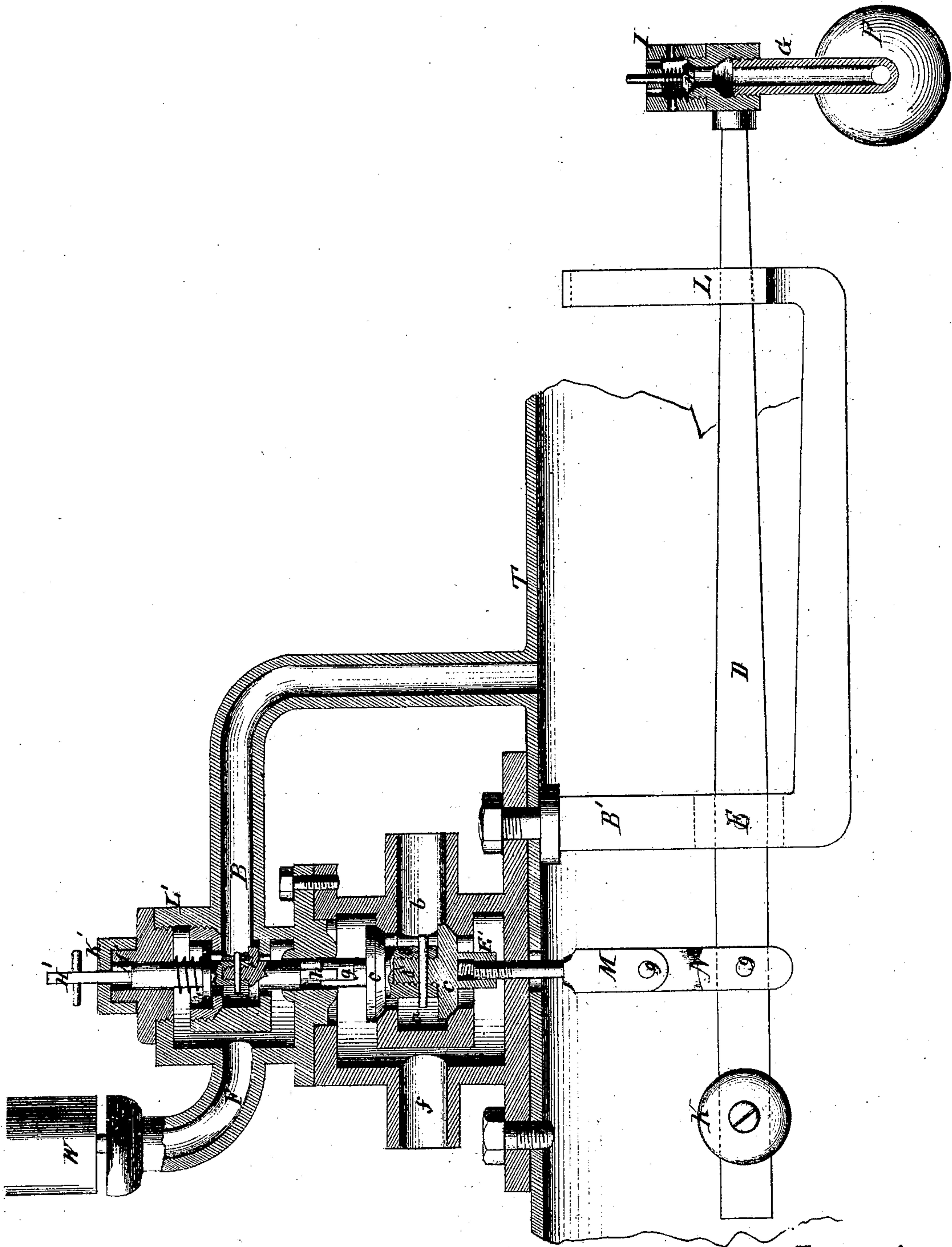


Ebert & M. Cloy,

Steam Indicator.

No. 95444.

Patented Oct. 5. 1869.



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JAMES WILLIAM EBERT AND ELI C. McCLOY, OF ZANESVILLE,
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Letters Patent No. 95,444, dated October 5, 1869.

IMPROVEMENT IN BOILER-FEEDER ALARM-DEVICE.

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

To all whom it may concern:

Be it known that we, JAMES WILLIAM EBERT and ELI C. McCLOY, of Zanesville, in the county of Muskingum, and State of Ohio, have invented a new and improved Water-Regulator and Alarm; and we 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 drawing, forming part of this specification.

The object of this invention is to provide a simple and reliable apparatus to regulate the supply of feed-water for steam-boilers, and to give an alarm when the water-supply fails, for any cause.

The invention comprises an arrangement of valves in the feed-water supply-pipe for the pump, connected with a float and levers inside the boiler, so as to open and close the passage as required.

Also, in connection with the said valves, another set of valves in the steam-pipe, leading to the whistle, which, when the valve-supply fails, will give the alarm, all as hereinafter more fully specified.

The drawing represents a sectional elevation of our improved apparatus.

In the drawing—

a represents a water-chamber, open to the water-pipe *b*, which connects with a water-tank standing higher than chamber *a*.

c c are balance-valves, connected to each other by the male screw *d'* and the female screw *d*, by which the distance from each other may be accurately adjusted.

f is a water-pipe, leading to the heater or force-pump.

A is a steam-chamber, open to the steam-pipe *B*.

C' C' are balance-valves, connected in the same manner as the valves in the water-chamber above described.

F is a steam-pipe, leading to the whistle *W*.

T represents the top of a boiler or water-chamber, connected to a boiler.

This regulator may be connected directly to the boiler, with the floats, &c., in the boiler, or may be erected on an outside chamber, with the floats, &c., in the chamber, and said chamber so arranged as to have free water-communication with the boiler.

B' is a strong stem, attached to the boiler or chamber inside, to support the lever *B*, at the fulcrum *E*.

F' is one of the two floats. (In this case, two floats are represented, but the apparatus can be used with one.) These are two hollow globes, connected by a pipe, and from this connecting-pipe is the vertical pipe *G*, forming connection with the lever *D*.

H is a valve at the top of pipe *G*, to permit the escape of rarefied air from the floats, through the perforated cap *I*.

K is a solid adjustable ball or weight, to balance the float or floats when in operation, and to make them more sensitive to the rise and fall of the water.

L is the fork that sustains the lever and float or floats when the boiler is without water.

M is a rod that passes through the boiler or chamber, with a screw upon the upper end of it, connecting with the balance-valve stem, at *E'*.

This rod is connected with lever *D*, so as to admit of motion at the connection.

N is a link, connected at *9 9*, by joints, to the rod *M* and the lever *D*.

These joints are to counteract the effect of the vibratory motion caused by working of lever on fulcrum *E*.

The top of the balance-valve stem, of the water-chamber, ends in a slot, *g*, and the bottom *h* of the balance-valve stem, of the steam-chamber, is flattened, so as to fit in this slot.

By this connection of these two stems, the water-level in the boiler can be fixed at any point desired by the operator; for by turning the stem *H'*, the rod *M* is raised or lowered by screwing on or off at the junction *E'*.

To facilitate this operation, the top *M'* of the cap of the steam-chamber *L'* is made square, and a clutch, *K'*, dropped over it.

By raising this clutch, so as to clear the square, it can be turned, thereby turning the rod *H'*, so as to lengthen or shorten the rod *M*, at the junction *E'*, which regulates the flow of water, as may be desired.

The operation is as follows:

As represented in the drawing, the water is high enough in the boiler, and the balance-valves *C C* are closed, and the supply of water shut off. If the water gets lower, the floats *F'* descend, causing the rod *M* to be elevated, and the balance-valves *C C* to be opened, when the water flows freely through *b f* to the force-pump or heater; the valves close again when the water is at the required height. In case the supply of water in the pipe *b* gives out, the floats will continue to descend until the bottom of the slot *g*, in the upper end of the valve-stem *d*, comes in contact with the lower end *h* of the valve-stem *H'*, causing the balance steam-valves *C' C'* to rise, and let steam pass to the whistle, and the whistle will continue to blow until water is supplied, so as to raise the floats.

Having thus described our invention,

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

1. The combination of the balanced valves C O, water-supply pipe *b f*, floats, and float-lever, substantially as specified.

2. The combination of the balanced valves O O, water-supply pipe *b f*, valves O' O', steam-pipe and floats, and float-lever, substantially as specified.

3. The arrangement of the link N, screw-rod M, screwed extension E' of the lower valve O, and rod H', all substantially as specified.

4. The arrangement of the extension M' of the steam-chest L', cap K', and rod H', all substantially as specified.

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