

(No Model.)

H. B. WILLIAMS.  
WATER METER.

No. 483,951.

Patented Oct. 4, 1892.

Fig. 2.

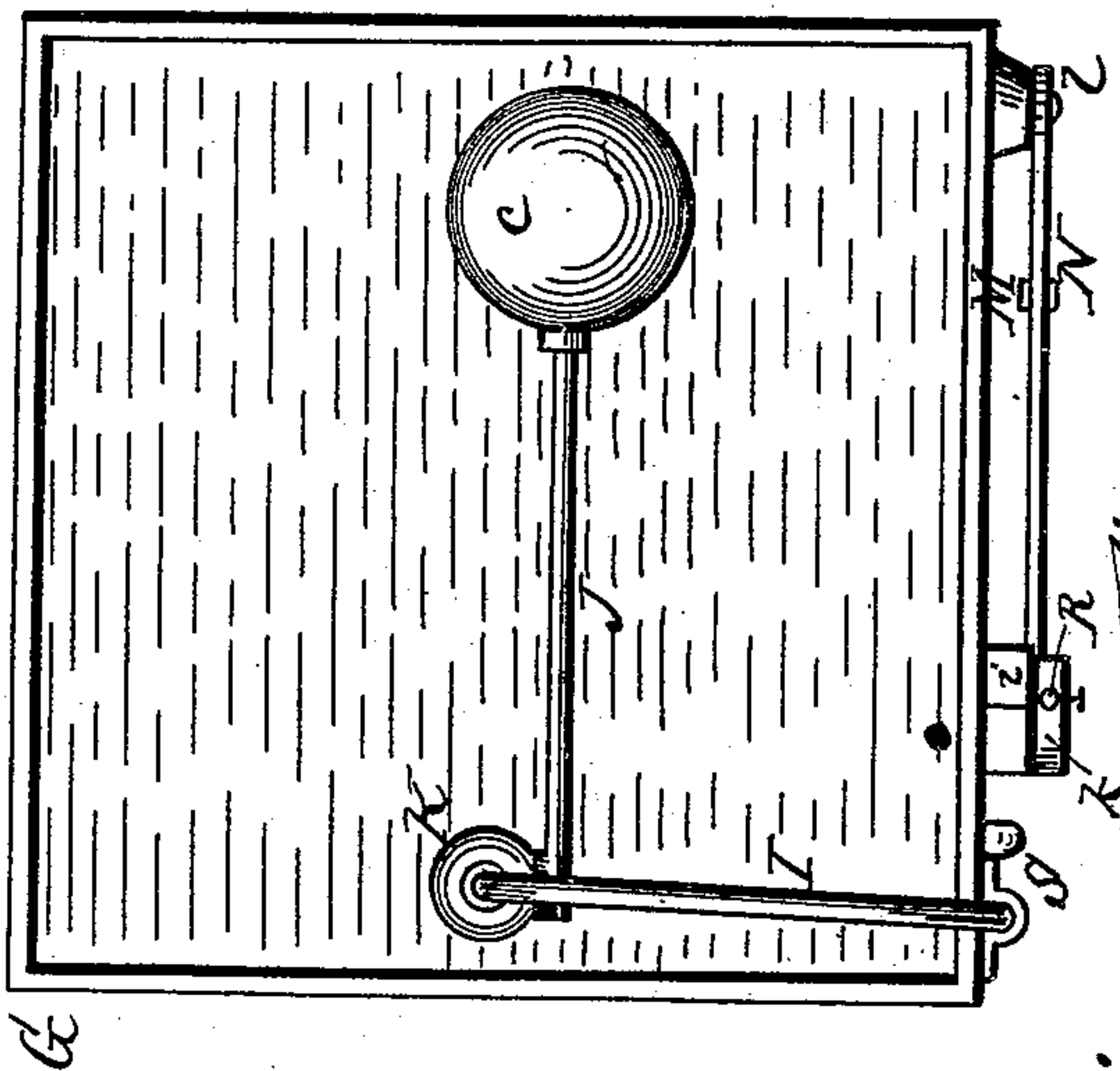


Fig. 5.

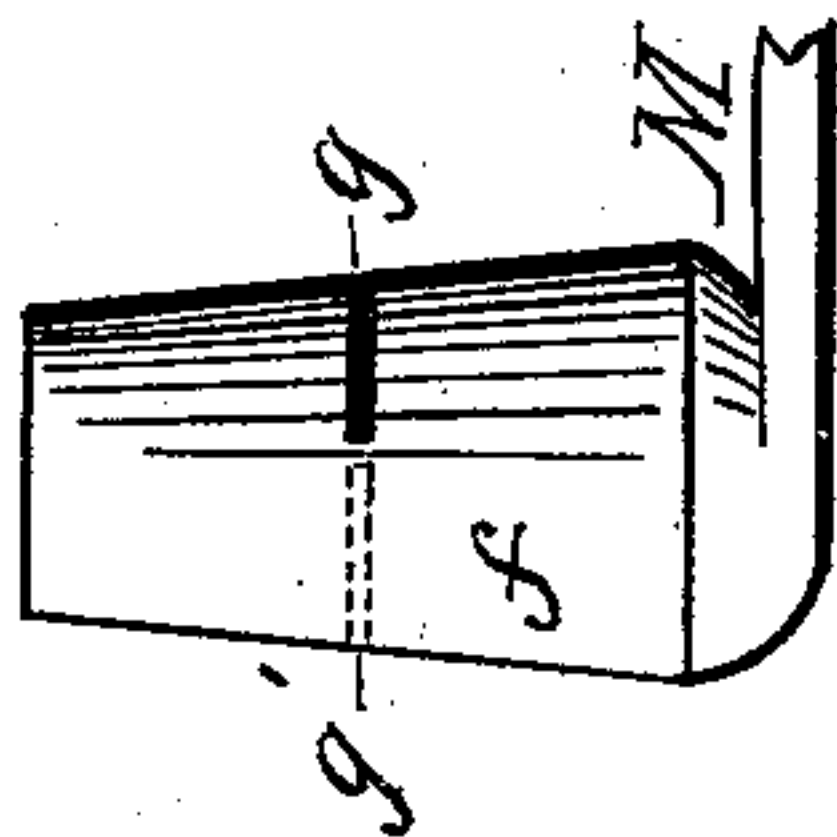


Fig. 4.

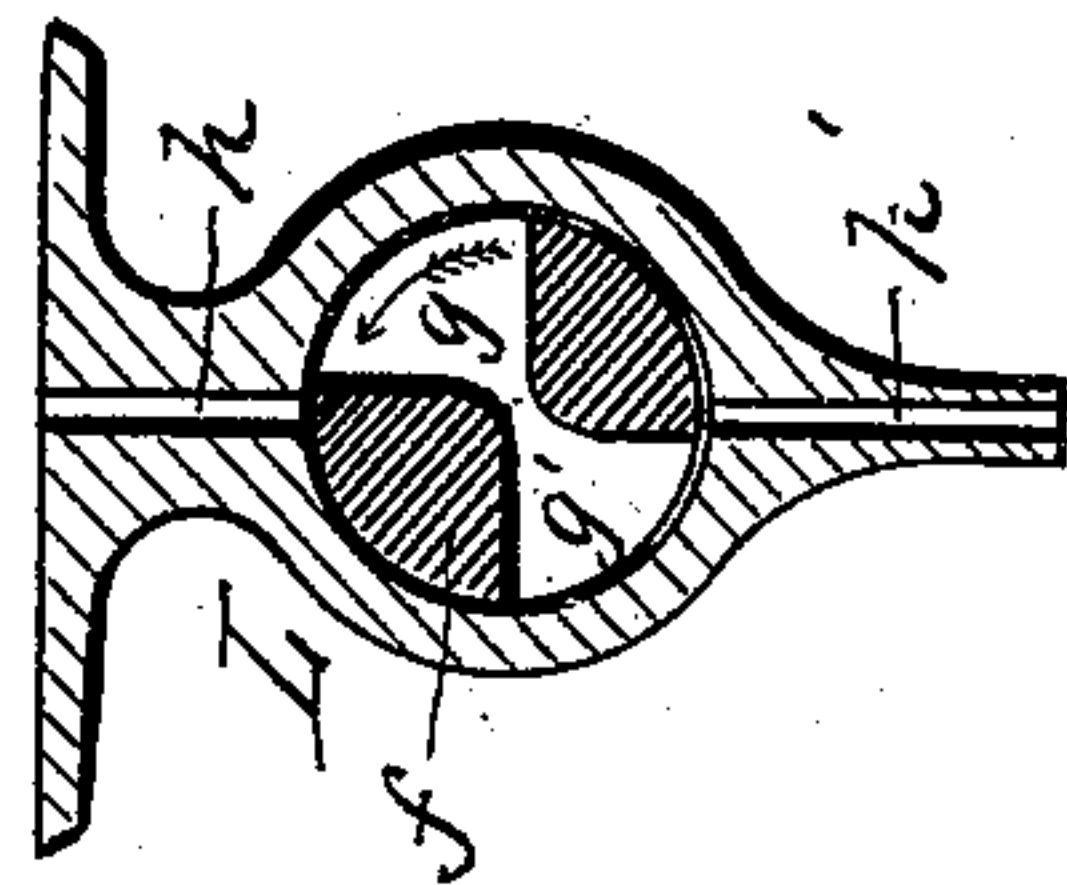


Fig. 3.

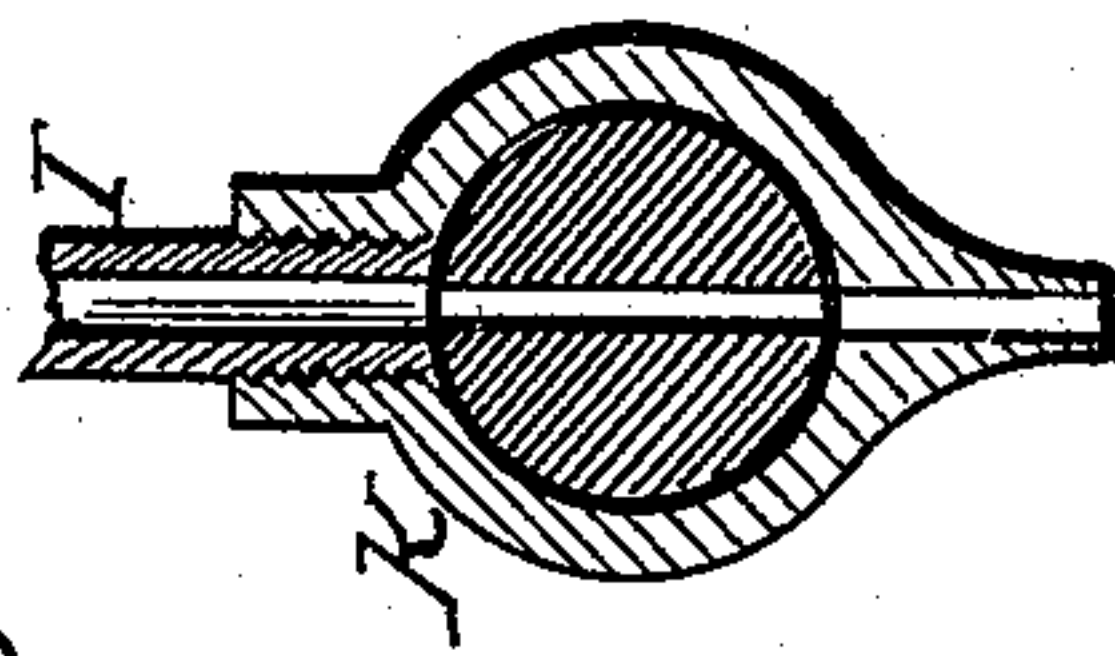
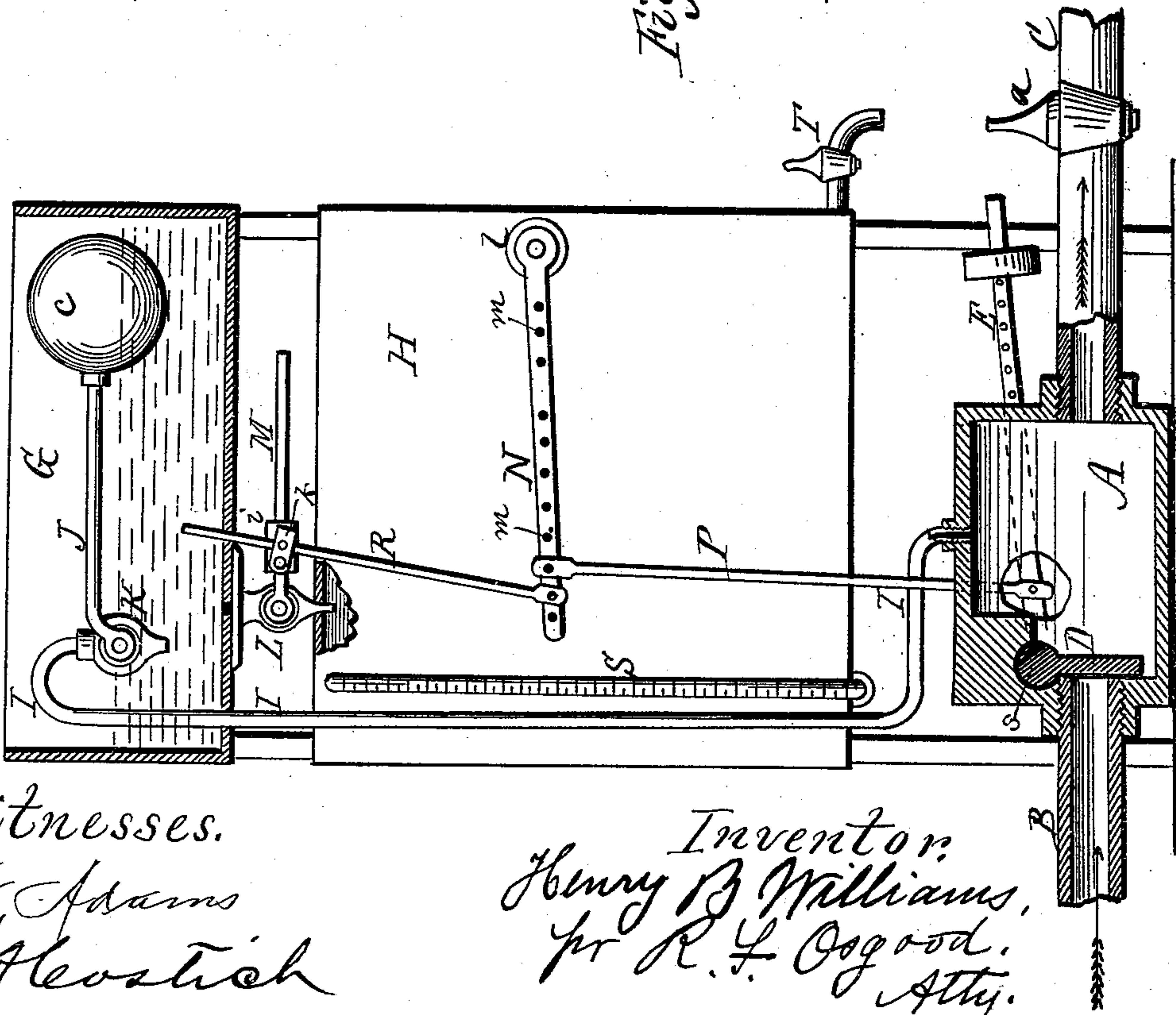


Fig. 1.



Witnesses.  
E. K. Adams  
P. A. Leostich

Inventor:  
Henry B. Williams,  
per R. F. Osgood,  
Atty.



# UNITED STATES PATENT OFFICE.

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

## WATER-METER.

SPECIFICATION forming part of Letters Patent No. 483,951, dated October 4, 1892.

Application filed April 3, 1890. Serial No. 346,484. (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  
5 useful Improvement in Water-Meters; 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 specification.

10 In this invention the water passes through a receiver and opens a valve therein. To the stem of the valve is attached an arm, which is raised by the opening of the valve. With this arm is connected lever-work that opens  
15 a cock at the bottom of a water-tank, allowing water to drip therefrom. The dripping falls into a measuring-chamber having a water-gage, and the gathering of this water indicates the amount of water that passes  
20 through the receiver. The supply-tank is fed by a pipe connected with the receiver, and its height in the tank is controlled by a float that operates a cock.

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

30 In the drawings, Figure 1 is a view, partly in elevation and partly in section, of my improved water-meter. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged cross-section of the cock that controls the flow of water into the supply-tank. Fig. 4 is a similar enlarged cross-section of the cock that controls the drip from the supply-tank into the meas-  
35 uring-chamber. Fig. 5 is a plan view of the last-named cock removed from its casing.

40 A indicates the receiving-chamber, through which the water to be measured runs, having at one end an induction-pipe B and at the other an eduction-pipe C, the latter being provided with a cock or a faucet *a*, by opening which the water is drawn.

45 D is a wing forming a valve, which in its normal position hangs down vertically and closes the end of the induction-pipe B. When the cock or faucet is opened, the pressure of the water behind the valve opens it by turning it more or less on its axis *s*.

50 E is an arm attached to the axis of the valve outside the chamber and turning up or down as the valve swings forward or back.

G is a water-tank located above the receiver, and H is a measuring-chamber located under the water-tank.

I is a small supply-pipe attached at one end 55 to the receiver, the other end extending up, over, and into the water-tank G, where it ends with an ordinary one-way cock K. To the plug of the cock is attached an arm J, carrying at its outer end a float *c*, which rises and 60 falls with the water in the tank, and thus turns the plug and controls the flow of water into the tank. The effect is to keep the water in the tank at a uniform level, and therefore having the same vertical weight at all 65 times, which is essential in the operation of my system, as the dripping of water from the tank must be uniform, and it is varied by a greater or less height of water in the tank.

L is another cock at the bottom of the tank 70 G and serving to discharge the water from tank G into the measuring-chamber H. The plug *f* of this cock has two thin quarter-slits *g g'* on opposite sides, one above and the other below, which communicate at the center, as shown in cross-section, Fig. 4. These 75 slits are like very narrow saw-kerfs and they register with the upper and lower openings *h h'* of the valve-casing. When the water is cut off from flowing through the receiver A, 80 these slits stand in the position shown in Fig. 4, being cut off from the discharges *h h'*, but lying so near that very small movement of the plug in turning will cause them to register and allow the flow of water therethrough, 85 but in very minute quantity. Even when turned fully open the narrow slits will not allow the water to pass more rapidly than a drip.

M is a stiff arm attached to the plug *f* of 90 the cock L.

*i* is a slide movable out and in on the arm, and *k* is a bearing pivoted to said slide and turning up and down thereon.

N is a rock-lever on the face of the meas- 95 uring-chamber H, pivoted at *l* and provided with a series of adjusting-holes *m m*.

P is a connecting-rod pivoted at one end to the rock-lever N and at the other to the arm E, attached to the axis of the valve D. 100 R is a similar connecting-rod pivoted at one end to rock-lever N, the other end passing



through the bearing *k*, connected with the arm M, that operates the plug of cock L.

It will be seen that as the valve D moves inward under the pressure of water behind it when the discharge-faucet is opened the arm E will be thrown up, the rod P raised, also raising the rock-lever N, and with it the rod R and arm M, consequently turning the plug *f* of cock L and allowing water to drip from the water-tank G into the measuring-chamber H. The greater the flow through the receiver by the wider opening of the faucet the greater will be the opening of the cock L and the greater the dripping of water from the tank to the measuring-chamber. The degree of throw of the lever-work can be varied by changes of the pivots on the rock-lever N and also by adjusting the attachments of the connecting-rods P R out or in on the arms E and M. Consequently the drip can be regulated to meet the necessities of the case.

The proper adjustment of the cock having been approximated by moving the connections of rods P and R with the levers E and M, respectively, while the points of attachment of said rods to lever N is constant, such adjustment can subsequently be perfected with great nicety and certainty by suitably moving the connection of said rods with the said levers N.

By compounding the lever-work as described the throw of the valve *f* across the passage *h* can be graded to uncover all or any part of said passage, thus regulating the drip of the water very accurately, whereas if single-acting lever-work is used adjustment of the valve cannot be produced.

The measurement is effected by the grad-

ual gathering of the water in the measuring-chamber H. A water-gage S, similar to those in boilers, is located outside the measuring-chamber, communicating with the interior, and this is marked with a scale, and the distance between one mark and another on the scale indicates a given number of gallons which pass through the receiver. Instead of the gage, the scale may be marked directly on the measuring-chamber, if made of glass, other transparent material.

T is a faucet for drawing off the contents of the measuring-chamber.

Having described my invention, I do not claim, simply and broadly, a proportional water-meter; neither do I claim an escape-valve operated by a valve through which the water flows; neither do I claim, broadly, a float connected with a cock for regulating the height of water in a tank.

What I claim as new, and desire to secure by Letters Patent, is—

In a water-meter, the combination, with the valve D in the receiving-chamber A and the cock L, attached to the supply-tank G, of the arm E, attached to the axis of the valve, the arm M, attached to the plug of the cock, the intermediate pivoted arm N, the connecting-rods P R, the slide *i*, and pivoted bearing *k*, 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:

R. F. OSGOOD,  
WM. J. MCPHERSON.