J. H. BROWN.

Low-Water Indicator.

No. 162,795. Patented May 4, 1875.

Fig: 1.

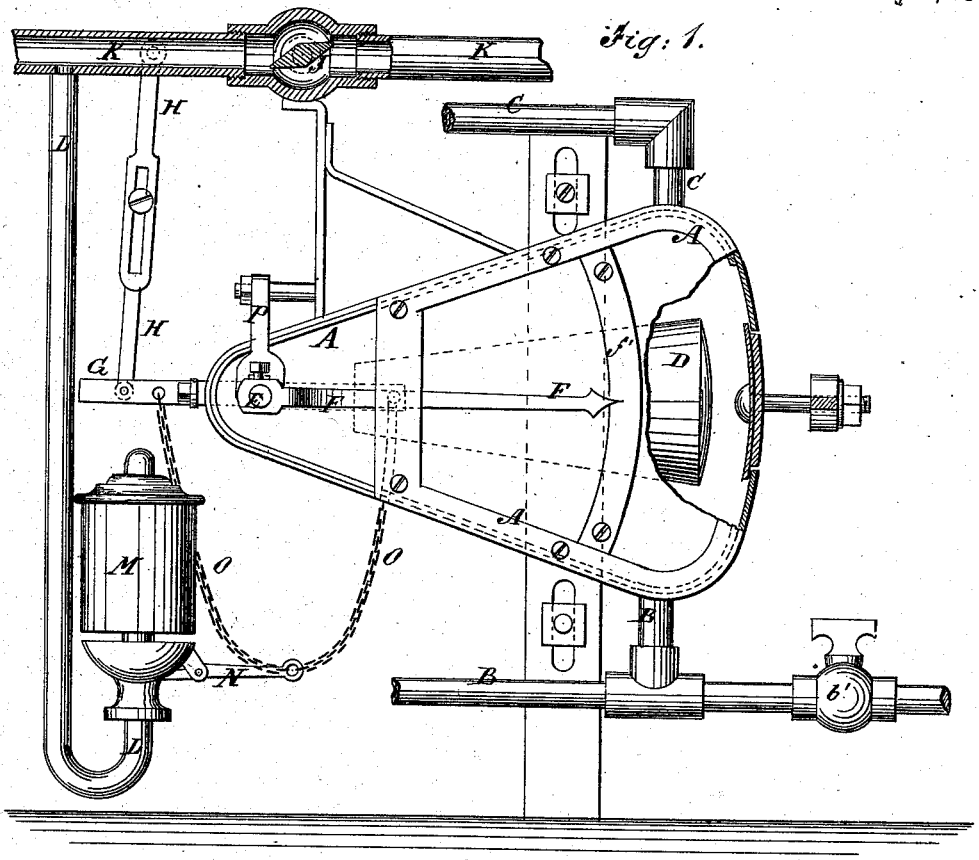
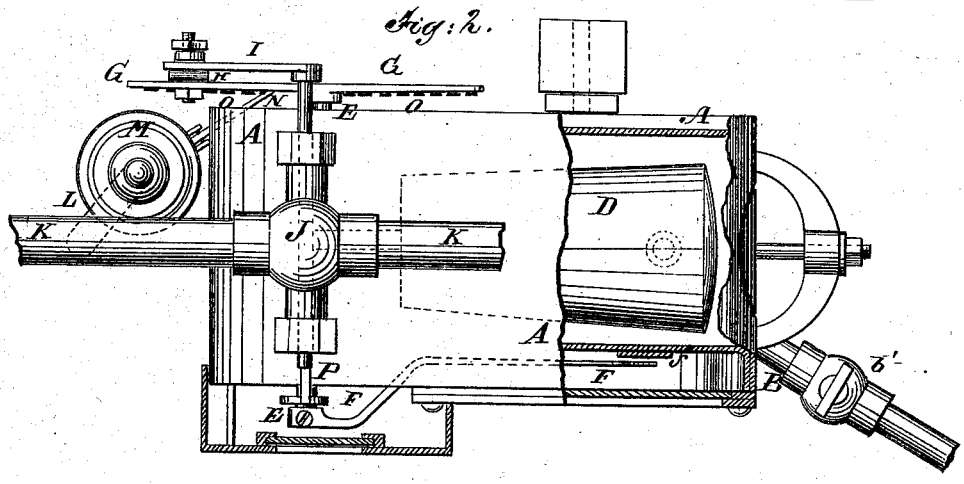


Fig: 2.



WITNESSES:

Chas. Nida
A. F. Terry

INVENTOR:

James H. Brown

BY

ATTORNEYS.

THE GRAPHIC CO. PHOTO.-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JAMES HARDING BROWN, OF PORTER'S MILLS, WISCONSIN.

IMPROVEMENT IN LOW-WATER INDICATORS.

Specification forming part of Letters Patent No. **162,795**, dated May 4, 1875; application filed February 20, 1875.

To all whom it may concern:

Be it known that I, JAMES H. BROWN, of Porter's Mills, in the county of Eau Claire and State of Wisconsin, have invented a new and useful Improvement in Combined Water-Gage, Pump-Regulator, and Alarm, of which the following is a specification:

Figure 1 is a side view of my improved device, parts being broken away to show the construction. Fig. 2 is a top view of the same, part being broken away to show the construction.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved water-gage for steam-boilers, which shall be provided with a governor for regulating the supply of water and thus keeping the water always at the same level, which shall be provided with an alarm-whistle, to give an alarm when the water rises to high-water mark, or sinks to low-water mark, which shall be free from gearing upon the inside, and thus not liable to stick or work hard, and which shall be simple in construction, not liable to get out of order, and easily adjusted.

The invention will first be fully described, and then pointed out in the claim.

A represents the case of the gage, which is made somewhat pear or wedge shape, and is placed with its bottom about upon a level with the upper flues of the boiler. With the bottom of the case A is connected a pipe, B, which is designed to enter the boiler-head below the flues, and thus avoids all foam. The water-pipe B is provided with a blow-off valve, *b'*, to enable the case A to be easily cleaned out when necessary. With the top of the case B is connected a pipe, C, which is designed to enter the dome of the boiler and admit steam to the said case A, so that the water may always stand at the same level in the case A, and in the boiler. Within the case A is placed a tapering float, D, which corresponds somewhat in form with the form of the said case A. The smaller end of the float D is rigidly connected with the shaft E, that crosses the smaller part of the case A, and works in stuffing-boxes in the walls of said case A. To one end of the shaft E is attached an index finger or pointer, F, the point of which moves along an index-plate or scale, *f'*, attached to the case A, so as to indicate the exact level at which the water stands in the boiler. To the other end of the shaft E is attached a cross-bar, G. To one arm of the cross-bar G is pivoted the lower end of a connecting-rod, H, the upper end of which is pivoted to the outer end of the crank-arm I, attached to the stem of the throttle-valve J, placed in the steam-pipe K, that leads from the boiler to the steam-pump that supplies the said boiler with water. The connecting-rod H is made in two parts, the adjacent ends of which overlap and are secured to each other by a bolt or other suitable means, so that the length of the said rod H may be adjusted, as may be required. With the steam-pipe K is connected the end of a pipe, L, with the other end of which is connected a steam-whistle, M. With the valve-stem N of the valve that admits steam to the whistle M are attached the ends of two chains, O, the other ends of which are attached to the cross-bar G upon the opposite sides of and equally distant from the pivoting-point of said cross-bar. The chains O are made of such a length that when the water in the gage rises above or sinks below certain fixed limits, one or the other of said chains O will be drawn taut, and will operate the valve-stem, to admit steam to the whistle M, and thus sound an alarm. The shaft E is kept from longitudinal movement by a yoke, P, attached to the case A, or some other suitable support, and the ends of which are notched to fit and ride upon the said shaft.

By this construction, should the water rise or sink in the boiler it will be indicated by the index F, and at the same time the valve J will be operated to diminish or increase the amount of steam passing to the steam-pump, and thus diminish or increase the amount of water thrown into the boiler.

Should the water in the boiler rise above high-water mark, or sink below low-water mark, the whistle will be sounded to call attention to the boiler.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination of the two chains O and the cross-bar G with the shaft E of the gage-float D, and with the stem N of the valve that admits steam to the whistle M from the pipe K, that supplies steam to the steam-pump, substantially as herein shown and described.

JAMES HARDING BROWN.

Witnesses:

JOHN J. WYATT,

P. A. PRINCE.