(No Model.)

H. S. MILLER.

WATER GOVERNOR.

No. 263,796. Patented Sept. 5, 1882.

Fig. 1.

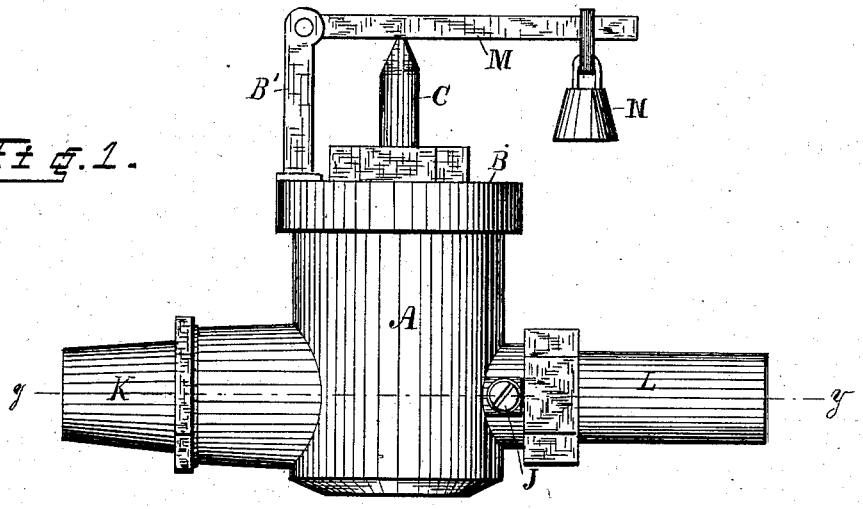


Fig. 2.

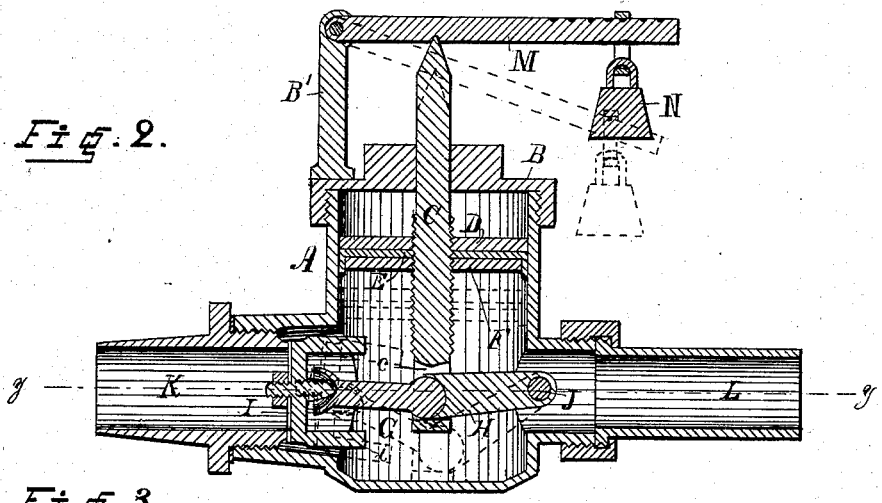
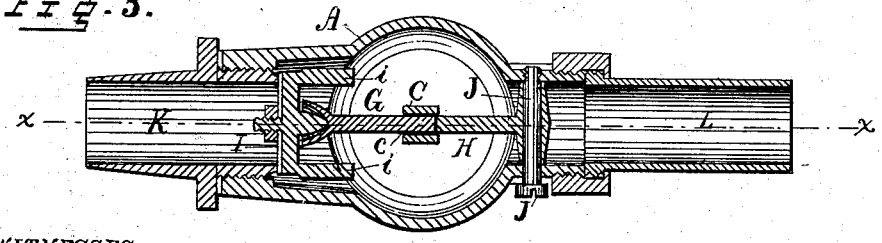


Fig. 3.



WITNESSES.

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INVENTOR.

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UNITED STATES PATENT OFFICE.

HARRISON S. MILLER, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO CHARLES W. MEIKEL, OF SAME PLACE.

WATER-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 263,796, dated September 5, 1882.

Application filed September 21, 1881. (No model.)

To all whom it may concern:

Be it known that I, HARRISON S. MILLER, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Water-Governors, of which the following is a specification.

The object of my said invention is to produce a water-governor which will act under all circumstances with certainty and celerity. This is accomplished by a vertically-moving piston operated in one direction by a weight or spring and in the other by the force of the water, and having attached to the bottom of its rod a form of toggle-joint which operates as the water-pressure overcomes the spring or weight force to close the valve to the inlet-pipe through which water is admitted.

I am aware that governors for a similar purpose have been used, in which a toggle-joint and a weighted lever have been used for operating a valve, such a device being shown and described in a patent granted to Joseph Guild on the 16th of May, 1871, No. 114,304. I therefore disclaim the combination shown and claimed by said Guild, and limit my claim to those shown and described in the following specification.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a side elevation of my improved governor, showing the general form in which I prefer to construct it; Fig. 2, a central vertical section of the same as seen when looking upwardly from the dotted line *x x* in Fig. 3, and showing by means of dotted lines the valve in both closed and open positions; and Fig. 3, a horizontal section, looking downwardly from the dotted line *y y* in Figs. 1 and 2.

In said drawings, the portions marked A represent the walls of the inclosing chamber; B, the cap thereto; C, the piston-rod; D E F, the several parts of the piston head or plunger; G H, the two parts of the toggle-joint; I, the valve; J, the pivot on which the part H is mounted; K, the inlet-pipe; L, the outlet-pipe; M, a weight-lever, and N a weight.

The wall A is preferably composed of a single casting, including short portions of the inlet and outlet pipes, and is usually of cylindrical form.

The cover B is either screwed on as a whole, in the manner shown, or is secured by bolts. It has a hole through its center, through which the stem or rod C passes, and in case the construction shown is employed a standard, B′, to which the weight-lever is attached, is used.

The rod C is provided at a point below the cover B with a screw-threaded portion, on which are secured the several parts, D E F, of the piston-head. The lower end has a slot, *c*, which receives the adjacent ends of the two parts G H of the toggle-joint, and operates said joint to open and close the valve I as it moves down and up. As this rod passes through a bearing in the cap B, and is secured against lateral movement below by the piston-head, it moves always in a direct course, and therefore always brings the parts which it operates into the same position at one time as at another when operated in the same manner. The open slot *c* permits the joint of the bar G H to slide somewhat therein, which, as will be readily seen, is necessary to the perfect operation of the device.

The piston-head is composed of two metal parts, D F, and a packing, E, of leather or other similar material, secured between them. When the water-pressure is greater than the force of the weight or spring it operates to raise this piston upward, and thereby, through the rod C and the toggle-joint G H, to close the valve I. When the force of the weight or spring is greater than that of the water-pressure it forces the rod C downward, and thus by a reverse movement of the parts opens the valve.

The parts of the toggle-joint G H may be either pivoted together in the ordinary way, or their ends may be formed as shown and abut against each other, and be held in place by being surrounded by the yoke on the lower end of the piston-rod. It may be pivoted to the valve or connected by a socket-joint, as shown, as may be desired. The other end is prefera-

bly pivoted, as shown, though a similar joint to that by which it is connected to the valve may be employed.

The valve I is formed to fit directly against the end of the inlet-pipe, being itself located in the larger opening which is formed by the projecting portion of the shell A. It has arms *i i*, which prevent it from moving out of place or being forced too far to one side. It is faced with rubber or leather or similar material, as is usual to such valves.

The advantage due to the combination and arrangement of parts above described over those heretofore used is that it dispenses with the diaphragm, and thus gives to the valve and its operating mechanism a greater range of motion, and in that the valve, when open, offers less resistance to the passage of the water and is squarely forced upon its seat, by which means the pressure upon its closing surface is alike at all parts, and consequently is less liable to leak.

The pivot J passes through the mouth of the outlet-pipe at about the same distance from the center that the valve is on the other side. It gives an extended bearing to the part H and prevents any twisting or getting out of place on the part of the rod C.

The pipes K and L are ordinary water-pipes, and are secured to the shell A in any desired manner.

The lever M is pivoted to the standard B′, and extends across a sufficient distance to give a proper adjustability to the weight N, which is placed thereon. Instead of this arrangement a spring may be employed, or the weight applied directly to the rod C.

It will be readily seen that when the valve is closed the toggle-joint is straight, or nearly so, and therefore that the outside pressure cannot affect the valve so as to force it open, but that it will remain closed until, by reason of the water being drawn off, the inside pressure is less than the force of the weight or spring, when the piston will move downwardly and cause the valve to open.

By the use of this device the water-pressure inside the valve can never exceed the force of the weight or spring, and this can be varied to correspond with the pressure required.

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

In a water-governor, the combination of the cylinder A, having the inlet and outlet pipes K and L, slotted piston-rod C, the piston-head consisting of the parts D E F, the toggle G J, the jointed portions thereof working in a slot formed in the piston-rod, whereby they are kept in their proper positions and in line with the axis of the valve, and the cap B, serving as a guide for the upper end of the slotted rod C, the parts being constructed and arranged substantially as shown and described.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 16th day of May, A. D. 1881.

HARRISON S. MILLER. [L. S.]

In presence of—
C. BRADFORD,
ARTHUR HOLLADAY.