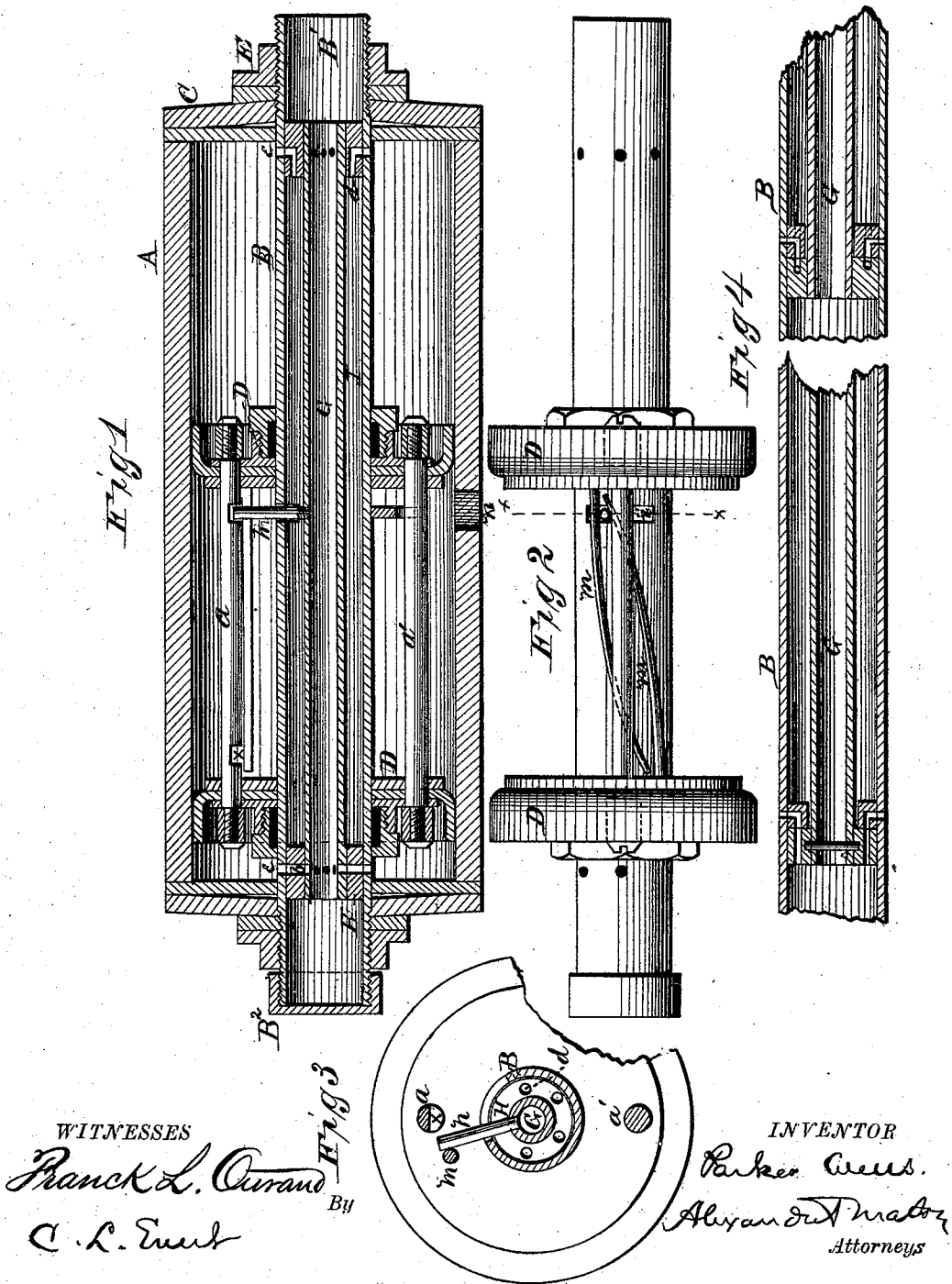


P. WELLS.
WATER-METER.

No. 173,379.

Patented Feb. 8, 1876.



WITNESSES
Frank L. Curran
C. L. Ewert

INVENTOR
Parker Wells.
Alexander M. Mott
Attorneys

UNITED STATES PATENT OFFICE.

PARKER WELLS, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN WATER-METERS.

Specification forming part of Letters Patent No. **173,379**, dated February 8, 1876; application filed January 31, 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 drawing, in which—

Figure 1 is a longitudinal section of my water-meter. Fig. 2 is a side view of the central tube. Fig. 3 is a section through the line *x x*, Fig. 2. Fig. 4 is a longitudinal section, showing a modification of the construction of the interior valve.

A represents a cylinder of any suitable dimensions, through the center of which passes a tube, B, the heads C of the cylinder being held to its ends by means of nuts E screwed on the pipe B up against said heads, or in any other suitable manner. The water enters the end B¹ of the pipe, and the other end of said pipe is closed by means of a water-tight cap, B². On the pipe B, within the cylinder A, are placed two pistons or plungers, D D, which have suitable packing to form water-tight joints between them and the interior of the cylinder, and are packed to the pipe by ordinary stuffing-boxes. The two pistons are connected by means of rods *a a'*, which keep them always the same distance apart and cause them to move together, back and forth, on the pipe. Within the pipe B is placed a hollow or tubular valve, G, open at both ends, and provided at each end with a circumferential collar or sleeve, H, which fills the space between the valve and the pipe, and forms a chamber, I, around said valve from one collar to the other, as shown. At each end of the valve G are ports *b b*, passing radially through the valve and collar, and through the collar are also other ports *d d*, which run from the

outer circumference of the collar to the inner chamber I. In the pipe B, opposite the ends of the valve G, are ports *e e*, as shown. The various ports are so arranged that when the ports *b* at one end of the valve coincide with the ports *e* at that end of the pipe B, the ports *e* at the other end of said pipe coincide with the ports *d* at the other end of the valve. From the center of the valve G projects an arm, *h*, through a cross-slot, *i*, in the pipe B, which arm prevents the valve from moving longitudinally in the pipe B, and, by turning the arm to the right or left, the valve is turned to change the position of the ports and consequent flow of the water. In the under side, near each end of the rod *a*, is a notch, *x*, for the valve-arm *h* to pass through from side to side, and to each piston is secured a spring, *m*, which extends on a diagonal line nearly to the opposite piston, as shown in Fig. 2.

The operation of the meter is as follows: The pistons and valves being in the position shown in Fig. 1, the water, standing under pressure in the pipe B and valve G, passes through the open ports *b e* into the cylinder A at that end, and forces the pistons toward the other end of the cylinder. The water at this end of the cylinder passes through the ports *e d* into the chamber I, and from thence through the slot *i* or other opening made for that purpose into the cylinder between the pistons, after which it passes out through the exit *n*. As soon as the pistons complete their stroke the valve is changed, so as to reverse the ports, and thereby change the movement of the pistons. The valve or valve-arm is to be connected in any suitable manner with the registering apparatus, which I have not deemed it necessary to show in the drawing.

It will be noticed that the valve is completely balanced by the water inside and outside of the same, and that the water is admitted into the meter from the center, which facilitates the operation and materially reduces the friction of the parts. As a modification the collar or sleeve H at each end of the valve may be made in two parts, as shown in Fig. 4, one part being permanently attached to the inside of the water-pipe B, and the ports *e* in said pipe extending in L-form through said part of the collar, while the other part of the

collar is fast to the valve, and has the ports correspondingly arranged.

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

1. In a water-meter I claim a cylinder with central pipe, in which the water stands under pressure, a rotating balanced valve inside of said pipe, and two connected pistons sliding back and forth on the pipe, all substantially as and for the purposes herein set forth.

2. The combination of the central water-pipe B with ports *e e*, and the tubular balanced valve G, provided with arm *h* and end collars or sleeves H H, having ports *b* and *d*,

all substantially as and for the purposes herein set forth.

3. The combination, with the central water-pipe B and valve G, with arm *h*, of the pistons D D, connecting-rod *a*, with notches *x x*, and the springs *m m*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 31st day of January, 1876.

PARKER WELLS.

Witnesses:

M. L. STOWELL,

H. A. HALL.