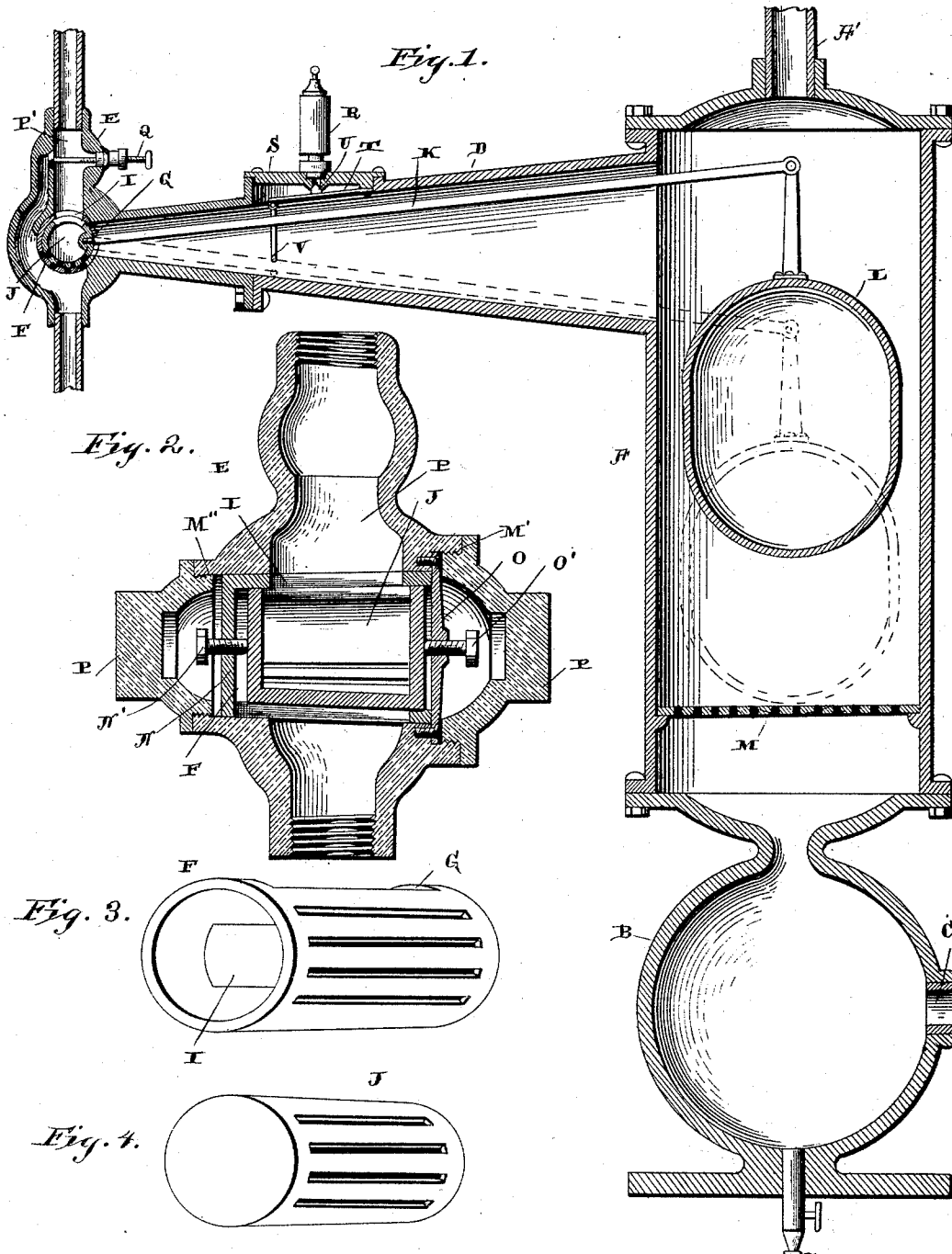


(No Model.)

P. A. NEWMAN.
BOILER FEEDER AND INDICATOR.

No. 485,976.

Patented Nov. 8, 1892.



Witnesses
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UNITED STATES PATENT OFFICE.

PRENTICE A. NEWMAN, OF RUNGE, TEXAS.

BOILER FEEDER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 485,976, dated November 8, 1892.

Application filed April 26, 1892. Serial No. 430,702. (No model.)

To all whom it may concern:

Be it known that I, PRENTICE A. NEWMAN, of Runge, in the county of Karnes and State of Texas, have invented certain new and useful Improvements in Automatic Steam-Boiler Feeders and Indicators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in automatic steam-boiler feeders and indicators; and it consists in the novel features of construction and in the combination and arrangement of parts which will be fully described hereinafter, and more particularly referred to in the claims.

The object of my invention is to provide an improved automatic mechanism for controlling the feed-pump and actuating an alarm-whistle.

Referring to the accompanying drawings, Figure 1 is a longitudinal sectional view of my improved feeder and indicator. Fig. 2 is a cross-sectional view of the rotary valve and its casing. Fig. 3 is a detached view of the valve-casing. Fig. 4 is a similar view of the valve.

A represents a water-column having a chamber B at its lower end for the reception of sediment, and C a pipe connection leading to the steam-boiler. Projecting outward from the upper end of the column A is the hollow arm D. On the outer end of this arm is the valve-chamber E, which is placed on the pipe which admits steam to the pump from the boiler. Openings are formed on opposite sides of this valve-chamber, and inserted therein is the circular casing F, which is provided with a series of parallel slots on its under side and a wide slot G to one side of and above the first-named slots, as shown. At the top of the casing is also formed the slot I. Placed in this casing is the circular valve J, and connected thereto is the rod K. This rod projects through the slot G and extends inward through the arm D to the chamber A, and pivotally secured to this inner end is the float L, which is formed of copper or other suitable material and which depends in the

chamber A. M represents a perforated shelf within the said chamber, upon which the float rests when it has dropped to its lowest position, thus relieving the rod K of the weight of the float when the water has been removed from the column A. By means of the pipe C water is introduced into the column from the boiler, and in which it rises to the same height as in the boiler.

Steam being admitted to the pump through the pipe on which the valve-chamber E is placed, the same will be operated and water forced or injected into the boiler, raising the level therein and also in the column A. The float L is carried upward by this means, and by means of the rod K the rotary valve is turned. The latter is slotted to correspond with the slots G and I of the valve-casing, so that when the float is down, the water being low, steam is allowed to pass to the pump; but the upward movement of the float turns the valve and places its solid portions over the said slots in the casing, closing them and shutting off the supply of steam to the pump. Thus it will be seen that the operation of the pump is automatic, being controlled by the level of the water in the boiler, which it feeds.

The valve-chamber E is provided with the side openings M' M'', which are in line and formed as a section of a cone, so that the latter opening is much smaller than the former, and the casing F, which fits therein, being conical in form, it will be seen that it fits the said openings quite tightly, being placed in position through the larger opening M'. Across the rear end of this casing is the bar N, through which projects the set-screw N', and across the front of the opening M'' is the bar O, having the inwardly-extending set-screw O', and between these screws is the valve J, which is also conical in form, and by means of the said screws the valve may be adjusted longitudinally and all wear thus taken up. The openings M' M'' are closed by the screw-plugs P. By means of the conical form of casing and valve a very tight-fitting connection is formed.

Extending around and above the outer side of the valve-casing is the passage P', which at its upper end communicates with the steam-pipe leading to the pump, being controlled by the valve Q. When it is desired to admit water to the boiler by starting the pump in-

dependently of the automatic float attachment, the said valve is opened, when steam will be passed around the circular valve, and the pump thus operated. The inner wall of this passage P forms a rest for one side of the casing F.

If from any cause the pump should not start when the valve J is opened, the receding water in the column A, carrying the float with it, will cause the latter to operate an alarm, which will attract the attention of the engineer. This alarm consists of a whistle R, which is mounted on the top of the arm D, being supported on the removable plate S, as shown. Secured to the under side of this plate is the spring-arm T, which is fastened to one side of the whistle-opening, and directly beneath the said opening upon the said arm is the clapper U, which normally closes the said opening and prevents the escape of steam to the whistle. Depending from the free end of this spring-arm is the loop V, through which extends the valve-operating rod K. When the water drops beneath the required level in the column to operate the valve, the said loop is drawn downward by the continued downward movement of the rod K. The clapper removed from the whistle-opening and steam being thus admitted therein an alarm is sounded, warning the engineer of the state of the water-level in the boiler.

The column A is provided with a steam connection A' at its upper end for admitting steam thereto. The column is provided with a steam-pressure and a water-gage similar to those provided for the boiler.

A blow-off valve is placed at the lower end of the sediment-chamber B, so that the exact condition of the water and steam can be ascertained at any time.

Having thus described my invention, I claim—

1. The combination of a water-column, a hollow arm projecting therefrom, a valve-chamber at the outer end of the arm, a valve therein, a float in the column, and a connection between the valve and float, the said valve-chamber being formed with a passage around said valve, substantially as shown and described.

2. The combination, with a water-column, a hollow arm projecting therefrom, a valve-chamber at the outer end of the arm, and a rotary valve in said chamber, the chamber being provided with an independent steam-passage around the valve, of a wall which separates the said passage from the main valve-passage, a casing which rests against the said wall and in which the valve rotates, a float in the water-column, and a connection between the said float and rotary valve, substantially as shown and described.

3. The combination, with a water-column, a hollow arm projecting therefrom, and a

valve-chamber on the outer end of said arm, which is provided with a transverse opening, which extends through the same, of a slotted valve-casing adapted to fit the said opening, a slotted valve in said casing, cross-bars at the ends of the casing, set-screws extending through said bars, which engage the valve, a float in the column, and a connection between the float and valve, substantially as shown and described.

4. The combination, with a water-column, a hollow arm projecting therefrom, and a valve-chamber at the outer end of the arm, which is provided with a transverse opening extending through it, of a slotted casing adapted to fit the said opening, a rotary slotted valve in the casing, a bar made integral with one of the casing ends, a set-screw in said bar, which engages the valve, a bar at the opposite end of the casing, which is secured to the valve-chamber, a set-screw therein, which engages the opposite end of the valve, plugs for the openings in the said valve-chamber, a float in the column, and a connection between the said rotary valve and float, substantially as shown and described.

5. The combination, with a water-column, a hollow arm projecting therefrom, a valve-chamber at the outer end of the arm, and a valve therein, of a float in the column, a rod connecting the valve and float, a whistle on the said hollow arm, a spring-arm carrying a clapper which closes the said whistle, and a loop depending from the spring-arm, through which passes the rod which connects the valve and float, substantially as shown and described.

6. The combination, with a water-column, a hollow arm projecting therefrom, a valve-chamber at the outer end of the arm, and a valve in said chamber, of a float in the column and a rod which connects the said valve and float, a plate in the upper surface of the said hollow arm, a whistle supported thereon, a spring-arm secured at its end to the under side of the plate, a clapper on said arm, and a loop depending from the free end of the spring-arm, through which the said rod extends, substantially as shown and described.

7. The combination, with a water-column having a steam-inlet at its upper end and a water-inlet at its lower end, an arm projecting from the said column, a valve-chamber at the outer end of the arm, and a valve in said chamber, of a float in the column, a perforated shelf for the float to rest on, and a connection between the float and valve, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

PRENTICE A. NEWMAN.

Witnesses:

WM. J. SCHORRE,
M. P. SCHORRE.