D. & T. MORRIS.

Water Supply Regulators.

No. 154,612 Patented Sept. 1, 1874.

Fig. 1.

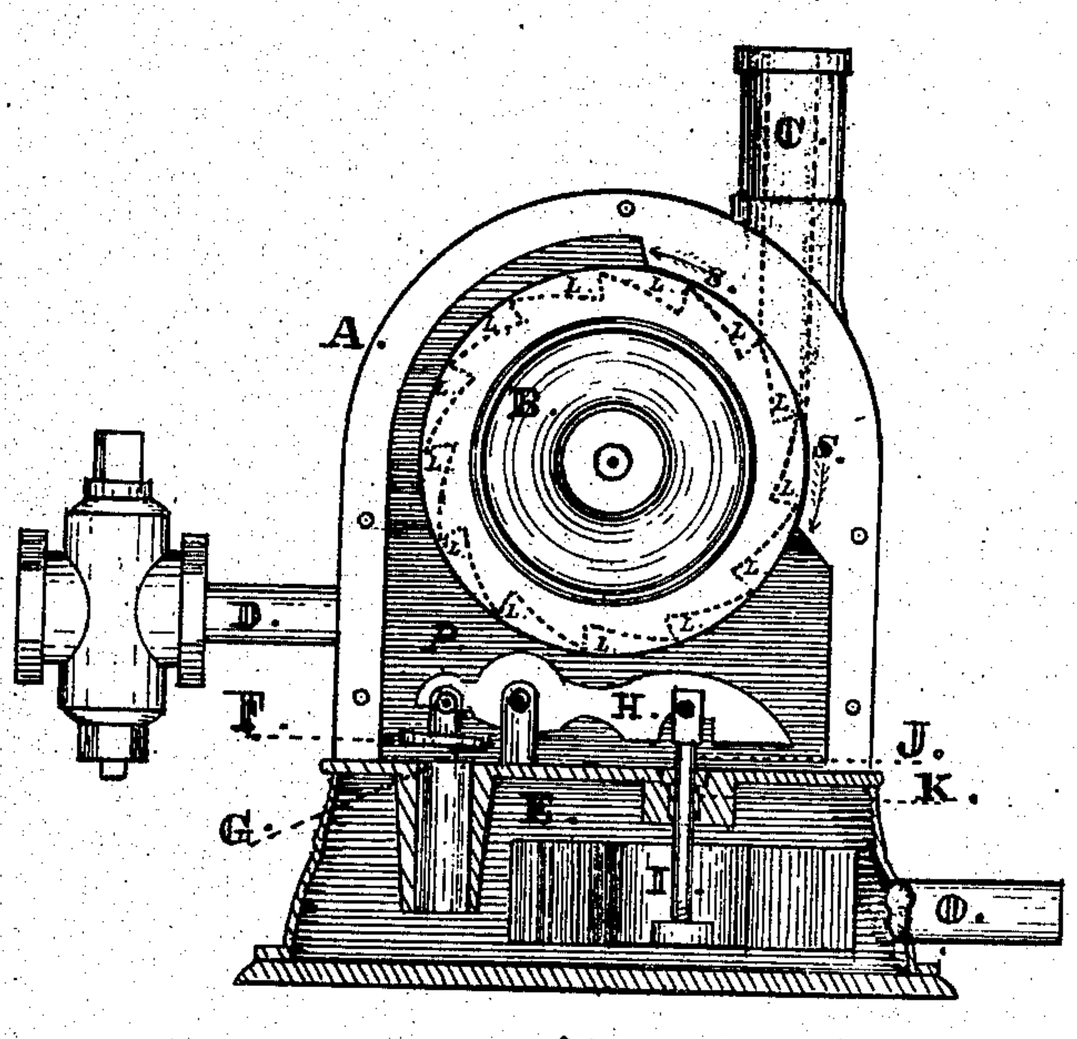
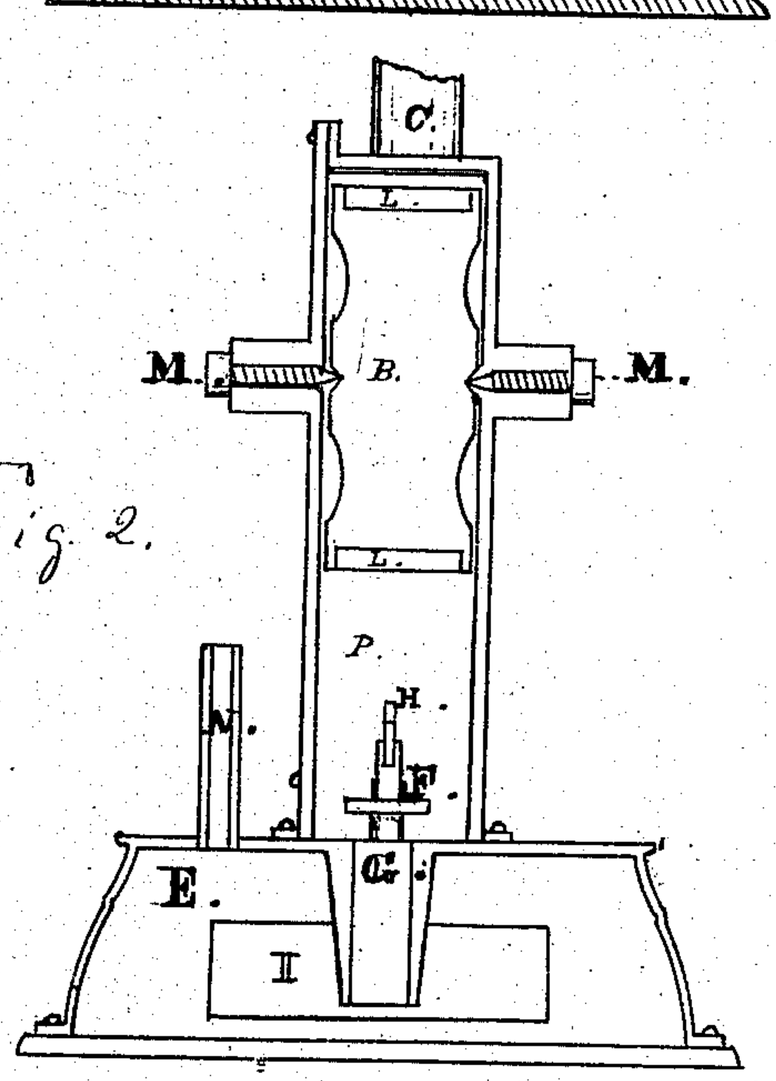


Fig. 2.



Attest.

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UNITED STATES PATENT OFFICE.

DAVID MORRIS AND THEODORE MORRIS, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN WATER-SUPPLY REGULATORS.

Specification forming part of Letters Patent No. **154,612**, dated September 1, 1874; application filed July 8, 1874.

To all whom it may concern:

Be it known that we, DAVID MORRIS and THEODORE MORRIS, of San Francisco, in the State of California, have invented an improvement in device for regulating the supply of water in boilers, tanks, and other receivers, and for cutting off the pressure of water without materially diminishing the flow of the same, of which the following is a specification:

The nature of our invention will be more fully understood by reference to the accompanying drawing.

Figure 1 is a sectional side elevation, and Fig. 2 is a sectional end elevation.

A represents the outside case; B, the cut-off and supply-wheel; C, the supply-pipe; D, the service-pipe; E, the supply-tank for the boiler or receiver; G, the valve-seat; H, the valve-lever; I, the float or buoy; J, the plunger; K, the stuffing-box; O, the pipe leading from the supply-tank, which supplies the boiler; L, the buckets in the wheel B. The adjustable point bearings M allow the wheel B to revolve with very light friction. N is the pipe leading from the boiler or any steam-generating tank with which it may be connected, and is designed to relieve the boiler or heater from pressure by allowing the steam to condense in the supply-tank E. The wheel B fits closely to the breast or wheel seat S S.

The following is the operation of the machine: The water from the pressure-pipe being passed through the supply-pipe C passes into the buckets L, filling the same and giving motion to the wheel B by the weight and momentum of the water, the points M allowing the same to revolve freely. The breast or wheel seat S S, fitting closely but freely to the wheel, cuts off the back pressure as soon as the buckets pass the opening indicated by the dotted lines in the pipe C, thereby allowing the water to drop from the wheel (free from pressure) into the chamber P. The valve F being open at the time the water passes through the valve-port G from the space under the wheel into the supply-tank E, and, rising around the float or buoy I, raises the same operating the plunger J, and closing the valve F by means of the lever H as soon as the water has reached the required level in the supply-tank E, which is regulated by the position of the float I, which may be adjusted by raising or depressing it upon the plunger J. As soon as the valve F is closed the water ceases to flow into the supply-tank, and the water in the chamber P remains stationary, except when drawn through the service-pipe D, which may be done at all times, either when the valve F is open or closed.

The instant that water is drawn from the supply-tank, so as to allow the buoy or float I to descend, the lever H opens the valve F and admits water to supply the place of that drawn out and, immediately raising the buoy, closes the valve, as before.

The rising of the float is gradual; hence the motion of the water is gradually checked, which avoids all concussion in the pipes from the momentum of the water.

When in use it is found that the wheel accelerates in motion, so as to check the flow of the water but little.

As soon as the water is lowered in the chamber P, which incloses the wheel B, the wheel B revolves freely by the action of the water upon the side of the supply. The water is thrown from the buckets upon the opposite side of the wheel to be filled as the buckets pass the opening leading to the supply-pipe C.

It will be seen that the supply-tank E is never entirely filled, but is kept at the desired level by the adjustment of the float I, which may be adjusted as described.

The pipe N conducts the steam which may be generated in the boiler or heater into the supply-tank, where it is condensed, thereby relieving the pressure which would otherwise be liable to arise in the boiler or heater.

It will be seen that by the use of our invention the necessity of a tank upon the house-top is avoided, as the pressure from the supply-pipe will be cut off and the water still be allowed to flow freely.

What we claim as our invention, and desire to secure by Letters Patent, is—

The wheel B, in combination with the breast S S, for the purpose of cutting off the pressure from the pipe C, substantially as and for the purposes set forth.

DAVID MORRIS.
THEODORE MORRIS.

Witnesses:
JOHN A. BALL,
JOHN H. REDSTONE.