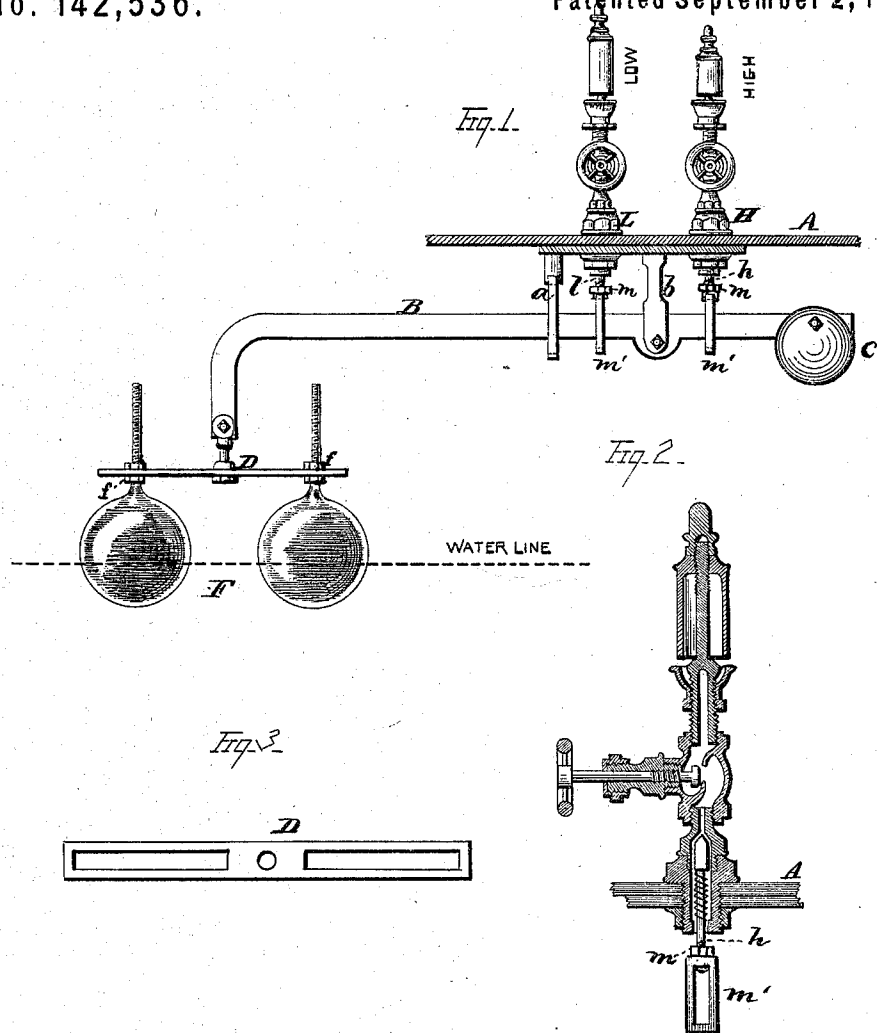


G. WALTON.

Combined High and Low-water Indicators.

No. 142,536.

Patented September 2, 1873.



WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE WALTON, OF CINCINNATI, OHIO, ASSIGNOR TO POST & CO., OF
SAME PLACE.

IMPROVEMENT IN COMBINED HIGH AND LOW WATER INDICATORS.

Specification forming part of Letters Patent No. **142,536**, dated September 2, 1873; application filed
June 26, 1873.

To all whom it may concern:

Be it known that I, GEORGE WALTON, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Combined High and Low Water Indicators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in combined high and low water indicators for steam-boilers; and consists as follows:

In the drawings, Figure 1 is a side view of my indicator as applied to the inside of steam-boilers; Fig. 2, a longitudinal section of one of the alarm-whistle valves, &c., section taken at right angles to Fig. 1; Fig. 3, a plan of the adjustable yoke of the floats.

A represents the top plate of a steam-boiler, to the under side of which is attached a lever, B, through its fulcrum *b*. This lever is of the form represented, curved downward, or it may be straight at one end, and provided at its short arm with an adjustable balance-weight, C. Hinged to the opposite or curved end of the lever B is a slotted yoke, D, Fig. 3. This yoke receives the attaching-screw ends of the floats F, which are secured to the yoke by clamping-nuts *f*. *a* is a stirrup or stop, through which the lever B passes, said stop being of a sufficient length in its inside to allow of a slight play of the lever up or down. On each side of the fulcrum *b* are placed valves H L which connect through slotted valve-rods *h l*, with the alarm-whistles high and low.

The operation and advantages of the machine are as follows: The indicator is supposed to be in its normal or proper position, as represented in the drawings—that is, with the water in the boiler up to the water-line—the lever horizontal or balanced, the valves *h l* by the action of their springs closed, the hand-valves open. Now, if the water rises above the water-line the floats are raised with it, pressing up the lever, and if the water is allowed to continue flowing into the boiler causing the lever to rise still higher until the under side of its short arm impinges against the yoke *m'* at the lower part of the valve-rod *h*, pressing it down, opening the

valve, and allowing steam to escape and sound the alarm high. The stop *a* is provided to prevent the lever being raised or lowered too far so as to damage the valve. If, on the other hand, the water sinks down below a certain point below the water-line, the floats falling with it, the lever is brought to bear down on the valve-rod *l*, opening the valve, and sounding the alarm low. The hand-valves are to shut off the noise while the engineer corrects the difficulty.

By this indicator the engineer is duly apprised if the water in the boiler rises or falls beyond a certain adjustable limit, and may prevent accident, while securing a great saving and economy in the running expenses. Water carried above the line of the heating surface acts as a condenser when a large loss of both power and fuel is the result. Of the loss and danger from too little water it is needless to speak.

The slotted yokes *m'* of the valve-stems *h l* are adjustable thereon by means of the nut *m*, to shorten or lengthen the valve-rod, as occasion may require.

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

1. In combination with the lever B the valve-rods *h l m'*, provided with adjustable slotted or stirrup ends *m*, substantially as and for the purposes set forth and described.

2. In combination with the lever B and floats F, the slotted and adjustable hinged yoke D, substantially as set forth and shown.

3. The floats F provided with screw ends by which they may be suitably adjusted, in combination with the slotted hinged yoke D and lever B, substantially as and for the purposes described.

4. The lever B, fulcrum *b*, slotted alarm-valve rods *h l*, stop piece *a*, adjustable weight C, hinged and slotted yoke D, and adjustable floats F, all arranged, constructed, and combined substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of June, 1873.

GEORGE WALTON.

Witnesses:

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E. P. BRADSTREET.