

# United States Patent Office.

IRA ROBBINS, OF HUGHESVILLE, PENNSYLVANIA.

Letters Patent No. 87,513, dated March 2, 1869.

## IMPROVEMENT IN WATER-METER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, IRA ROBBINS, of Hughesville, Lycoming county, Pennsylvania, have invented an Improved Water-Meter; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists of certain apparatus, fully described hereafter, for registering the flow of water and other fluids.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is an exterior view of my improved registering-apparatus;

Figure 2, an end view;

Figure 3, a view of the apparatus from a side opposite to that shown in fig. 1; and

Figure 4, a longitudinal section on the line 1-2, fig. 1.

Similar letters refer to similar parts throughout the several views.

The body, A, of the apparatus consists, in the present instance, of a casing, composed of three plates, *a*, *a*<sup>1</sup>, and *a*<sup>2</sup>, fig. 2, secured together by bolts *b*, the intermediate plate *a*<sup>1</sup> being cut away, as shown in fig. 4, so as to form a chamber, or passage, *c*, threaded at each end, for the ready connection of pipes for the conveyance of water to and from the apparatus.

A spindle, B, extends transversely across the apparatus, turning in the plates *a* and *a*<sup>2</sup>, and in the hooked portion, *d*, of the plate *a*<sup>1</sup>. (See fig. 4.)

A valve F, consisting of a long, flat strip of metal, of a width equal to that of the passage *c*, is secured to the spindle B, so that when the outer end of the valve rests upon the inner edge of the plate *a*<sup>1</sup>, communication between the opposite ends of the passage is entirely cut off, and the valve has a tendency to remain in this position, by reason of a spring, *g*, which bears against an arm, *h*, at the outer end of its spindle B. (See fig. 3.)

A cock, D, is secured to the under side of the apparatus, and communicates with the passage *c*, its plug *i* being provided with an arm, *j*, which is connected, by a link, *l*, to the outer end of the valve-arm *h*.

The slightest motion of the valve F will be communicated, through these devices, to the cock D, and the latter is so adjusted that the passage through its plug

shall be opened and closed as the valve opens and closes, for a purpose described hereafter.

Beneath the cock D, and turning in arms *m m*, projecting from the plates *a* and *a*<sup>2</sup>, is a wheel, H, having floats *n*, and at one end of its spindle, is a pinion, *p*, through the medium of which, and a suitable train of wheels, motion is communicated to the pointers of registering-dials.

The registering-device may be similar to those used in connection with gas or water-meters; hence it has been deemed unnecessary to illustrate it in the drawing.

The water flows through the passage *c*, in the direction of the arrow, fig. 4, lifting the valve F, and turning the spindle B to a greater or less extent, according to its velocity, and consequent pressure.

When the valve is raised, the cock D is also opened to a corresponding extent, and a jet of water is projected on to the floats of the wheel H, the latter turning and communicating motion, through the train of wheels, to the registering-device.

If the pressure of the water increases, the valve and cock will be opened to a still greater extent, and the wheel H will be caused to rotate more rapidly, in consequence of the increased volume of the jet which falls upon it.

If, on the contrary, the flow of water should decrease, there will be a corresponding decrease in the number of revolutions of the wheel H.

It will thus be seen that the quantity of water which passes through the chamber *c* will be indicated by the pointers of the registering-device.

I claim as my invention, and desire to secure by Letters Patent—

The spring-valve F, arranged within a channel, through which the water must pass, in combination with a cock or valve, controlled by the valve F, and with devices by which the water discharged from the said cock is caused to operate the registering-devices, substantially as set forth.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

IRA ROBBINS.

Witnesses:

WM. W. HART,  
J. S. MEREDITH.