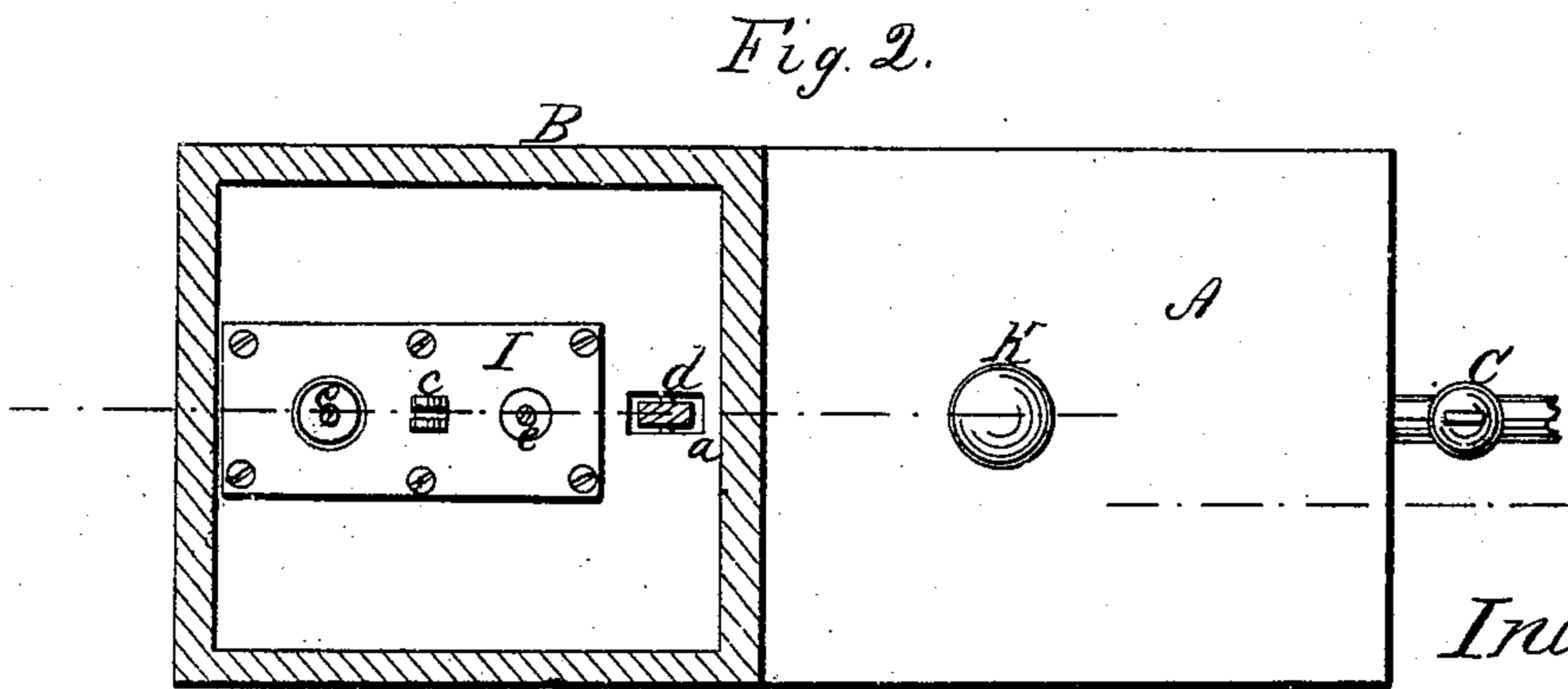
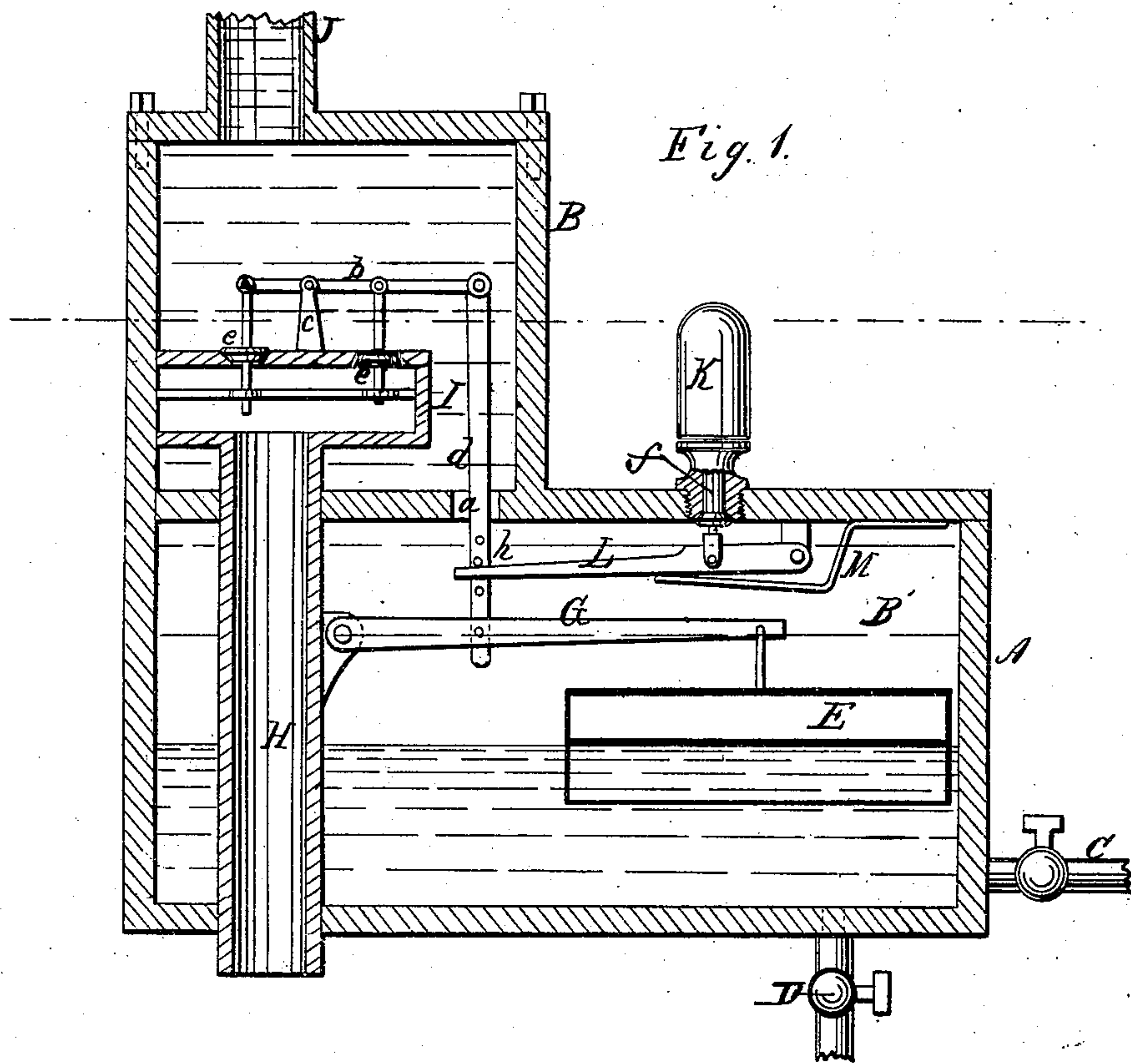


*G. P. Nutting,*  
*Steam-Boiler Water-Feeder,*  
*No 85,121,                      Patented Dec. 22, 1868*



*Witnesses;*

*Chas. Nida*  
*Wm a Morgan*

*Inventor;*  
*Geo. P. Nutting.*

*per Munn & Co*  
*Attys*



# United States Patent Office.

GEORGE P. NUTTING, OF CHICAGO, ILLINOIS.

Letters Patent No. 85,121, dated December 22, 1868.

## IMPROVED WATER-SUPPLY REGULATOR.

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, GEORGE P. NUTTING, of Chicago, in the county of Cook, and State of Illinois, have invented a new and improved Water-Supply Regulator; 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 drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section of my invention.

Figure 2 is a horizontal section of the same.

Similar letters of reference indicate like parts.

The object of this invention is to maintain the proper water-supply in boilers, by admitting steam to the supply-pump, when the water reaches a certain level, and also to announce to the attendant the fact, the state of the water-level, when, for any reason, the supply-pump fails to maintain the proper level.

It consists in the arrangement of parts, as will be hereinafter more fully described.

In the drawings—

A is a water-chamber, of metal, surmounted by a steam-chamber, B.

The water-chamber is, in practice, connected with the boiler by a pipe, C, located near the bottom of the chamber A, the said pipe communicating with the boiler a little below the line of the proper water-level, to be maintained in the latter by the opening *a*, through which the rod *d* passes to operate the steam-valves in the steam-chamber.

D is a discharge-cock, for the water-chamber.

E is a hollow float, of copper or other sheet-metal, properly stayed in the inside to prevent collapsing.

The float is buoyant on the water, and is formed with a concavity or recess on its under side, which recess, being filled with water, causes the float to respond more quickly to the subsidence of the water in obedience to the vacuum induced in the recess by the said subsidence.

The float is attached, by a lever, G, to some fixed point within the chamber, as a lug on the steam-pipe H, which latter leads from the boiler, and up through the interior of the water-chamber, and terminates in a valve-chest, I, with the interior of which it communicates.

The upper side of this valve-chamber seats two conical or other lifting-valves, having their stems attached to a lever, *b*, and, at equal distances on each side of the upright *c*, affording bearings for the fulcrum-pin, on which the said lever *c* vibrates.

The aforesaid rod *d* connects the lever *b* with the lever G.

It will be observed that the steam-valves *e e* are reversed, one opening downward and the other opening upward, and, in practice, the areas of the under side of the valves are equal, that they will be balanced by the steam-pressure, thereby exerting no considerable

resistance to the action of the float in opening or closing them.

J is a pipe, leading to any suitable steam-pump, for supplying water to the boiler.

K is a small steam-whistle, affixed to the outside of the water-chamber, and communicating with it.

*f* is the valve, shutting off steam from the water-chamber to the whistle.

The stem of this valve is connected with a lever, L, one end of which is pivoted to some fixture within the chamber, as shown.

The other end of the lever is arranged to encounter a pin, *h*, on the rod *d*, when the latter is moved downward by the float when the water subsides to a certain predetermined level, for which the mechanism was arranged, and in which case, the lever L being moved, the valve *f* will be moved from its seat, and the escaping steam will announce to the attendant that the water has reached a low level.

The whistle may be of any suitable construction, the common pocket-whistle form being sufficiently loud for the purpose, although a steam-whistle of the common form is shown in the drawings. Either may be used.

M is a spring, acting in the lever L, to keep the valve seated, when the lever L is not actuated by the pin *h*, as above described.

When the water in the boiler begins to subside from the level at which it is to be maintained, the float will open the valves *e*, and admit steam to the chamber B, from which it flows through the pipe J to the steam-pump, and sets it in motion, thus raising the water-level.

This apparatus operates to maintain the water in the boiler at or near the same level, for, as the water subsides, the valves are opened, and the pump is driven faster, to increase the supply, and as the water rises, the valves are correspondingly closed, thus decreasing the velocity of the pump, and the quantity of water supplied by it to the boiler.

The cock D is used to clear out sediment from the water-chamber, or to serve as a pet-cock in adjusting the apparatus to a change of water-level for it. The cock is wholly or partially opened, to regulate the discharge with reference to the induction-cock C, so that the water will pass from the chamber faster than it enters. The result will be that the valves will be opened.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

The arrangement of the chambers A B, pipes H J, valve-chest I, valves *e e*, lever *b*, rod *d*, having adjustable pin *h*, lever G, float F, arm L, and whistle K, as herein set forth and shown.

GEO. P. NUTTING.

Witnesses:

H. FRIEDRICH,  
J. F. DUFFY.