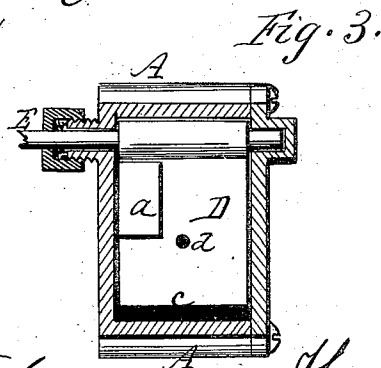
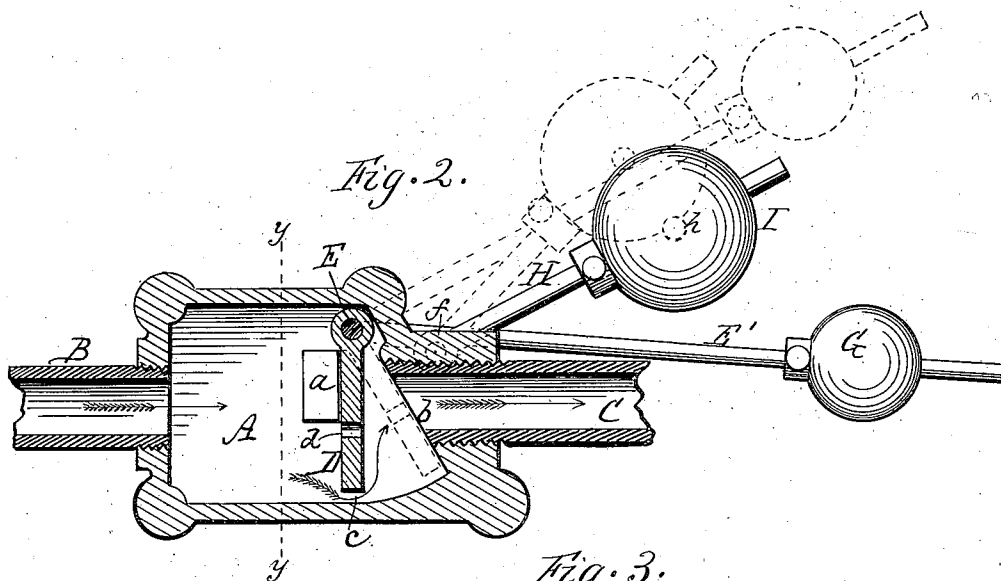
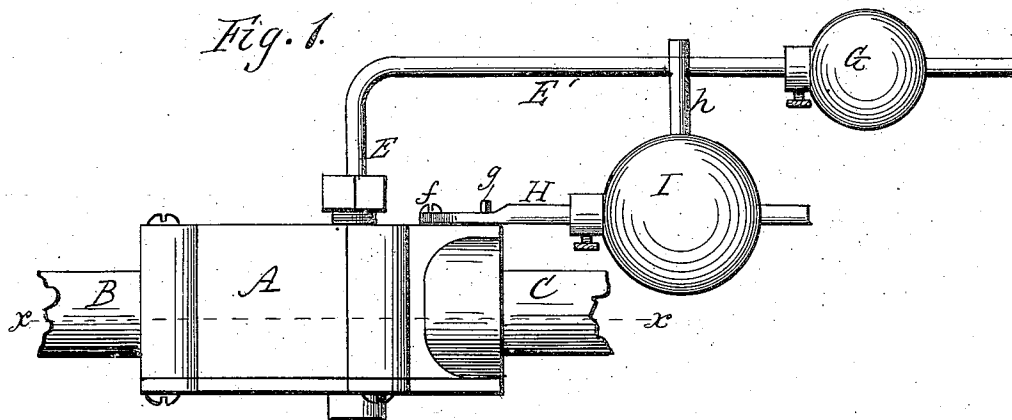


(No Model.)

H. B. WILLIAMS.
WATER PRESSURE REGULATOR.

No. 407,981.

Patented July 30, 1889.



Attest.
P. H. Henshaw
John H. Hopkins

Inventor.
Henry B. Williams
per R. E. Osgood,
Atty.

UNITED STATES PATENT OFFICE.

HENRY B. WILLIAMS, OF ROCHESTER, NEW YORK, ASSIGNOR OF FIVE-EIGHTHS TO LEMUEL A. JEFFREYS, OF SAME PLACE.

WATER-PRESSURE REGULATOR.

SPECIFICATION forming part of Letters Patent No. 407,981, dated July 30, 1889.

Application filed May 21, 1889. Serial No. 311,573. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. WILLIAMS, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Water-Pressure Regulators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this application.

My improvement relates to water-pressure regulators; and the object is to reduce the pressure on the service-pipes where there is an excess of pressure on the main; also, to increase the pressure on the main by reducing the pressure in the service-pipes in case of emergency, such as fire.

The invention consists in the construction and arrangement of parts, hereinafter described and specifically claimed.

In the drawings, Figure 1 is a plan view of my improved pressure-regulator. Fig. 2 is a vertical longitudinal section in line *x x* of Fig. 1. Fig. 3 is a vertical cross-section in line *y y* of Fig. 2.

A indicates a hollow chamber, which is the receiving-chamber.

B is the induction-pipe leading to the main, and C is the eduction-pipe leading to the service-pipe, said pipes being screwed into opposite ends of the receiving-chamber.

My improvement is as follows:

D is a wing forming a valve, which stands crosswise of the chamber A, and is attached to a shaft E, by which means it can swing forward and back. In its normal position it stands vertically and rests against a stop *a*, as shown by the full lines in Fig. 2; but when forced forward by the pressure of water it stands in an inclined position and shuts against an inclined seat *b* and cuts off the supply to the service-pipe, as indicated by the dotted lines, Fig. 2. A passage *c* is left under the bottom of the valve for the flow of water from the induction to the eduction passage, and the valve is also provided with a hole *d*, which allows passage through to the eduction-pipe even when the valve is closed tightly against its seat.

E' is a long arm, which forms a continua-

tion of the shaft E, and G is a sliding weight sliding thereon and secured at any adjustment by a set-screw or other means, said weight forming a counter-balance against the pressure of water that comes against the valve. The pressure of water against the back of the valve has the tendency to force the valve forward against the seat, and the counter-weight has the opposite tendency of opening the valve.

H is an arm pivoted at *f* to the side of the case and stopped against downward movement beyond a certain degree by a pin *g*, but having a free upward movement.

I is a heavy weight adjustable to different positions on arm H, and provided with a pin *h*, that extends across and above the arm *h*.

The operation is as follows: Under minimum pressure the valve stands vertical, and the water passes under it from the induction to the eduction in an uninterrupted flow. In case of excess of pressure from the main the valve is forced forward and gradually closes the passage, thus diminishing the flow to the service-pipes, and under very heavy pressure it closes the valve against its seat and cuts off the flow, except through the hole *d*, which is sufficient to supply the service-pipe under small pressure. Just before the valve closes the arm E' in rising strikes the pin *h* of arm H and raises the latter with the weight I attached, thus adding greatly to the power opposing the pressure. When the pressure is again reduced in the chamber behind the valve, this great weight will start the valve back, after which the weight I is stayed by arm H striking pin *g*, and the valve is carried back by weight G alone.

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

1. In a pressure-regulator, the combination, with the case A and induction and eduction pipes B C, of the valve D, adapted to close against a seat *b*, and provided with a hole *d*, and the weighted arm E', connected with the valve, as and for the purpose specified.

2. In a pressure-regulator, the combination, with the case A and induction and eduction

pipes B C, of the swinging valve D, provided
with the hose *d*, the weighted arm E', con-
nected with the valve, and the supplemental
weighted arm H, pivoted to the case and pro-
5 vided with a pin *h*, resting over arm E', the
whole arranged to operate in the manner and
for the purpose specified.

In witness whereof I have hereunto signed
my name in the presence of two subscribing
witnesses.

H. B. WILLIAMS.

Witnesses:

L. A. JEFFREYS,
R. F. OSGOOD.