

W. L. CARMAN.

Water and Steam Indicators for Boilers.

No. 158,675.

Patented Jan. 12, 1875.

Fig. 1.

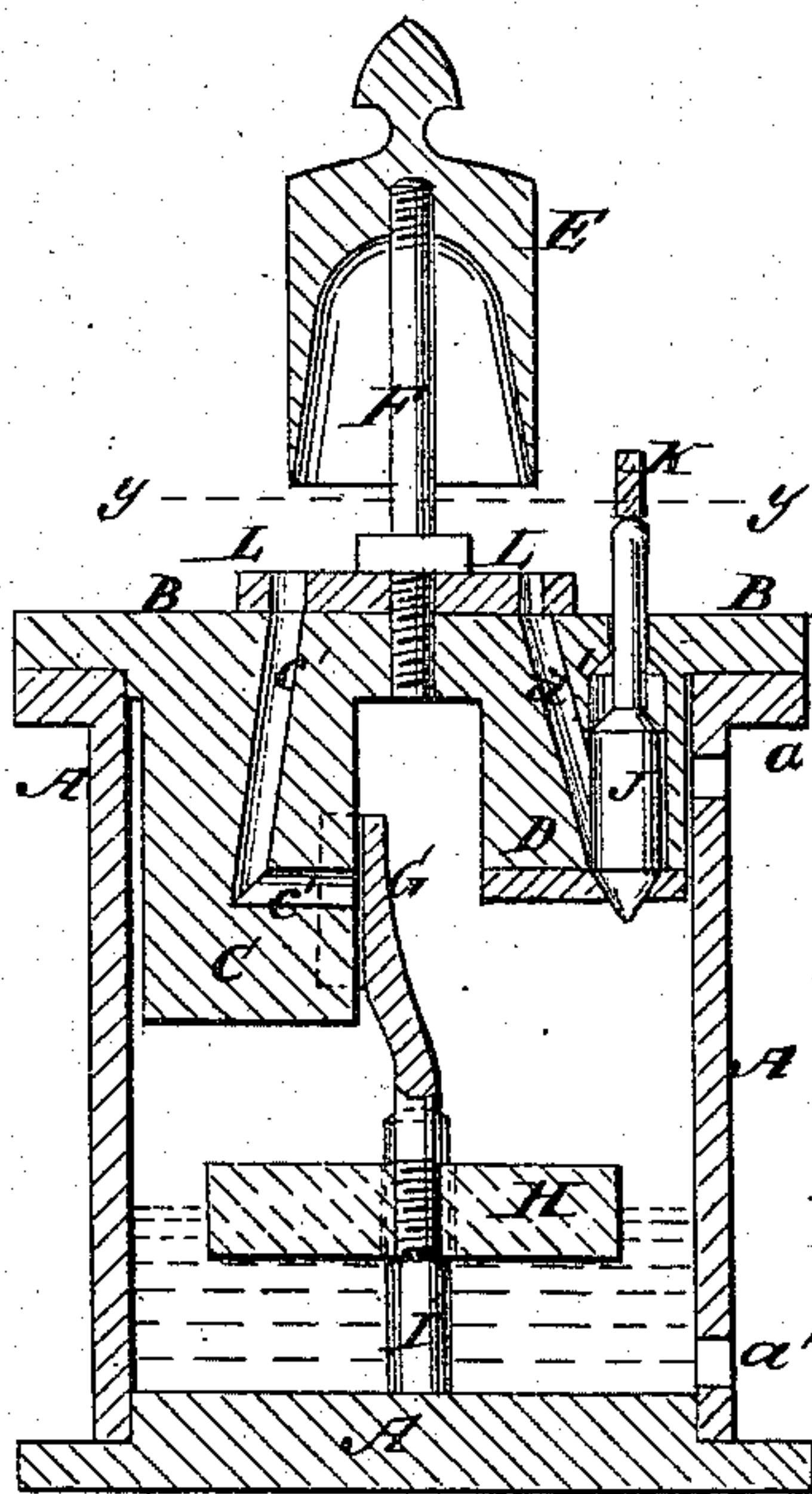
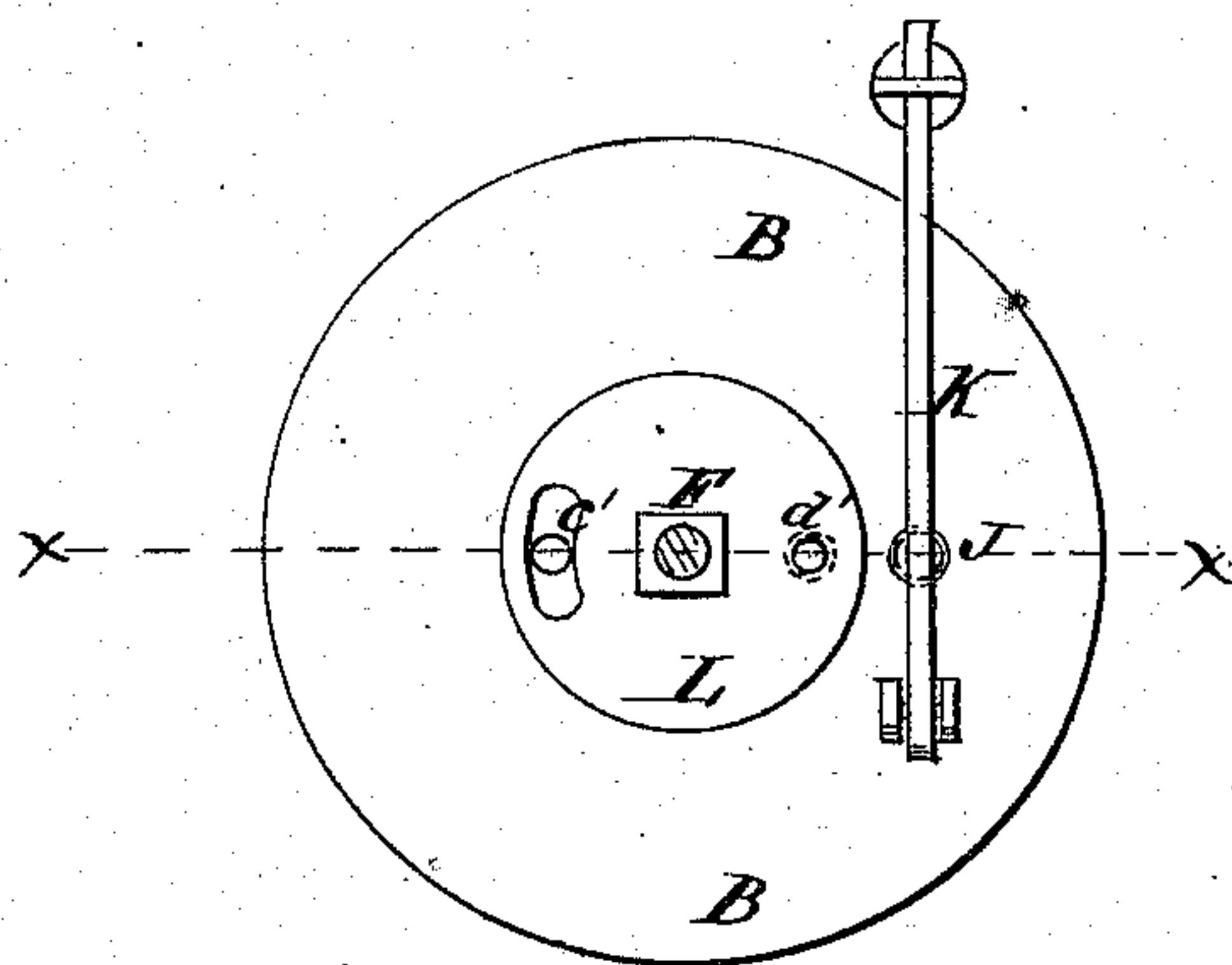


Fig. 2.



WITNESSES:

E. Wolff
Sedgwick

INVENTOR:

W. L. Carman

BY

Wm. L. Carman

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM L. CARMAN, OF BELVIDERE, NEBRASKA.

IMPROVEMENT IN WATER AND STEAM INDICATORS FOR BOILERS.

Specification forming part of Letters Patent No. **158,675**, dated January 12, 1875; application filed July 25, 1874.

To all whom it may concern:

Be it known that I, WILLIAM L. CARMAN, of Belvidere, in the county of Thayer and State of Nebraska, have invented a new and useful Improvement in Water and Steam Indicator for Boilers, of which the following is a specification:

Figure 1 is a vertical longitudinal section of my improved indicator, taken through the line *x x*, Fig. 2. Fig. 2 is a top view of the same, partly in section, through the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved device for indicating high and low water in a boiler or steam-generator, and for indicating high steam-pressure, and which shall be simple in construction, easily applied to a boiler, and reliable in operation. The invention consists in the combination of the cylinder or case, the cover having a projection formed upon its lower side, and provided with a port, the valve or slide, and the float, with each other, as hereinafter fully described.

A represents a small hollow cylinder, which is cast with a closed bottom and an open top. To the open upper end of the cylinder A is securely bolted a cover, B, upon the inner side of which are cast two projections, C D. Through the projection C is formed a steam-port, *c'*, the lower end of which opens through the inner side of the projection C at a little distance from the lower end of said projection C. The upper end of the port *c'* passes out through the top or cover B in such a direction that the steam passing out through said port may strike the whistle E, screwed upon the upper end of the rod F, the lower end of which is screwed into a cover, B. The inner end of the port *c'* is covered with the valve or slide G, attached to the float H, which floats upon the water in the cylinder or case A, and is kept in place as it moves up and down by two guide-pins, I, attached to the bottom of said cylinder. The cylinder A is designed to be connected with the boiler by a water-pipe, which enters a hole, *a*¹, in the lower part, and by a steam-pipe, which enters a hole, *a*², in the upper part of the side of the

said cylinder A, so that the water in the boiler and in the cylinder A may stand at the same level, and so that the pressure of steam may be the same in both boiler and cylinder. By this construction, as the water in the boiler becomes either too high or too low, the port *c'* will be uncovered, and the escaping steam will sound the whistle. In the projection D is formed a port, *d'*, leading from the lower end of said projection out through the cover B, in such a direction that the steam escaping through it will sound the whistle. The lower end of the port *d'* is closed by a valve, J, the stem of which passes out through the cover B, and upon its upper end rests a lever, K, one end of which is pivoted to lugs formed upon the cover B, and from its other end is suspended a weight. By this construction, if the steam-pressure reaches a point above that which the lever K is weighted to resist, the valve J will be raised, allowing the steam to escape through the port *d'* and sound the whistle. L is a thick washer placed upon the cover B, and secured in place by the screw-rod F, that supports the whistle E. In the washer L are formed slits or holes of different sizes, and corresponding in position with the upper ends of the ports *c'* *d'*, so that the escaping steam from the ports *c'* *d'* may give a different sound, and thus show by the sound whether the alarm has reference to the water or the steam.

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

1. The combination of the cylinder or case A, the cover B, having a projection, C, formed upon its lower part, and provided with a port, *c'*, the slide G, and the float H, working vertically on guide-pins I, substantially as herein shown and described.

2. The combination of the thick washer L, having different-sized holes formed through it, with the cover B, the ports *c'* *d'*, and the whistle E, substantially as herein shown and described.

WM. L. CARMAN.

Witnesses:

JOHN N. HOLE,
F. S. GRIFFITH.