

C. H. Gould,
Steam-Boiler Water-Feeder,
No 66,018, *Patented June 25, 1867.*

Fig. 2,

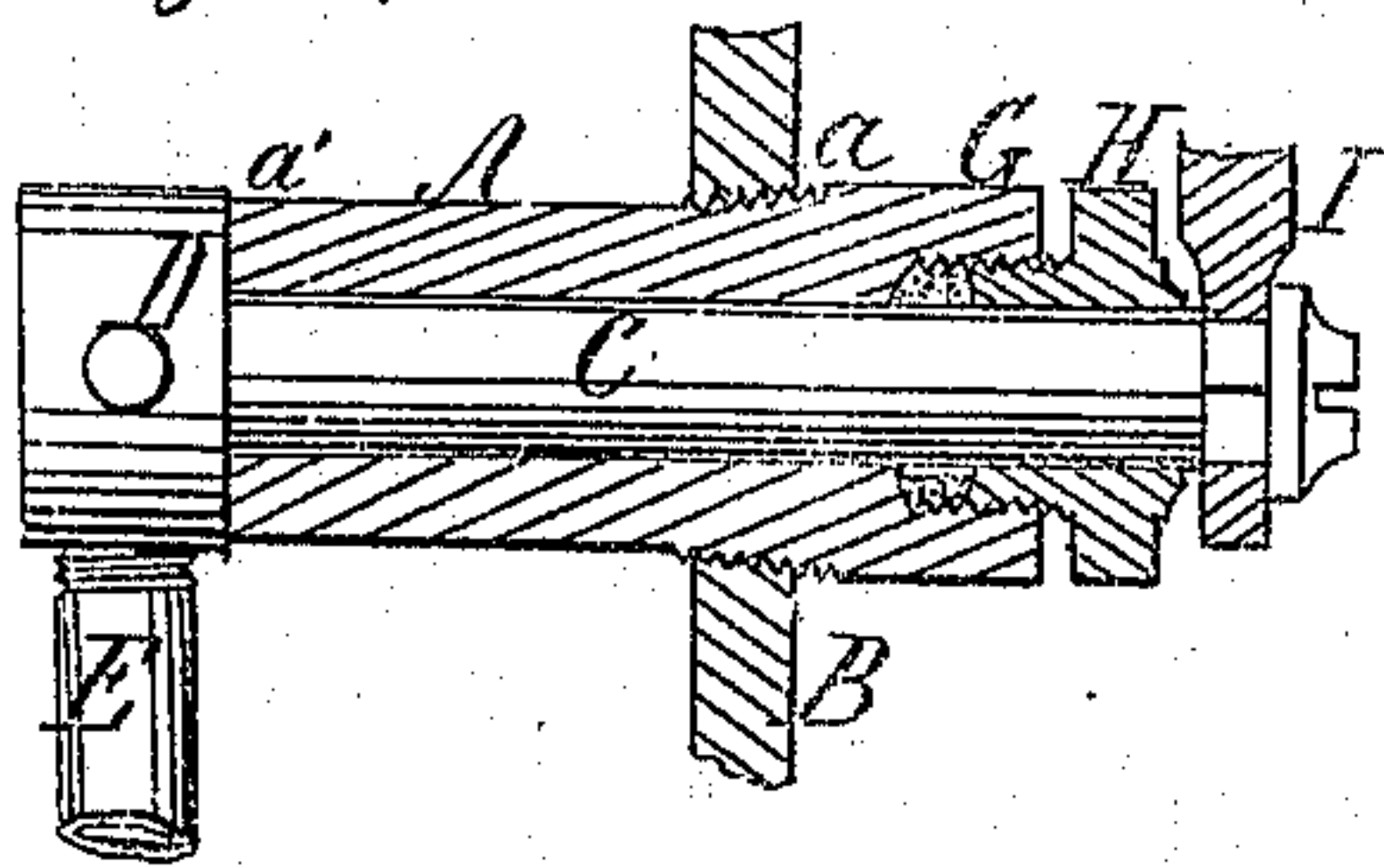
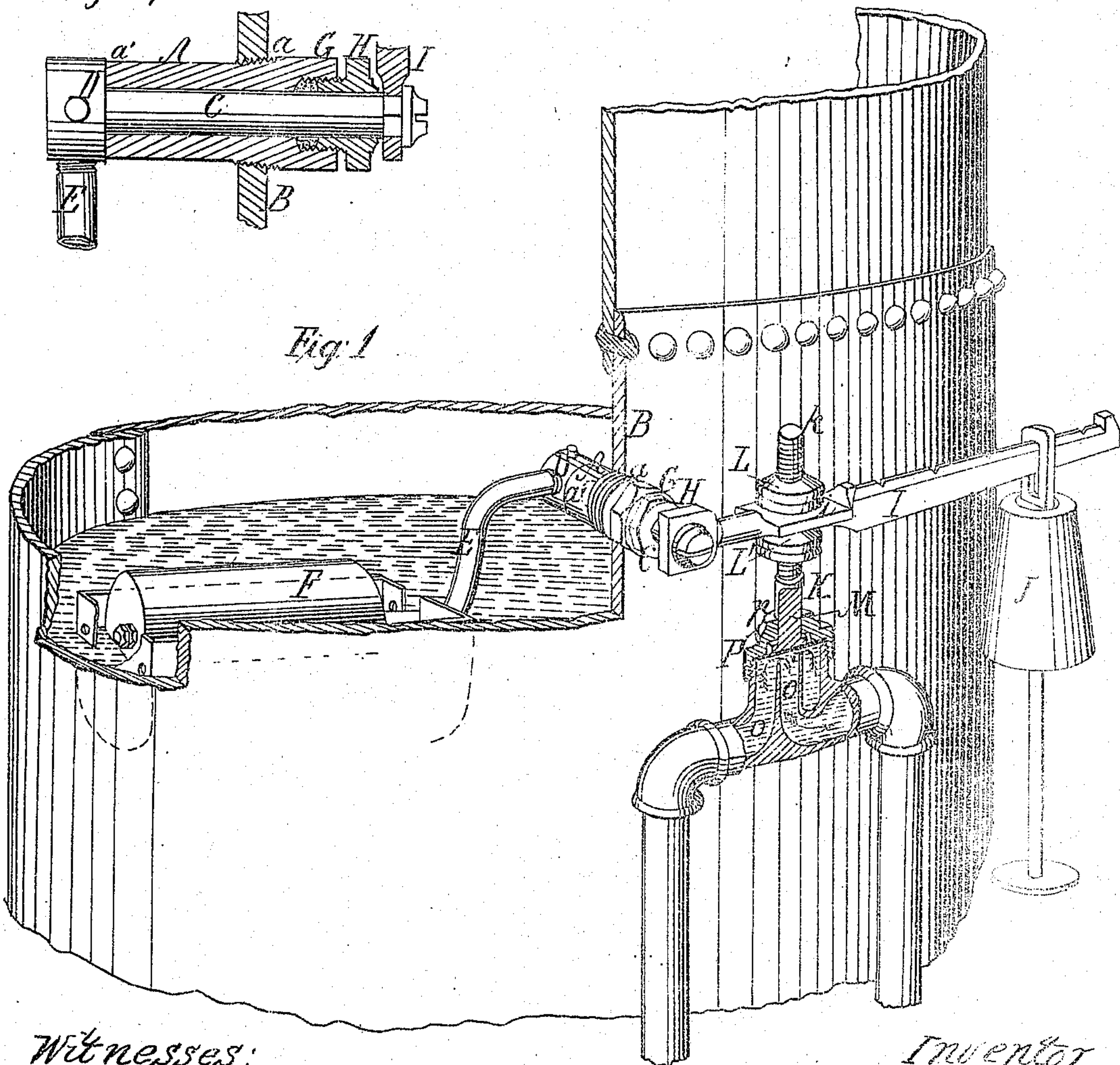


Fig. 1



Witnesses;
Samuel Wright
Frank Millward

Inventor
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United States Patent Office.

CARLOS H. GOULD, OF CINCINNATI, OHIO.

Letters Patent No. 66,018, dated June 25, 1867.

IMPROVEMENT IN BOILER FEED-WATER REGULATORS.

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

TO WHOM IT MAY CONCERN:

Be it known that I, CARLOS H. GOULD, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Feed-Water Regulator for Steam Boilers; and I hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of my invention, reference being had to the accompanying drawings, making part of this specification.

My invention relates to an automatic device for insuring a constant and equal supply of water in a steam generator or boiler.

Figure 1 is a perspective view of an apparatus embodying my invention.

Figure 2 is a top view of the rotating stem with the enclosing sleeve in horizontal section.

A is a tube or sleeve having a screw-thread *a*, adapting it to be screwed fast within the shell B of any suitable boiler or steam generator. Occupying the sleeve A is a cylindrical shaft, C, which, in the operation, has a slight circular reciprocation about its axis. The inner end *a'* of the sleeve is ground accurately at right angles to its axis, to form a seat for the similarly ground hub D, of the stem E, of a float F, which float is preferably a hollow cylinder of brass or copper, adapted to float horizontally upon the surface of the water. In order to enable the sleeve to be entirely clear of the water while this float is partially submerged, the stem E is bent downward and again outward in the manner shown. A screw-cap, G, and stuffing-box, H, surrounding the shaft C, outside of the boiler, serve to prevent the escape of any steam that may penetrate the ground joint *a'*. The outer end of the stem C has a lever, I, provided with an adjustable weight or counterpoise, J. The lever I has a vertical perforation, *i*, to receive the screw-threaded portion *k* of a rod, K, having nuts, L L', by which the said rod is adjusted to or secured in a higher or lower position. The rod K terminates in a foot, M, whose depression acts to close a diaphragm, N, of caoutchouc or other suitably flexible and impervious material, upon the mouth of a pipe, O, which leads from the water supply Q, either to the feed-water pump or directly to the boiler, as the case may be. A cap, P, screwing down upon the outer or supply pipe, Q, and having an interior boss, *p*, serves the several purposes of fastening the diaphragm N, guiding the lower extremity of the rod K, and of presenting, by its said boss *p*, a solid support or abutment for the back of the diaphragm in its elevated or open position.

It will be seen that a subsidence of the float operates by temporarily elevating the rod K to remove the pressure from the top of the diaphragm so as to permit the passage of the feed water. It is also apparent that my slightly rotated shaft C is subjected to a very small fraction of the friction that encumbers the movement of and is an element of danger and uncertainty in the customary sliding stem. The oblong horizontal form of the float secures an ample buoyant force, with slight vertical play, and enables it to co-act effectually with the weighted lever I to overcome the pressure of the supply water and the slight friction of the turning shaft C. The power of the float inside of the boiler is made instrumental to indicate upon the lever outside the exact condition and quantity of the water, and the adjustability of the counterbalance enables the rectification of any excess or deficiency of buoyancy in the float. The rod K, being entirely isolated from the water space, and therefore unencumbered by the friction of a packed joint, opposes no perceptible resistance to the above-described automatic movement, and the periphery of the rotating shaft being only three-eighths to half an inch from the axis, while the rod K is two to three inches therefrom, the movement of said periphery does not exceed one thirty-second of an inch to give all the opening needed, and consequently there can be but slight resistance and no chance for failure in its operation. The certain and automatic nature of this device renders it especially applicable to such steam generators as are used in warehouses and other places lacking a regular engineer.

I claim herein as new and of my invention—

1. The reciprocating rotary shaft C, traversing the boiler side within a suitable horizontal sleeve, A, and provided with a float, F, inside of the boiler, and adjustably weighted lever I outside of the boiler, in combination with the adjustable rod K, and valve-guarded water-supply pipe, substantially as set forth.

2. I claim the arrangement of rod K, bossed cap P, diaphragm N, and water-supply pipe Q, for the purpose described.

3. The oblong float F, stem E, reciprocating rotary shaft C, sleeve A, with steam-tight joint or joints, in combination with the rod K and diaphragm stop N.

In testimony of which invention I hereunto set my hand.

CARLOS H. GOULD.

Witnesses:

GEO. H. KNIGHT,
JOHN G. DOUGLAS.