

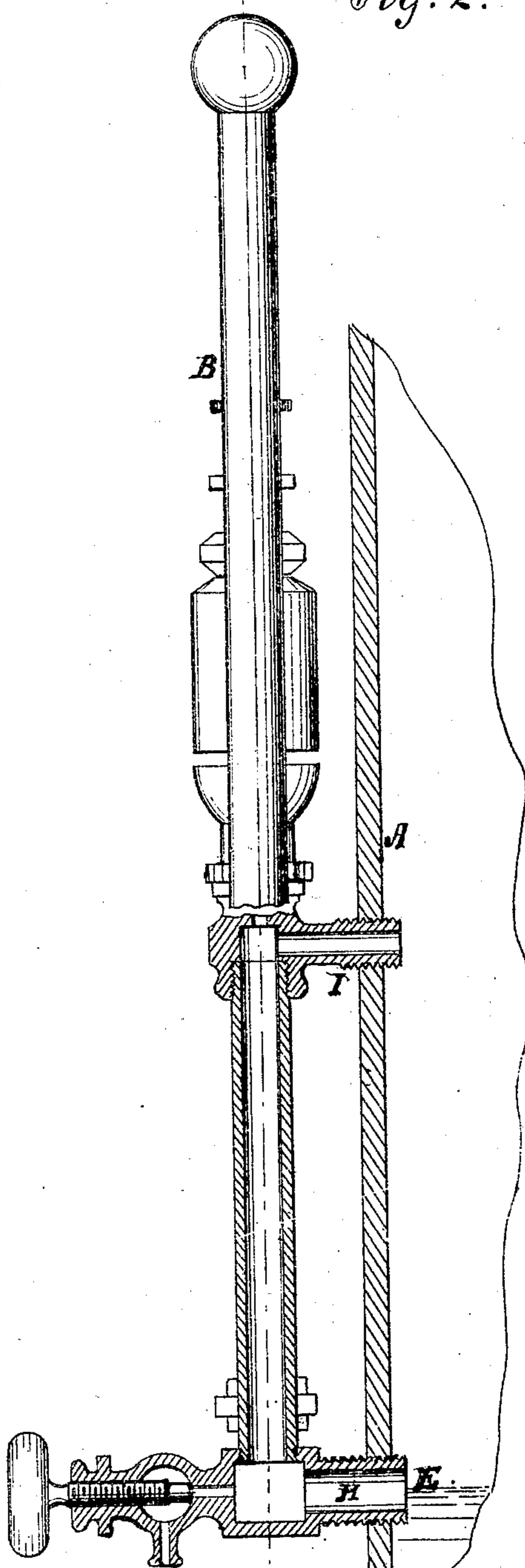
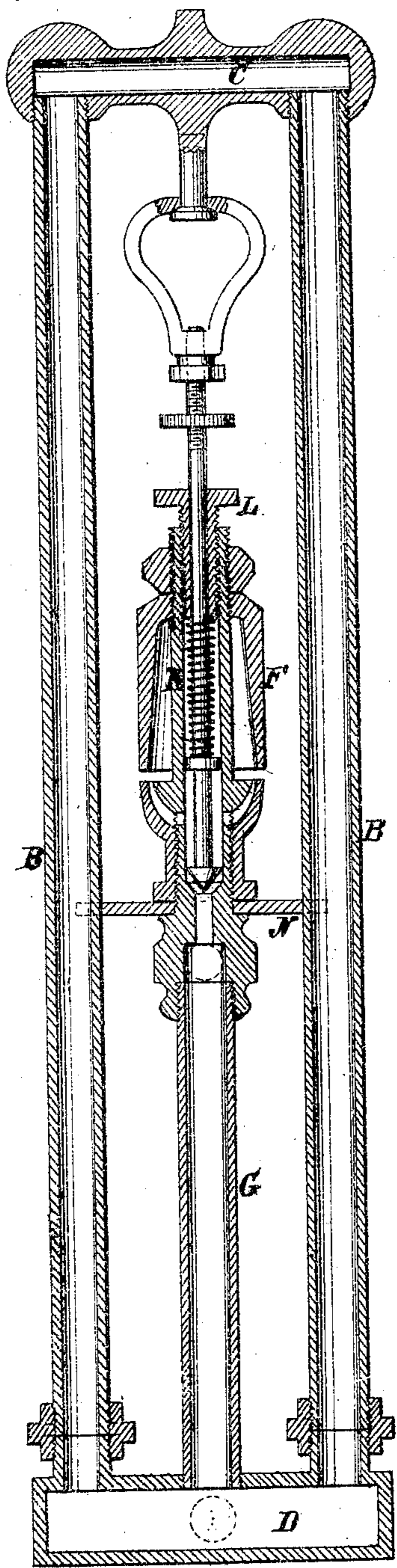
[72.]

G. B. MASSEY.

Low Water Detector.

No. 118,737.
fig. 1.

Patented Sep. 5, 1871.
fig. 2.



Witnesses:

A. Bennemann & Co.

Francis McArdle

Inventor:

G. B. Massey.

PER

Munn & Co.

Attorneys.

UNITED STATES PATENT OFFICE.

GIDEON B. MASSEY, OF NEW YORK, N. Y., ASSIGNOR TO MASSEY LOW-WATER DETECTOR COMPANY, OF SAME PLACE.

IMPROVEMENT IN LOW-WATER DETECTERS.

Specification forming part of Letters Patent No. 118,737, dated September 5, 1871.

To all whom it may concern:

Be it known that I, GIDEON B. MASSEY, of the city, county, and State of New York, have invented a new and useful Improvement in Low-Water Detector; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

The present invention relates to low-water detectors; and the object is to provide effective means for lifting the steam-valve and preventing the scum or impurities on the surface of the water in the boiler from entering and fouling the expanding tubes, the general arrangement of the instrument and its connection with the boiler being similar to that of the low-water and high-pressure alarm for which Letters Patent of the United States were granted me, dated August 23, 1870, No. 106,598. The present invention consists in a vertical central tube arranged in the instrument as hereinafter described.

In the accompanying drawing, Figure 1 represents a sectional front view of the instrument, the section being taken on the line *x x* of Fig. 2. Fig. 2 is a side view of the same, partly in section, showing the instrument as attached to the boiler.

Similar letters of reference indicate corresponding parts.

A is the boiler-head. B B represent vertical tubes, connected together at top by the tube C, and at bottom by the tube D. The latter tube is connected with the boiler at the extreme low-water line, as seen at E. F is the steam-whistle, to the lower end of the shell of which is attached the tube G. The lower end of this tube connects with the tube D. H is a tube, which connects the instrument with the water-space; and I is a tube which connects it with the steam-space of the boiler.

By this arrangement the water will stand in

the tube G at the same height that it is in the boiler. When the water in the boiler falls below the lower ends of the tubes B B, steam will pass from the boiler down the tube G and enter the tubes B B, and expand the same sufficiently to raise the valve and blow the whistle. It will be noticed that the water-space tube H is a little below the ends of the tubes B B, which arrangement effectually excludes the entrance of the surface water of the boiler into those tubes. They are consequently not clogged or fouled by the scum which usually rests on the surface of the water, and which is unavoidably blown into the instrument when the surface water is allowed to enter. The steam-valve is suspended from the top tube C, and is adjusted to withstand the required pressure of steam by means of the spiral spring K and adjusting-screw L, described in my patent above referred to, and forming no part of the present invention. If there is an overpressure of steam the valve, being subject to its pressure, gives the alarm, the same as in the former patented instrument; but in this instrument, and by means of the tube G, the steam which enters and expands the tubes B B, and thereby raises the valve, comes from the steam-space of the boiler, and is not allowed, as in the patented instrument, to blow the foul surface water into those tubes, but all water and sediment are excluded, and the tubes are kept clean. N is a plate for supporting the whistle-shell and tube G, its ends being fitted to the tubes B B like a cross-head, so that it does not interfere with the expansion and contraction of those tubes.

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

In combination with a low-water detector, the tube G, arranged in relation to the expansion tubes B B, substantially as and for the purposes described.

Witnesses:

T. B. MOSHER,
WM. H. C. SMITH.

G. B. MASSEY.