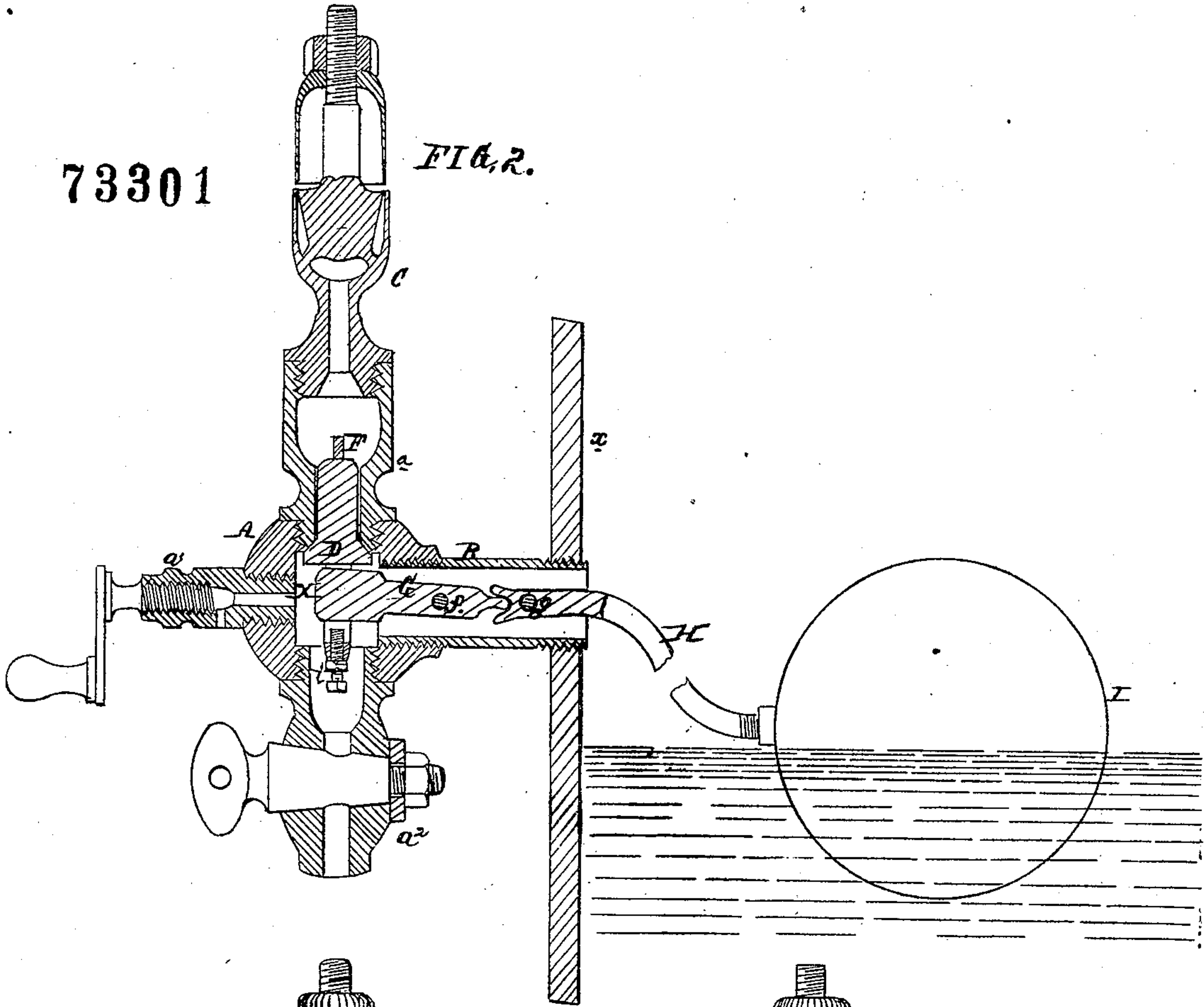


*C. F. Costfeldt Jr.*  
*Improvement in Low Water Detectors for Steam Boilers.*

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FIG. 2.



PATENTED  
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FIG. 1.

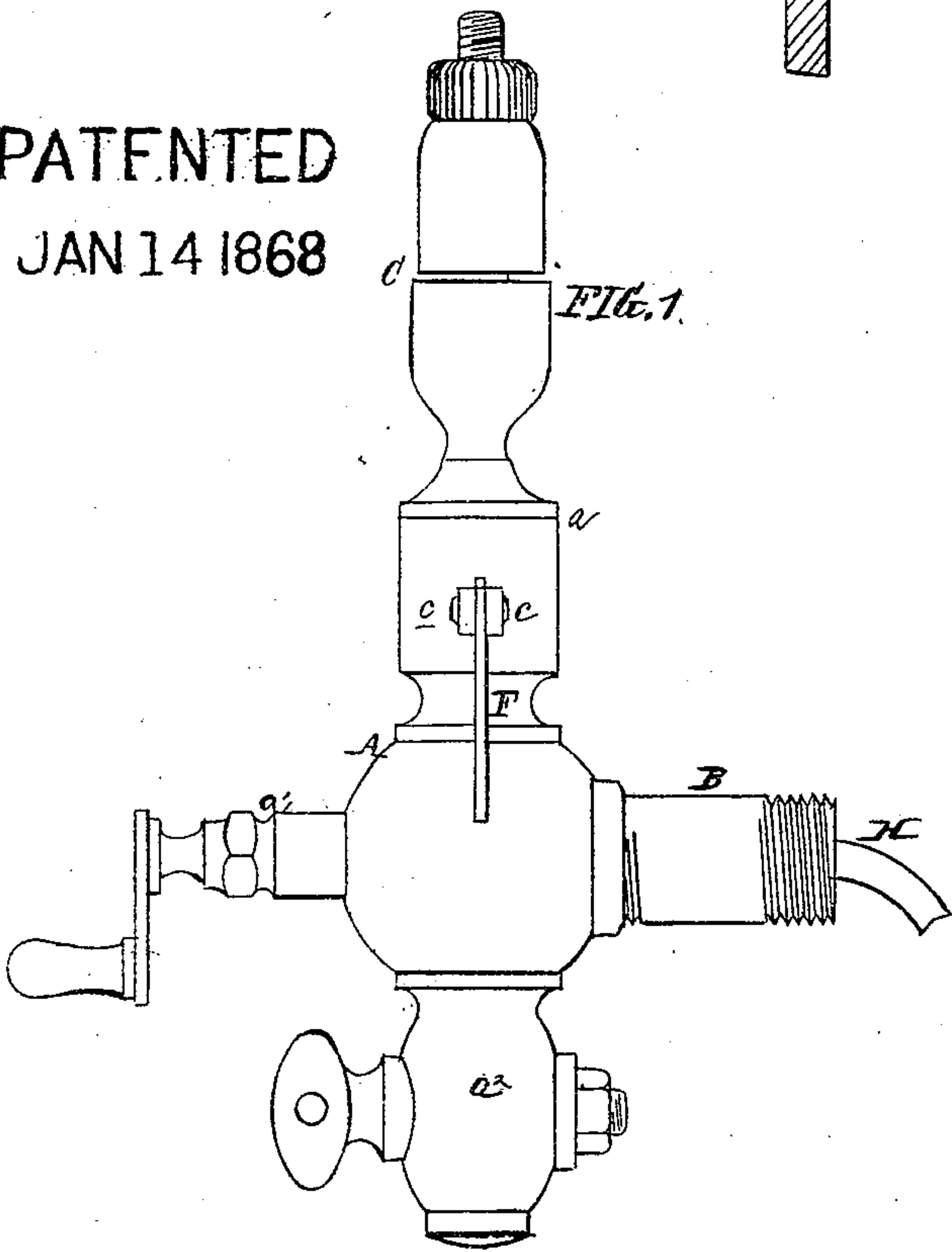
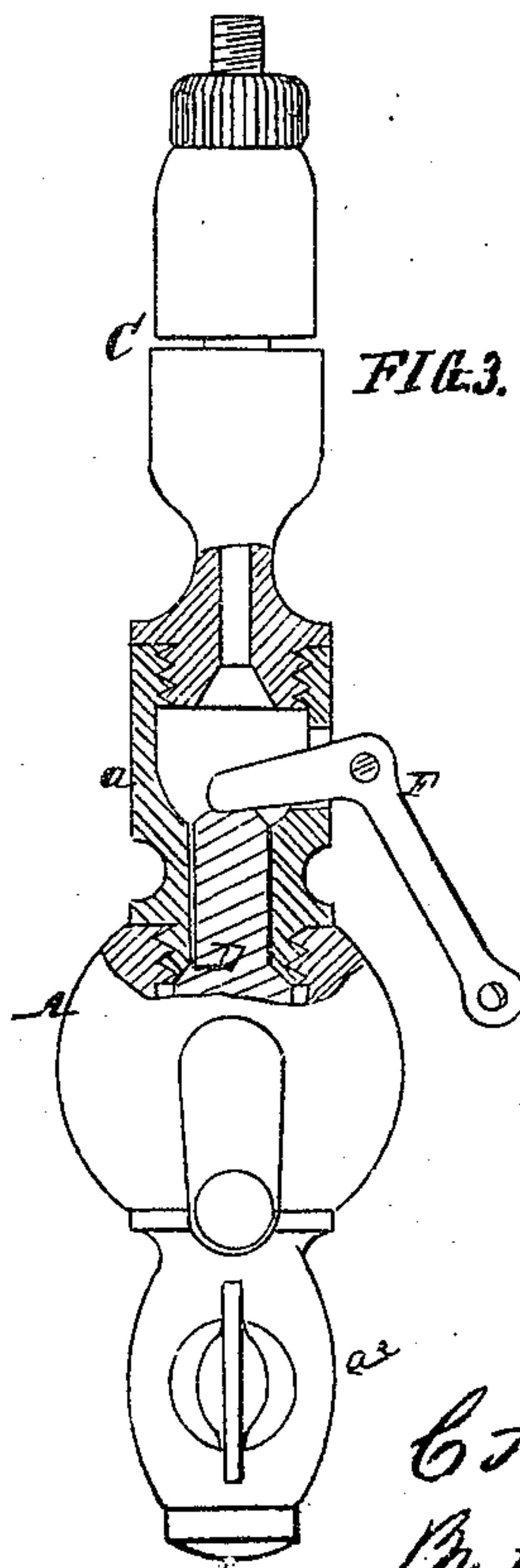


FIG. 3.



Witnesses { *Wm. B. Brown*  
*J. B. Brown*

*C. F. Costfeldt Jr.*  
 By his attorney  
*J. B. Brown*

# United States Patent Office.

C. F. COSFELDT, JR., OF PHILADELPHIA, PENNSYLVANIA.

*Letters Patent No. 73,301, dated January 14, 1868.*

## IMPROVEMENT IN LOW-WATER DETECTORS FOR BOILERS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, C. F. COSFELDT, Jr., of Philadelphia, Pennsylvania, have invented certain Improvements in Low-Water Detectors for Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements on the low-water detector for steam-boilers, for which Letters Patent of the United States were issued to John Cosfeldt on the 13th day of June, 1865; and my said improvements consist of certain devices, fully described hereafter, for preventing the premature sounding of alarms.

In order to enable others skilled in the art to make and apply my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a side elevation of my improved low-water detector for steam-boilers.

Figure 2, a sectional elevation, showing the apparatus applied to a boiler; and

Figure 3, an end elevation, partly in section.

A is a case, in which is a chamber, X, and with the latter communicates a tube, B, which is secured to the head,  $z$ , of a steam boiler, (shown in red lines, fig. 1,) at a point level with or above the high-water line. Through the upper side of the case A passes a tube,  $a$ , to the upper end of which is secured an ordinary steam-whistle, C, and at the lower end of the tube is the seat of a valve, D, which, when in its seat, closes the communication between the tube and the chamber X. Between lugs  $c$ , on the outer side of the tube  $a$ , is hung a bell-crank lever, F, one arm of which projects through a slot in the adjacent side of the tube, and bears upon the upper end of the stem of the valve D. Through a slot in the valve-stem, near its lower end, projects one end of a short lever, G, which is hung to a pin,  $f$ , extending across the tube B, the inner end of the lever vibrating between the under side of the valve and the end of a set-screw,  $i$ , which turns in the valve-stem, as shown in the drawing. To a pin,  $g$ , extending across the tube B, is hung a lever, H, the long arm of which extends into the boiler, and has at its end a float, I, and into a recess in the inner end of this lever projects the adjacent end of the lever G. To the front side of the case A is secured a gauge-cock,  $a^1$ , and at the under side is a blow-off cock,  $a^2$ .

The low-water detector, patented by John Cosfeldt, and before alluded to, is objectionable, inasmuch as the valve is so arranged as to be opened by the pressure of the steam, and to be retained in its place by the pressure of the float-lever, so that, when the lever is caused to vibrate, by the movements of the water in which it is submerged, it will pass from contact with the valve, the steam will elevate the latter, and, escaping to the whistle, will produce a series of puffs, which continue during the agitation of the water, even while the supply of water in the boiler does not require to be increased.

In the above-described apparatus the levers H and A may vibrate to a limited extent without altering the position of the valve, which is retained in its seat by the pressure of the steam, and will not be opened, except when it is withdrawn from its seat by the action of the levers. By adjusting the screw  $i$ , the extent of the free vibration of the levers may be regulated as desired.

I claim as my invention, and desire to secure by Letters Patent, as an improvement on the said invention of John Cosfeldt—

1. The arrangement of the levers G H and valve D, constructed substantially as herein set forth.
2. The combination of the set-screw  $i$  with the levers G H and valve D, substantially as herein described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

C. F. COSFELDT, JR.

Witnesses:

CHARLES E. FOSTER,  
C. B. PRICE.