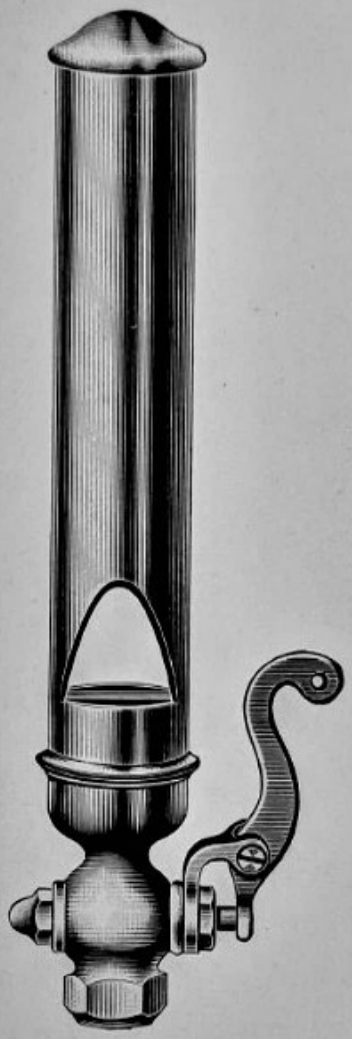
PRICE LIST.

Diameter of Bell.	Size of Steam Pipe.	Fig. 1.	Fig. 3.
2 inch	½ inch	$5.00	$7.00
3 "	¾ "	8.00	11.00
4 "	1 "	14.00	18.00
5 "	1¼ "	22.00	28.00
6 "	1½ "	38.00	42.00
8 "	2 "	85.00	100.00
10 "	2½ "	150.00	180.00
12 "	3 "	260.00	300.00

Write for Discounts.

In ordering state Figure and Diameter of Bell.

The Ashton Organ Whistle.



No. 92.

The Ashton Organ Whistle, as above shown, is a modified form of the common whistle, having an extra long bell which gives a very low, full tone. It is largely used on ocean steamers, being preferred by many for this class of service.

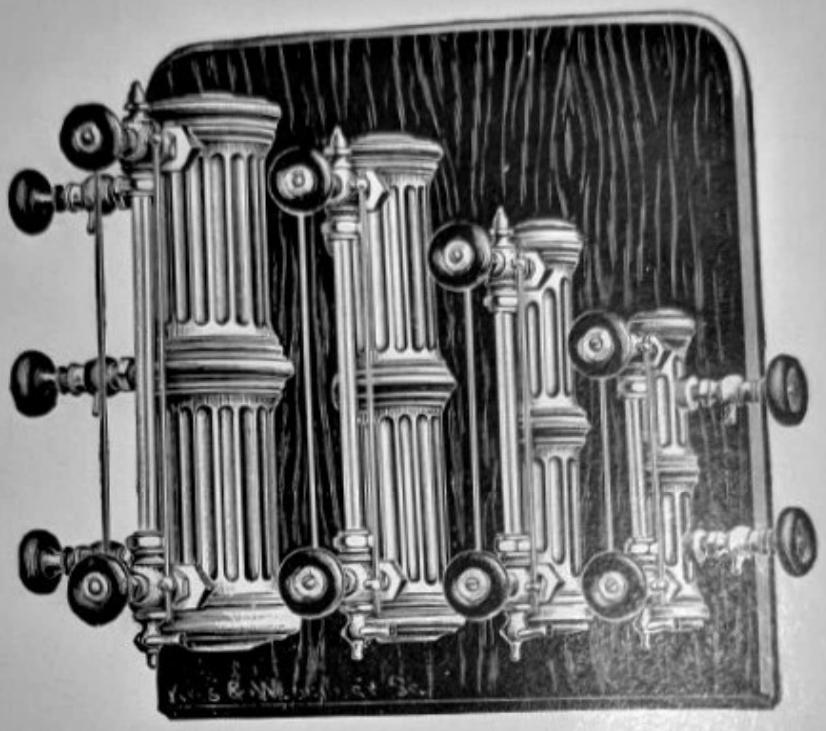
PRICE LIST.

Size of Steam Pipe.	Diameter of Bell.	Length of Bell.	Price.
½ inch.	1¼ inch.	9 inches.	$9.00
½ "	1¾ "	10 "	13.00
¾ "	2 "	11 "	19.00
¾ "	2½ "	12 "	25.00
1 "	3 "	17 "	32.00
1 "	3½ "	19 "	40.00
1¼ "	4 "	20 "	60.00

Write for Discounts.

The Ashton Water Columns.

FOR WATER GAGES AND GAGE COCKS.



Bronzed Iron Water Columns.

These columns are tapped for 3/8 inch, 1/2 inch, or 3/4 inch fittings, according to size, and have boiler connections 1 inch or 1 1/4 inch, as desired.

A siphon must always be used between gage and water column.

Prices for the columns only; they do not include water gages or gage cocks, steam gage or siphon.

For prices on water gages and gage cocks see pages 97 to 101, inclusive.

PRICE LIST.

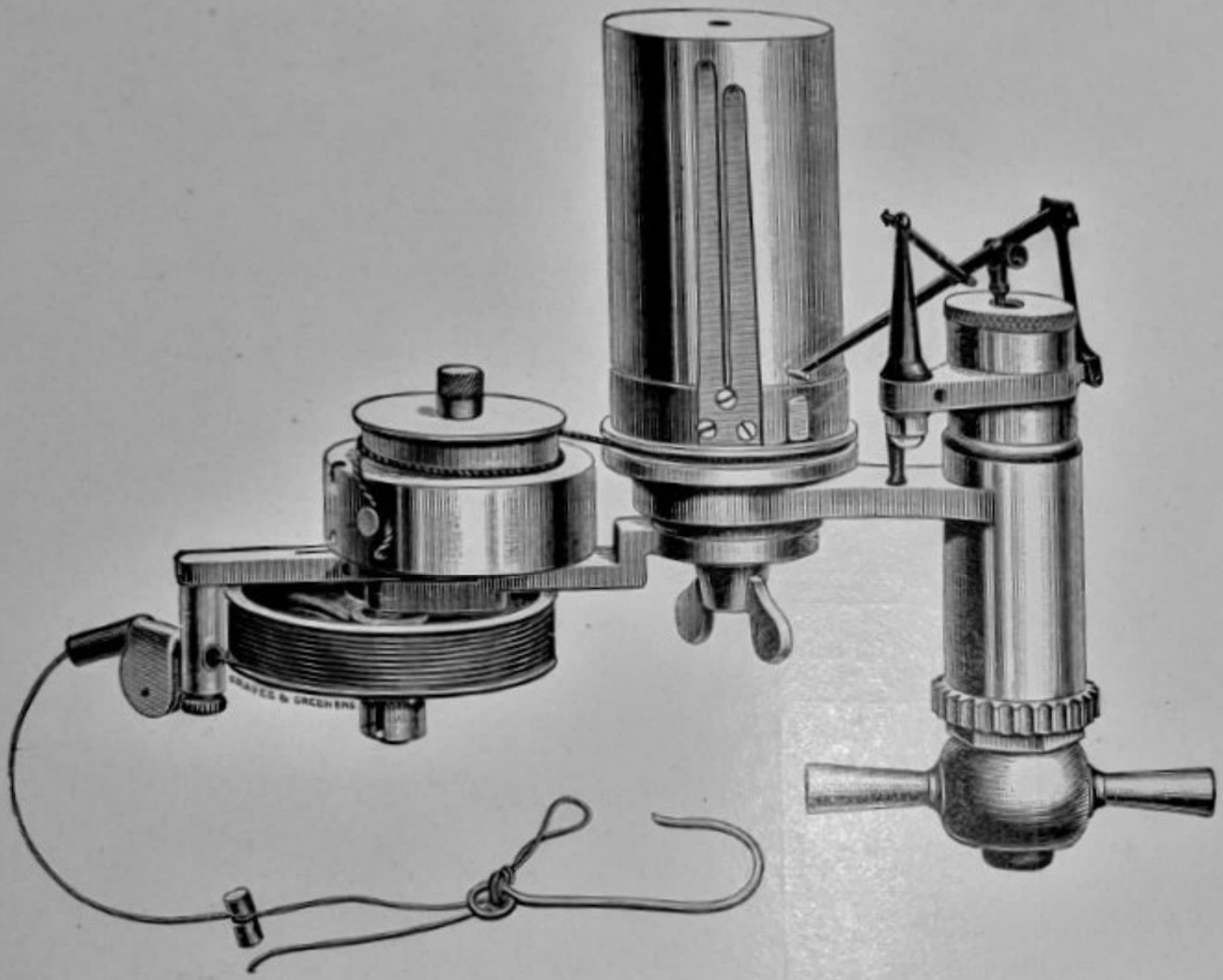
Style.	No. 1.	No. 2.	No. 3.	No. 4.
Total length in inches	11 1/2	15 1/2	18 3/4	21
Length glass in inches	7	10	13	15
Price	$2.50	$3.00	$4.00	$5.00

Write for Discounts.

Price of all brass column bodies furnished on application.

Improved Indicator.

Patented August 31, 1875, July 12, 1881, and June 26, 1883.



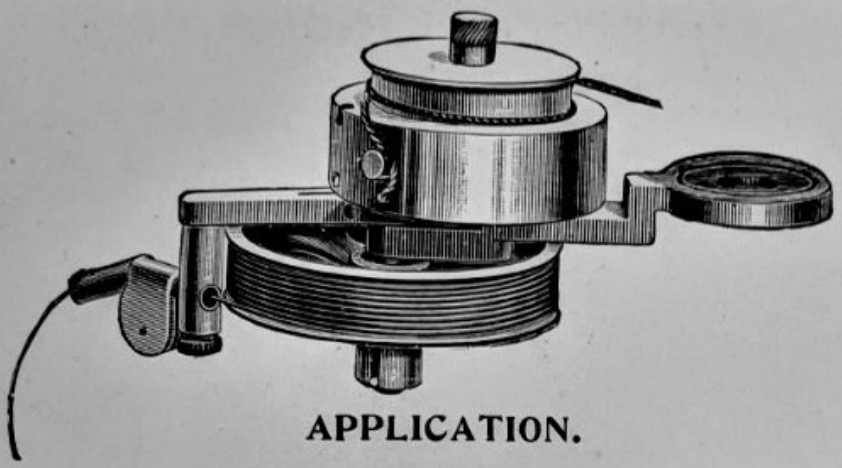
Price List of Thompson Improved Indicator and Extra Fixtures.

Thompson Indicator, nickel plated and complete with one spring, *in the instrument*, one scale, two cocks, all necessary wrenches to use on the instrument, one screw-driver, one bottle watch oil, and Pray's "Twenty Years with the Indicator," all enclosed in a neat mahogany box		$85.00
Extra Piston, ¼ inch area		10.00
" Springs,	each	5.00
" Boxwood Scales,	"	.50
" Steel Scales,	"	1.00
Extra Cocks,	each	$2.75
" Elbows,	"	1.50
Three-way Cock,	"	6.00
Single Carrying Pulley,	"	.60
Double " "	"	1.20
Parallel Rule		7.00
Reducing Pulley		25.00
Clamps		3.00
Metallic Cards,	per 1,000, net	5.00
Common Cards,	" 1,000, "	2.50
Detent Motion, net		10.00
Pantograph		10.00
Planimeter		15.00

Steel Indicator.

withstand the action of

Aluminum Ideal Reducing Wheel.



APPLICATION.

A device for reducing the motion of an engine cross-head to that required for the paper drum of an Indicator.

For either Upright or Horizontal Engines of not over 6-ft. stroke.

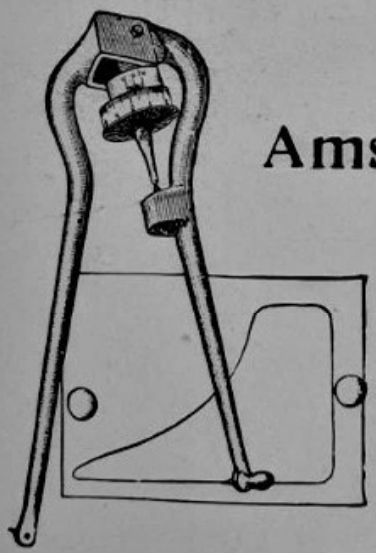
ADVANTAGE.

Ease and Quickness of Application.

With cylinder arranged for the applying of Indicator a card can be taken at any time without stopping engine inside of ten minutes.

The elaborate preparation and time necessary to adjusting pantograph or pendulum entirely done away with.

Price, $15.00 each.



Amsler's Polar Planimeter.

For measuring the area of Indicator Diagrams. By use of this instrument the whole work of measuring a diagram can be done in a very short time.

Price, $15.00 each.

Indicator Springs.

To adapt the Indicator to all pressures we furnish Springs to any desired scale. The following are the most generally used: 8, 10, 12, 16, 20, 24, 30, 32, 40, 48, 50, 56, 60, 64, 80, 100. For pressures from 65 to 85 pounds a 40-pound spring is best adapted, for, as 40 pounds pressure on a 40-pound spring will raise pencil one inch, 80 pounds pressure on the same spring will raise pencil about two inches, which is the usual height of a diagram.

Price of extra Springs, $5.00 each.

Thermometers.

FOR STEAM AND HOT WATER HEATING.

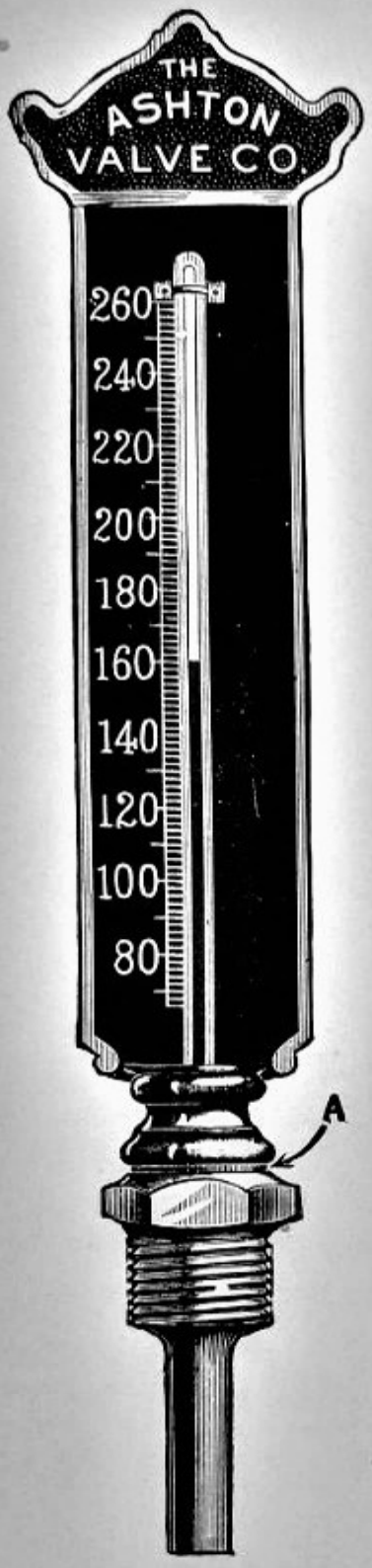


Fig. 1.

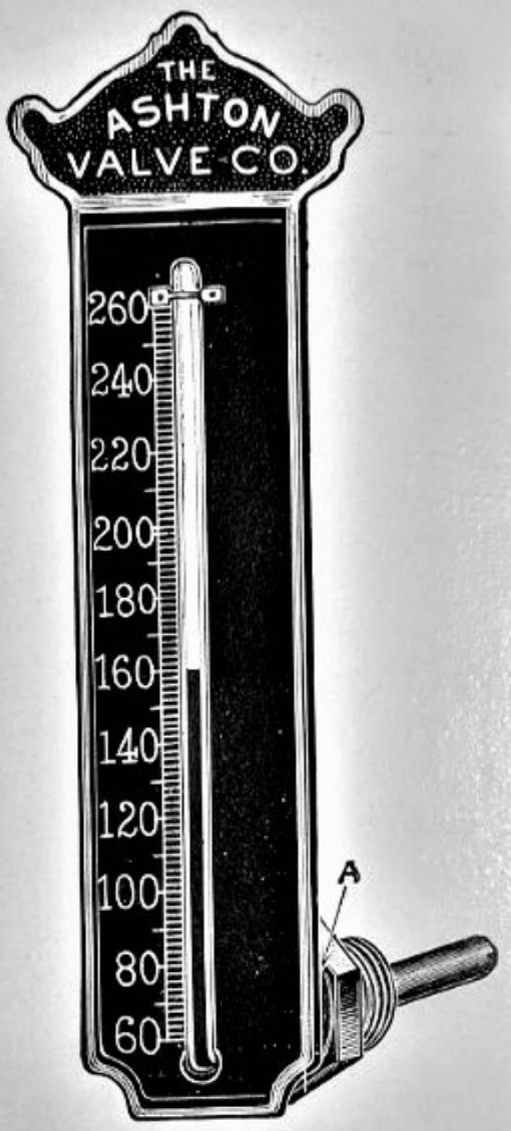


Fig. 3.

These Thermometers made with either silvered or black metal dials handsomely finished. The Steam Thermometers have both Temperature and Pressure Scales.

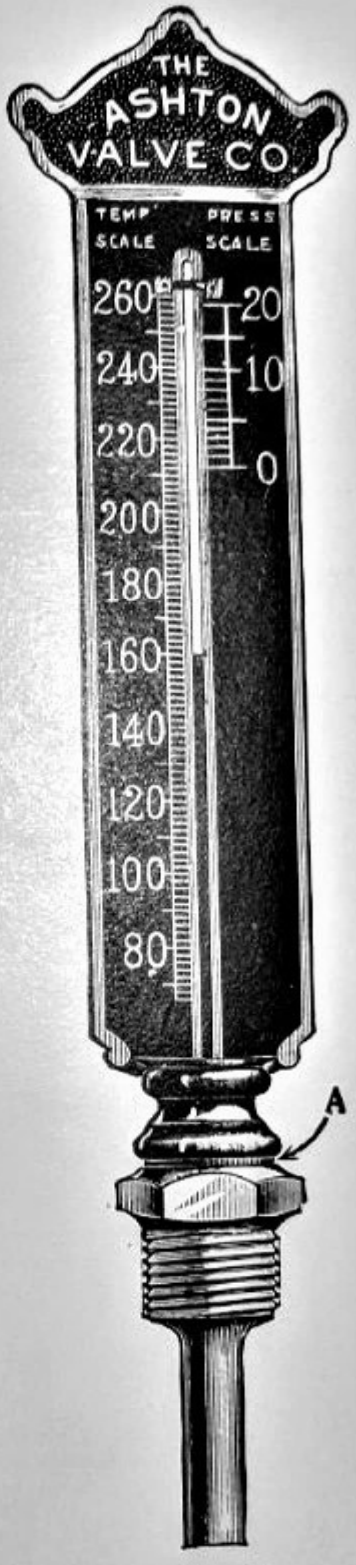


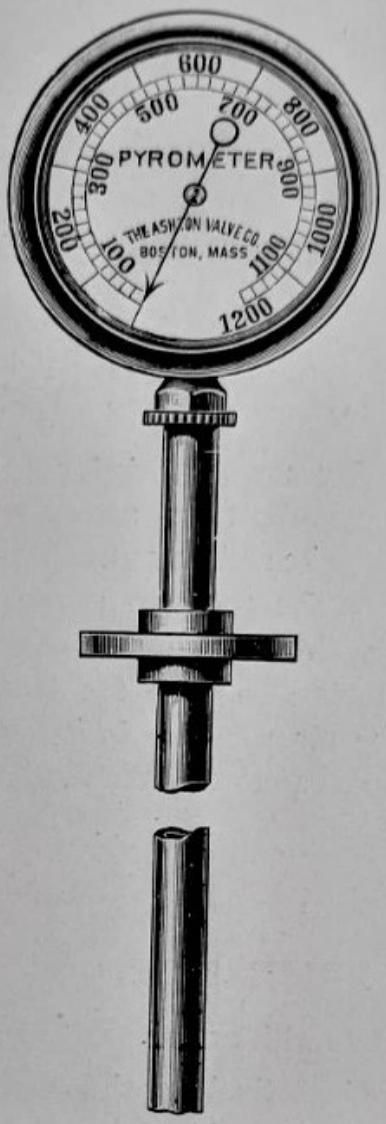
Fig. 2.

PRICE LIST.

Fig.	Description.	Per Doz.
1	Straight Stem Hot Water Thermometer.....	$36.00
2	Straight Stem Steam Thermometer with Pressure Scale.....	39.00
3	Angle Stem Hot Water Thermometer	42.00
	Angle Stem Steam Thermometer with Pressure Scale	45.00

The Ashton Pyrometers.

500 to 3,000 Degrees.



Adapted for Annealing Ovens, Blast Furnaces, Bakers' Ovens, Glass Works, Boiler Flues, Chimneys, etc.

Applicable to any of the various operations where a certain fixed temperature is conducive to the best result.

These Pyrometers are manufactured under the Brown patents, and are now the most widely and favorably known. They are speeially adapted for high temperatures, and are unequalled in durability and accuracy.

PRICE LIST.

Style.	Dimensions.	Shanks, feet.	Price.
A	6½ inch Dial to 3,000 degrees, with all improvements and most durable, for Annealing Ovens	3	$75.00
B	The same as A, for 2,000 degrees	3	70.00
C	6½ inch Dial to 1,500 degrees, for Blast Furnaces and Tempering	4	50.00
D	The same as C, for 1,200 degrees	4	30.00
E	6½ inch Dial for 1,200 degrees, for Tin Plating, Bakers, and Japanning Ovens	4	25.00
F	6½ inch Dial to 1,500 degrees, Recording Pyrometer	....	90.00
G	6½ inch Dial to 800 degrees, Recording Pyrometer	....	60.00

Write for Discounts.

Stems over 4 feet long in total length, $1.50 per foot extra.

IMPORTANT. When ordering, please inform us the special use and probable temperature for which you

The Ashton Draft Gages.

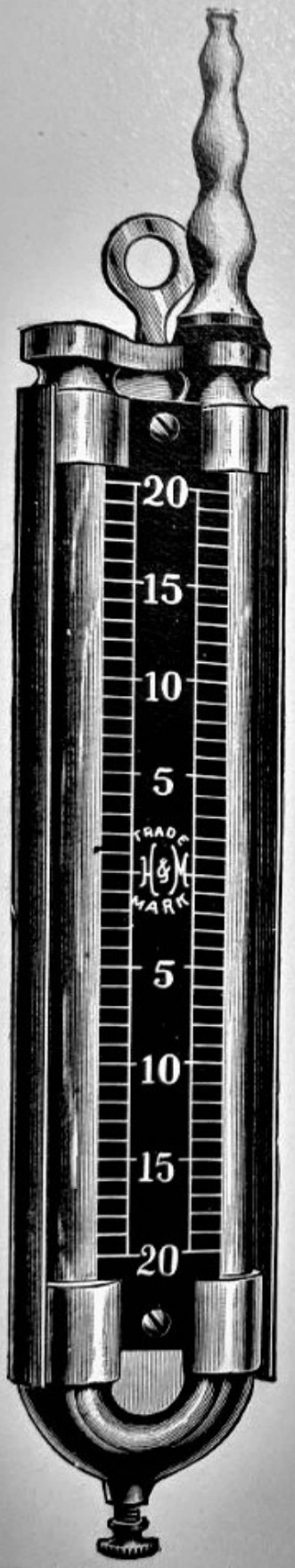


Fig. 1 Style.

These Gages are used for indicating the draft or ascending force of smoke and gases in chimneys. It is the common practice to measure this draft in inches of water. It is also used for indicating the air pressure in closed stoke hole and up-take under grates.

PRICE LIST.

Fig. 1 Style with armor.

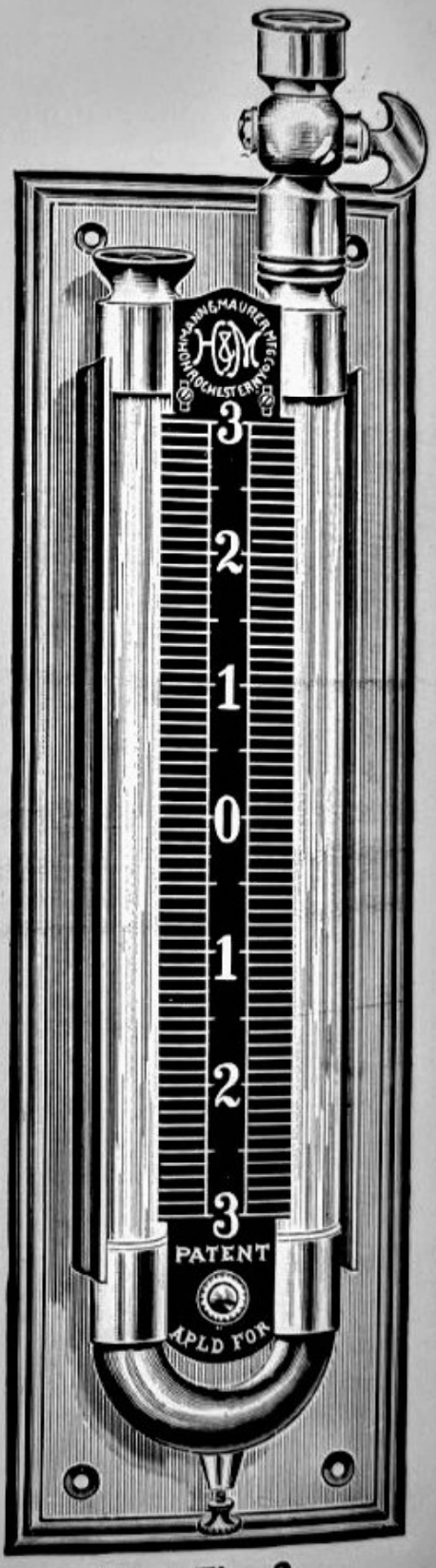
With 4-inch Scale, each . . $6.00
With 6-inch Scale, each . . 7.50

Fig. 2 Style without armor.

With 4-inch Scale, each . . $3.75
With 6-inch Scale, each . . 4.50

Fig. 2 Style with armor.

With 4-inch Scale, each . . $5.25
With 6-inch Scale, each . . 6.00



Style Fig. 2.

Write for Discounts.

THE ASHTON VALVE COMPANY

CATALOGUE
No. 12

POP SAFETY AND
RELIEF VALVES
PRESSURE AND VACUUM
G A G E S

OFFICE AND WORKS
BOSTON, MASS., U. S. A.

BRANCH STORES
NEW YORK CHICAGO LONDON

THE ASHTON VALVE

WORKS AT 271 FRANKLIN STREET, BOSTON, MASS., U. S. A.