J. BRIDGES.

Water-Governor for Boilers.

No. 218,922. Patented Aug. 26, 1879.

Fig: 1.

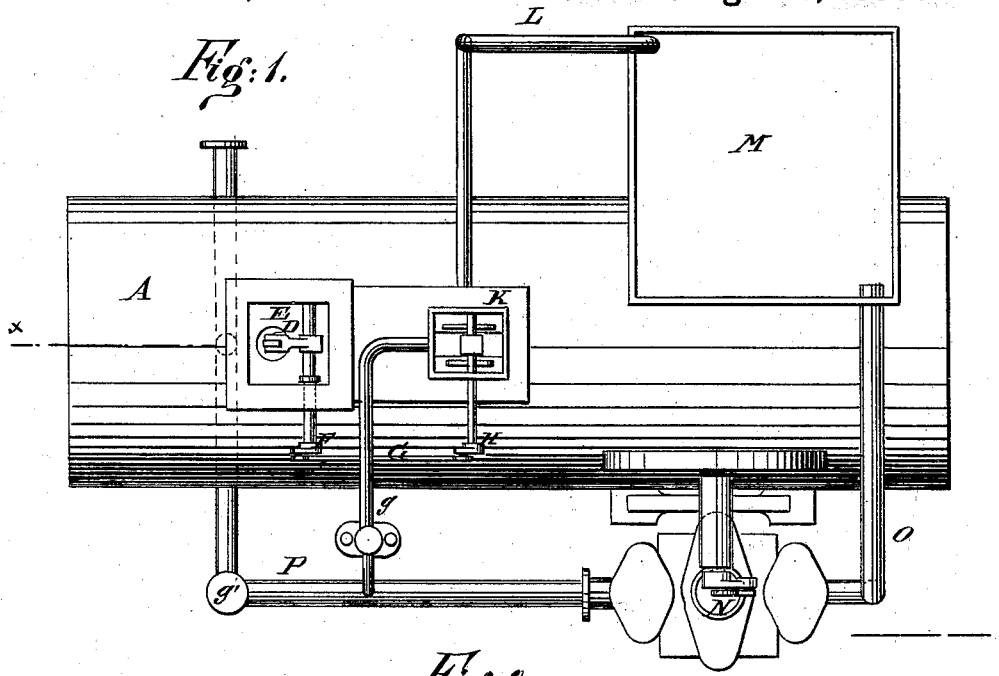
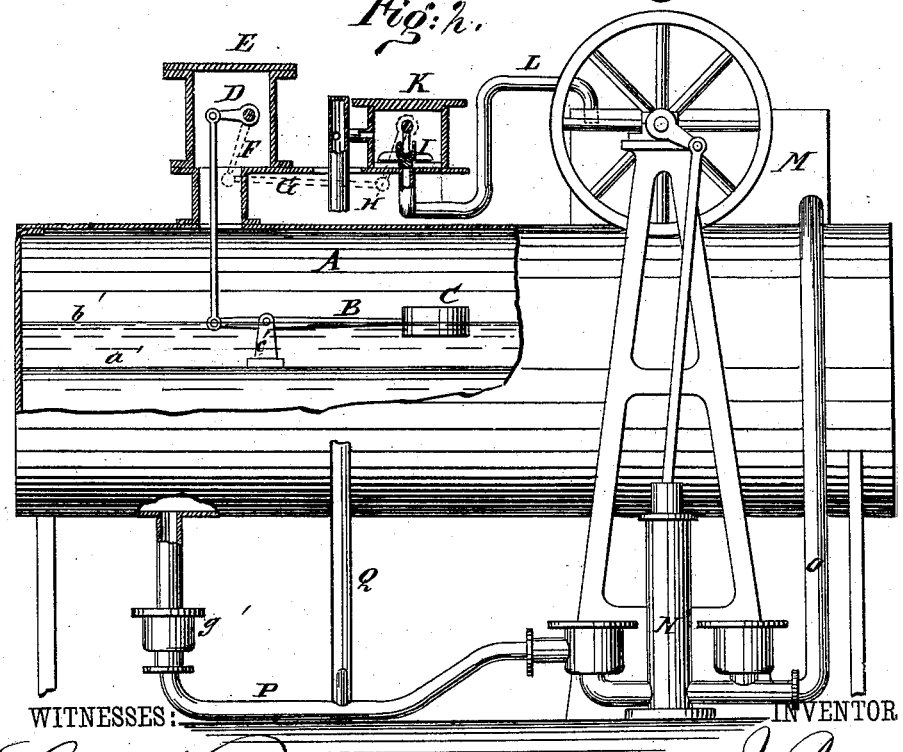


Fig: 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN BRIDGES, OF LEON, IOWA, ASSIGNOR TO HIMSELF, HARRIET N. KELLOGG, AND MURRAY M. KELLOGG, OF SAME PLACE.

IMPROVEMENT IN WATER-GOVERNORS FOR BOILERS.

Specification forming part of Letters Patent No. **218,922**, dated August 26, 1879; application filed June 17, 1879.

To all whom it may concern:

Be it known that I, JOHN BRIDGES, of Leon, in the county of Decatur and State of Iowa, have invented a new and Improved Water-Governor for Boilers, of which the following is a specification.

Figure 1 is a plan of the device attached to a boiler. Fig. 2 is a side elevation of the same, partly in section.

Similar letters of reference indicate corresponding parts.

The object of the invention is to provide a simple and effective device for automatically regulating the height of water in a steam-boiler.

The invention consists of a novel construction and arrangement, in connection with a boiler, of a float, valve, and pipes, and their connections, as hereinafter set forth.

Within the boiler A, of which *a'* represents the upper surface of the flues, and *b'* the water-line, a standard, *c'*, is secured upon a flue, and pivoted to this is the horizontal arm of the float-rod B, on one end of which is the float C, that, through the vertical arm, the crank D within the steam-dome E, the crank F, the connecting-rod G, and crank H, controls the valve I, that is within the valve-chest K, just over the orifice of the discharge-pipe L.

When the water in the boiler rises so as to lift the float the valve I is thereby raised or opened.

The tank M being filled with water the force-pump N is put in motion, and, drawing the water through the suction-pipe O, forces it into the boiler through the feed-pipe P, that is provided with a check-valve, *g'*, the valve I being at this time closed down over the pipe L, and at the same time water is forced up the overflow-pipe Q to the valve-chest, which is kept full. When the boiler is so far filled that the float rises and causes the valve I to open, the water forced by the pump will, choosing the line of least resistance, all flow up through the overflow-pipe into the valve-chest, and out through the discharge-pipe L into the tank M, to be returned to the pump and forced into the same circulation again and again until the lowering of the water in the boiler causes the valve I to close and turn the flow again to the boiler.

Thus it will be seen that the pump may be continued always in motion and pumping water without danger of ever forcing a surplus into the boiler; and it is also plainly evident that if the pump is kept in motion the amount of water in the boiler cannot fall below the point of safety—that a regular, constant, and sufficient supply must result from the application of this novel device.

I do not confine myself to the precise construction and arrangement of the parts of the device as shown in the drawings, for it is obvious that changes may be made in both without departing from the principle of the invention; and I am aware that water-regulators having floats to regulate the flow of water through pipes have long been in use; hence I do not broadly claim the float nor the regulation of the water-supply to a boiler by a float; but,

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The within-described device, consisting of float-rod B, float C, cranks D, F, and H, connecting-rod G, valve I, valve-chest K, discharge-pipe L, tank M, pump N, suction-pipe O, feed-pipe P, provided with a check-valve, *g'*, and overflow-pipe Q, constructed and arranged substantially as herein shown and described.

2. The valve-chest K, provided with the valve I, controlled by the rising or falling of the water in the boiler A, and connected with the feed-pipe P by the overflow-pipe Q, and with the tank M by the discharge-pipe L, substantially as and for the purpose set forth.

JOHN BRIDGES.

Witnesses:

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NATHAN PERDEW.