

O. Gilmore,

Water Meter.

No. 87,837,

Patented Mar. 16, 1869.

FIG. 1.

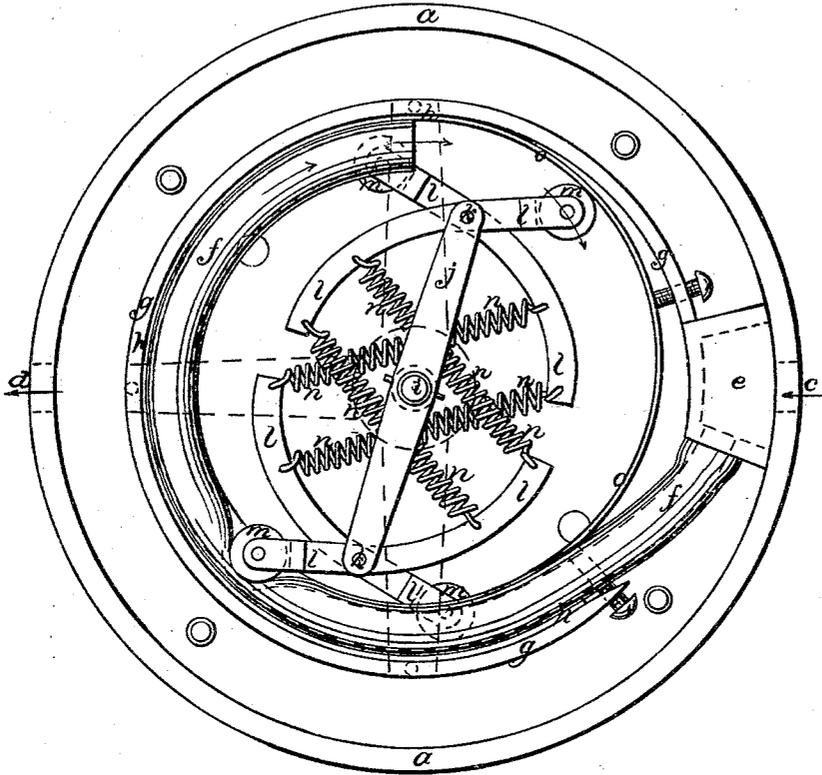
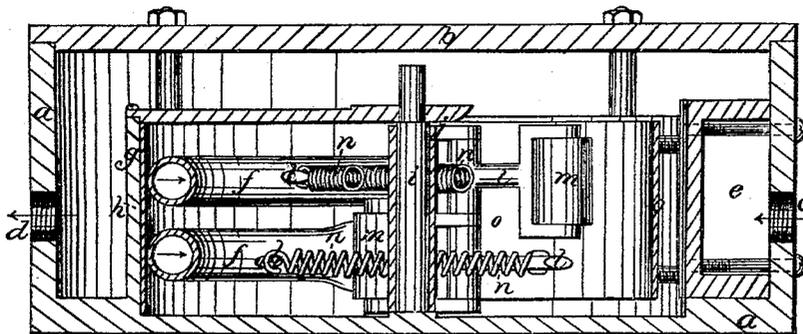


Fig. 2.



Witnesses.
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OTHNIEL GILMORE, OF RAYNHAM, MASSACHUSETTS.

Letters Patent No. 87,837, dated March 16, 1869.

IMPROVEMENT IN LIQUID-METERS.

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, OTHNIEL GILMORE, of Raynham, in the county of Bristol, and State of Massachusetts, have invented an Improved Water-Meter; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

A simple, cheap, accurate, and efficient water-meter has been the subject of much thought and experiment; and the object of my invention is the production of such a meter, which is shown in plan in Figure 1, with the cover, or head removed, to exhibit the interior, and in cross central section in Figure 2.

a is a close casing, provided with a movable head, *b*, and arranged with an inlet at *c*, and an outlet at *d*.

Within the casing *a* is a close box, or chamber, *e*, provided on one side with two nipples, to which are secured two flexible water-proof pipes, *f*, preferably of thin rubber, and as the inlet at *c* communicates with the space in the chamber *e*, it is evident that water can flow, under a head, or pressure, from a supply-pipe coupled to the inlet *c*, through the flexible pipes *f*, and out of their open ends into the interior of the casing, and out of the delivery, or service-pipe, coupled to outlet *d*.

Within the casing *a* is a cylindrical wall, *g*, preferably faced with rubber or other yielding material, *h*; and to a shaft, *i*, concentric with the cylinder *g*, is fixed a frame, *j*, to the outer bars *k* of which are pivoted arms *l*, each carrying, at one end, a roll, *m*, the inner opposite ends of the arms *l* being coupled together in pairs by spiral springs *n*, the effect of which is to press the rolls *m* outward against the pipes *f*, which they close at their lines of contact with the rolls.

The axes of each co-operating pair of coupled rolls *m* are in a plane passing through the axis of shaft *i*, but the different pairs are not in the same plane, one being advanced beyond the other, so that only one roll shall act at the same moment, in passing upon or off from the flexible pipes.

Within the cylinder *g* is fixed a curved incline, *o*, which operates, as the frame *j*, and the rolls carried thereby, are made to move around the pipes *f*, by the flow of the water-current therein, to press back the rolls toward the shaft *i*, in traversing from the begin-

ning of the incline, at the open delivery-mouths of the pipes *f*, to the end of the incline, where the rolls drop off therefrom upon the pipes, and compress them.

It will be seen that as water is drawn from the outlet, its place will be supplied by water flowing through the pipes *f*, which it can only do by forcing the rolls *m* ahead of the incoming current, the pipes being closed wherever the rolls press upon them.

It will also be seen that at each revolution of a pair of co-operative rolls, the pipe on which they act will receive and discharge only the contents of its capacity between the bite of said rolls upon the pipe, there being at no time a free passage, or flow through the pipe, which is always checked by one of the rolls, and at times by both.

As the fluid discharges into the enclosed space around the pipes *f*, it will be obvious that the pressures upon the inside and outside of the pipes are substantially or nearly equal, so that the pipes themselves may be made very thin and flexible, requiring but little force to close them by the action of the rolls.

To lessen the frictional wear of the rolls on the pipes, they may have interposed between them and the rolls a thin flexible band.

In the drawings, I have shown a meter made in accordance with my invention, having two flexible pipes; but one pipe, however, might be used, or any other greater number, without departure from my invention.

By experiment, it will be ascertained how much fluid will be delivered from the flexible pipe, or the assemblage of flexible pipes, at each rotation of the frame carrying the pinching-rolls, which act as stop-valves to the current through the pipe or pipes; and then, by any suitable counter-mechanism coupled with the shaft *i*, to register the number of its rotations, the quantity of fluid passing through the meter can be readily ascertained.

I claim a water-meter, in which flexible pipes, and pinching-rolls operating thereon, and operated by the current passing through the pipes, are employed as described, when the pipes are so arranged as to have upon them the pressure of the water, both inside and outside.

OTHNIEL GILMORE.

Witnesses:

J. B. CROSBY,
L. H. LATIMER.