2 Sheets—Sheet 1.

P. WELLS.

WATER-METERS.

No. 182,727. Patented Sept. 26, 1876.

Fig. 1.

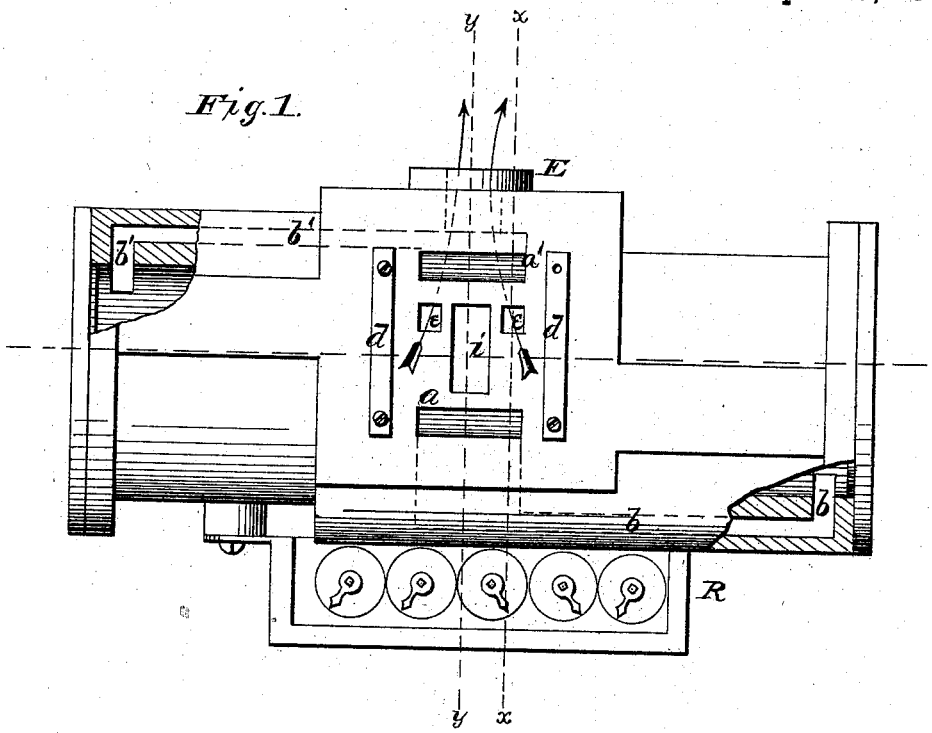


Fig. 5

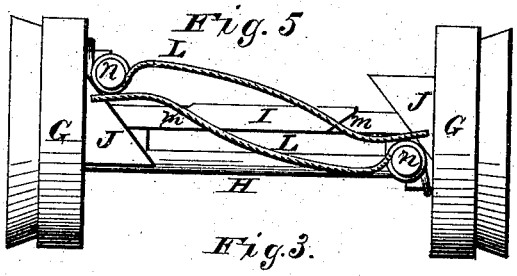
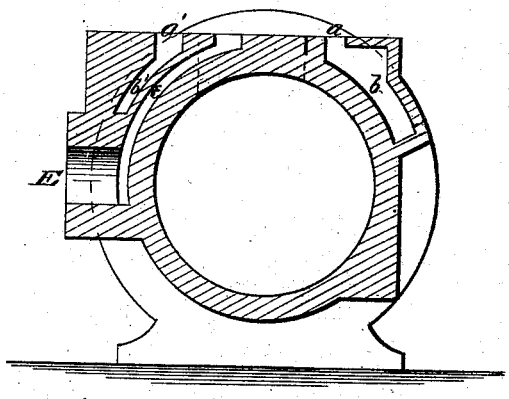


Fig. 3.



WITNESSES

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2 Sheets—Sheet 2.

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Fig. 2

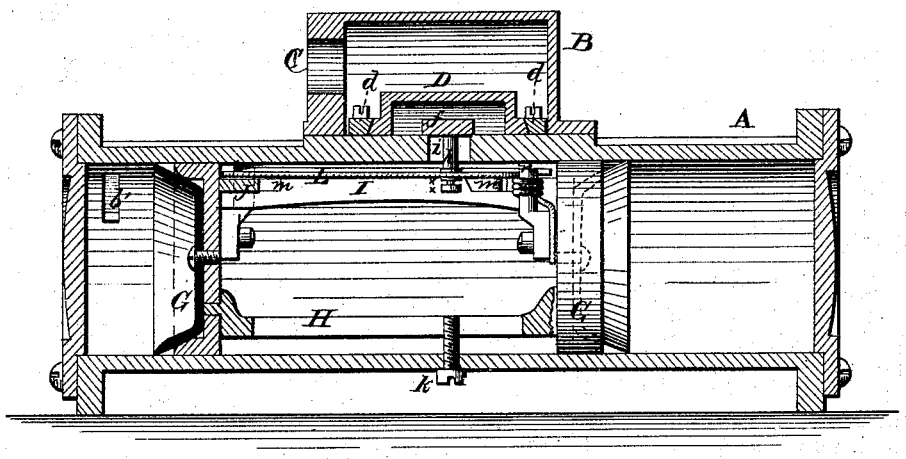
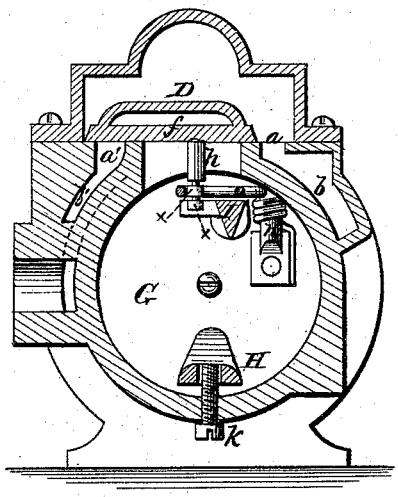


Fig. 4



WITNESSES

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UNITED STATES PATENT OFFICE.

PARKER WELLS, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN WATER-METERS.

Specification forming part of Letters Patent No. **182,727**, dated September 26, 1876; application filed September 16, 1876.

To all whom it may concern:

Be it known that I, PARKER WELLS, of Lynn, in the county of Essex and in the State of Massachusetts, have invented certain new and useful Improvements in Water-Meters; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a water-meter, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a plan view of the meter, with the valve and valve-chest removed. Fig. 2 is a longitudinal vertical section of the same. Figs. 3 and 4 are transverse vertical sections, through the lines *x x* and *y y*, respectively, of Fig. 1. Fig. 5 is a plan view of the plungers or pistons within the cylinder.

A represents a cylinder, of any suitable dimensions, closed at both ends, and provided in the center, on the upper side, with a valve-chest, B, into which the water is admitted through the inlet C. The valve-chest B communicates, by ports *a a'*, with passages *b b'*, which lead to opposite ends of the cylinder, and communicate with the interior thereof. The valve-chest has also ports *e e* leading to the outlet E. D represents the valve, which moves back and forth, guided by dovetailed gibs *d d*. This valve is substantially in the form of an ordinary D-valve, and has a cross-bar, *f*, at the bottom, from which a pin, *h*, projects downward through a slot, *i*, into the interior of the cylinder. Within the cylinder A are placed two plungers or pistons, G G, provided with suitable packing, and connected at the bottom by a longitudinally-slotted bar, H. Into the slot in this bar projects a screw or pin, *k*, from the bottom in the center of the cylinder, thereby preventing any rotary movement of the pistons. Near the top the pistons are further connected by a cross-bar, I, made preferably in V-shape, and formed at each end with an inclined projection, J, as shown in Fig. 5. The top of the bar I is cut out near each end to form the inclines *m m*, running in opposite direction to the inclined projections J. To each piston G, on opposite sides of the bar I, is fastened a vertical stud, *n*, upon which is placed a spiral spring, L. One end of this spring bears against the side of the stud at the base, while the other end is curved or bent, substantially as shown in Fig. 5, and extends over the top of the bar I, and bears against the other stud on the opposite side. The pin *h*, projecting from the bottom of the valve D, is to work at the side of the bar I, and is to be provided with two small friction-rollers, *x x*, one of which bears against said bar, and the other against the spring.

The operation of my water-meter is as follows: Water entering the valve-chest B, and the valve D being in the position shown in Fig. 4—that is, covering the port *a'*, and leaving the port *a* uncovered—the water will pass through said port *a* and passage *b* into the cylinder A at one end, and of course force the pistons toward the other end of the cylinder. During this movement of the pistons, the pin *h* is on one side of the bar I, and as the movement progresses said pin forces back the spring L on that side until the pin reaches the cut-out portion of the bar I, between *m* and J, when the spring will throw the pin through said cut-out to the other side of the bar I. The pin being attached to the valve D, said valve will thereby be moved so as to close the port *a* and uncover the port *a'*, and the water will then enter through this latter port and reverse the movement of the pistons. The water already in the cylinder is then forced through the passage *b* and ports *a e e* to the outlet E. When the pistons return to their former position, the valve is in like manner again shifted by the action of the other spring L. Should, however, from any cause, the springs L not operate, the inclines J *m* will move the valve independent of the springs, for as the pistons are about to complete their stroke the incline J is brought against the pin *h*, and moves the valve sufficiently to reverse the action of the pistons, the pin *h* being then entirely or only partially through the cut-out on the bar I. If only partially through the same, then as the pistons commence their re-

turn movement the incline *m* strikes the pin and completes the movement of the valve.

R represents the registering apparatus, attached to the side of the cylinder A.

This registering apparatus may be constructed in any of the known and usual ways, and is operated in any convenient manner, such as, for instance, the pistons at the completion of each stroke striking a pin or lever, or in any suitable manner. To such apparatus, however, I lay no claim.

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

1. In a water-meter, the combination, with the cylinder A and valve-chest B, with the ports and passages as described, of the sliding valve D, provided with the pin *h*, projecting downward into the cylinder, and operated by means of springs L L connected to the reciprocating pistons, substantially as and for the purposes herein set forth.

2. In a water-meter, the combination of the pistons G G, connecting-bar I, cut out near each end, the inclines J *m*, and spiral springs L L, all constructed substantially as and for the purposes herein set forth.

3. In a water-meter, the combination of the cylinder A, pistons G G, slotted connecting-bar H, and pin or screw *k*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of September, 1876.

PARKER WELLS.

Witnesses:

WILLIAM L. BRAMHALL,

C. C. EVERT.