P. WELLS.

WATER-METER.

No. 188,215. Patented March 6, 1877.

Fig. 1.

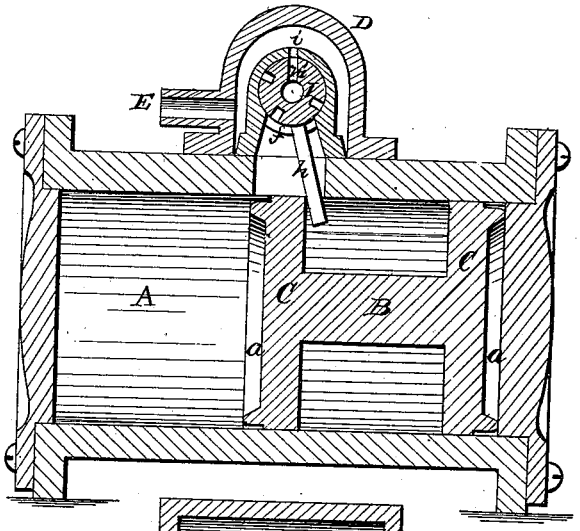


Fig. 2.

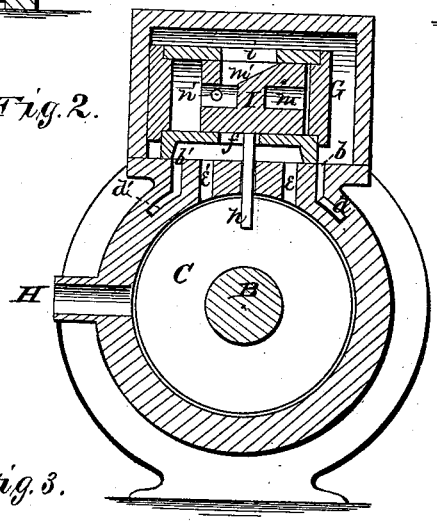


Fig. 4.

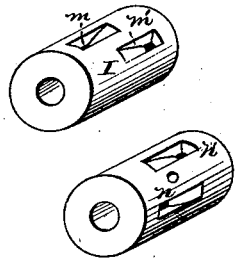
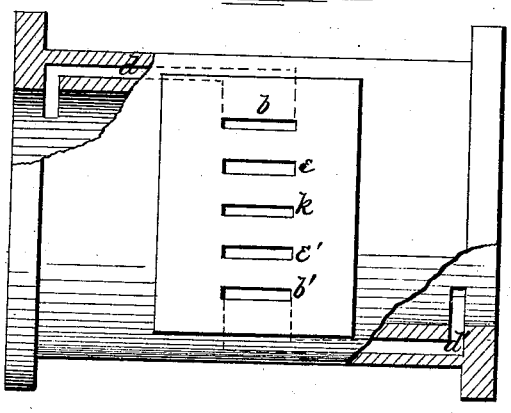


Fig. 3.



WITNESSES

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PARKER WELLS, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN WATER-METERS.

Specification forming part of Letters Patent No. **188,215**, dated March 6, 1877; application filed February 9, 1877.

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 drawing, in which—

Figure 1 is a longitudinal section of my water-meter. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a plan view, partly in section, of the cylinder with the valve-chest removed. Fig. 4 is a detailed view of the rotating or plug valve.

A represents the cylinder of the water-meter, within which are two pistons, C C, connected by a center rod, B. These pistons and rod may be all cast or otherwise formed of one piece, as shown, or they may be made of separate pieces and suitably connected.

The outer face of each piston C is formed with a concentric recess, *a*, which forms a water-chamber, to retain a sufficient quantity of water to constitute a cushion, so that when the piston reaches the head of the cylinder there will be no shock or jar from the same, the concussion being entirely avoided.

On top of the cylinder A is the valve-chest D, having water-inlet E, and this valve-chest communicates through ports *b b'*, and corresponding passages *d d'*, with the two ends of the cylinder A. *e e'* are corresponding exhaust-ports.

Within the valve-chest D is the sliding valve G, which is made hollow, closed at both ends, provided with a port, *i*, at the top, and its under side is recessed and has a central aperture, *f*, as shown. Within this sliding valve G is placed a rocking plug-valve, I, from the under side of which an arm, *h*, extends downward through the aperture *f*, and through an elongated slot, *k*, into the cylinder. This slot *k* is located between the two exhaust-ports *e e'*, and the arm *h* projects between the two pistons C C, so as to be actuated by them at each stroke, as hereinafter described. In the top of the plug-valve I are two ports, *m m'*, passing through opposite ends of the valve, and from the same respectively open ports *n n'* through the under side shorter than the sliding valve G, so that while of the said valve. This plug-valve I is made the plug-valve remains stationary the surrounding valve G is capable of sliding from end to end of the valve-chest. In the position of the parts as shown in the drawing, the water is entering from the valve-chest through the port *b* and passage *d* to one end of the cylinder to force the pistons from this end to the other end of the same, by which movement the water in front of the pistons is forced through the passage *d'*, port *b'*, and exhaust *e'* in between the two pistons and out through the outlet H. As the pistons finish their stroke the rear piston strikes the arm *h* and turns the plug-valve I so as to close the port *m'* thereon and open the port *m*. The water then at once passes through the ports *i* and *m* to that end of the plug-valve, and acting against that head of the slide-valve moves said valve G the required distance to close the port *b* and open the port *b'*. The water that was in the other end of the slide-valve during this movement exhausts through the port *n'*. By this movement of the slide-valve the motion of the pistons is reversed, and as soon as the pistons finish their return stroke, the plug-valve is rotated back again and the slide-valve moved to its former position.

It will be noticed that in my water-meter there are no springs whatever which would be liable to get out of order. The pressure of the water alone operates the various parts. It is simple in construction, yet effective in operation, and not liable to get out of order.

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 of a sliding valve, operated directly by the pressure of the water, and a rocking valve placed

within the sliding valve and operated by the action of the pistons, substantially as herein set forth.

2. The combination of the sliding valve G, having port *i* and aperture *f*, the interior rocking valve I, having ports *m m'* and *n n'*, and provided with the arm *h*, the valve-chest D, cylinder A, with their respective ports and passages, as described, and the connected pistons C C, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of February, 1877.

PARKER WELLS.

Witnesses:
J. M. MASON,
FRANK GALT.