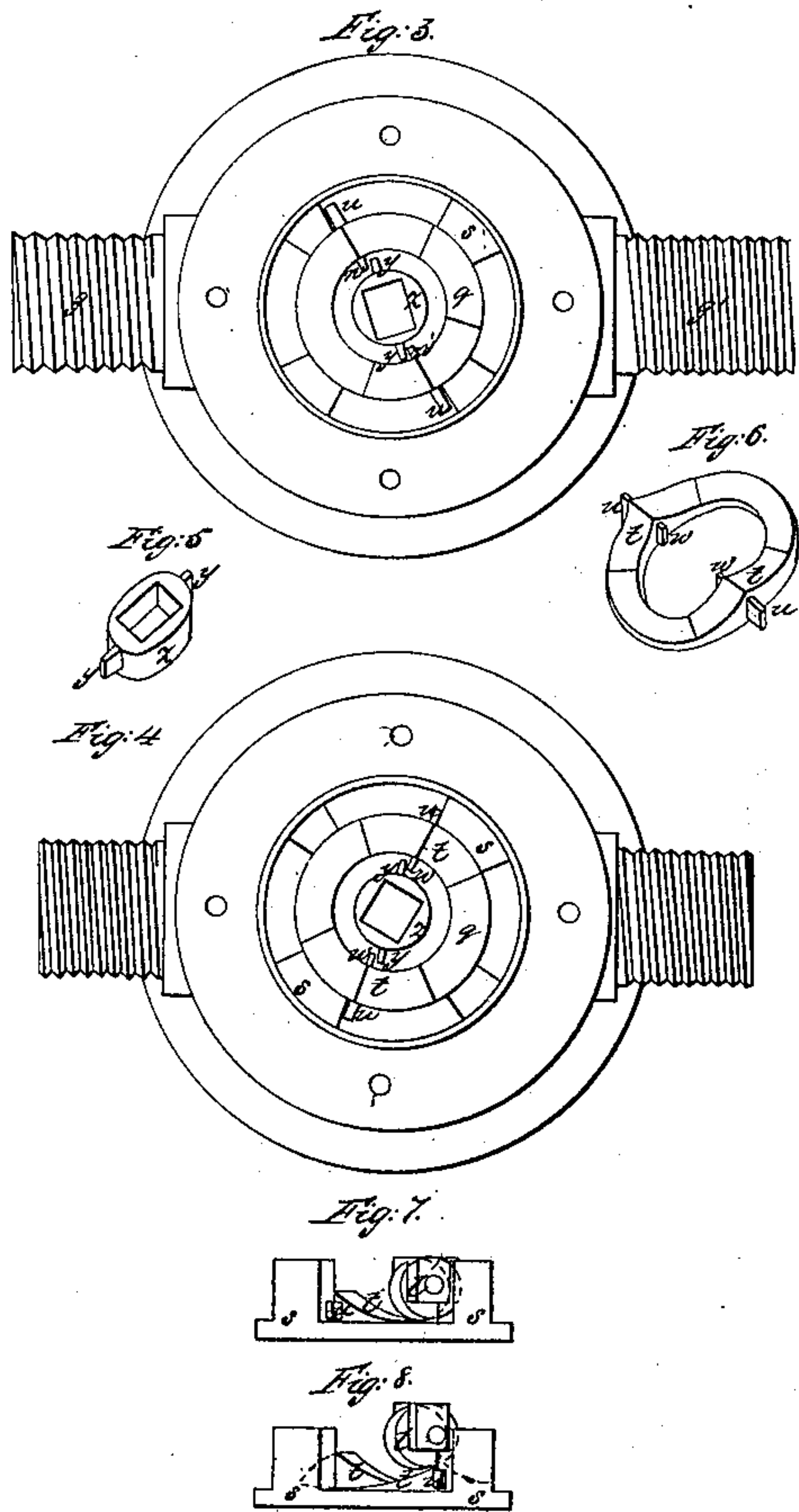
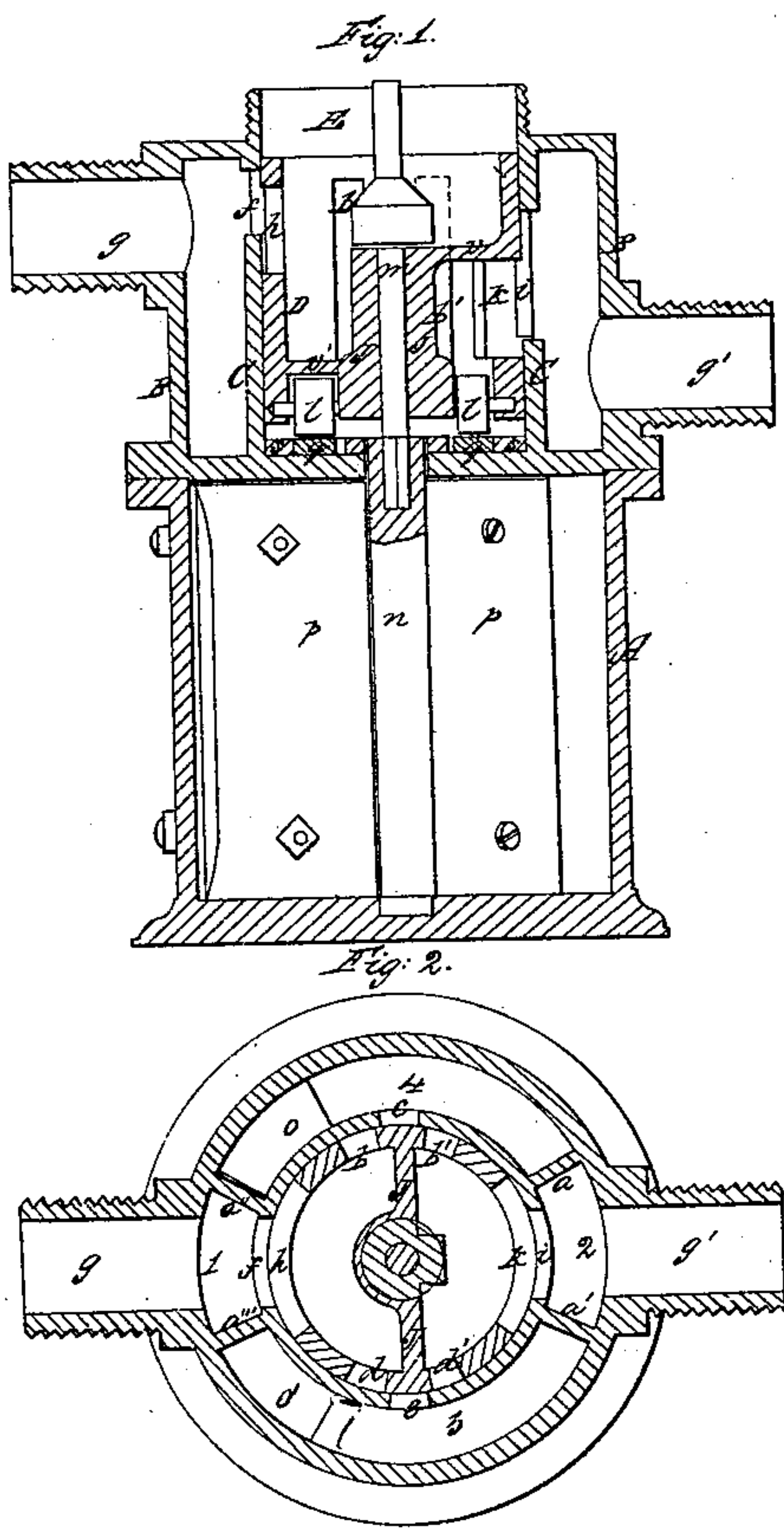


G. SICKLES.
WATER METER.

No. 103,379.

Patented May 24, 1870.



Witnesses:
M. J. J. Wilde
Austin L. Howarth

Inventor:
Gerald Sickles
by his attorneys
A. A. & C. K. K. K. K.

United States Patent Office.

GERARD SICKELS, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 103,379, dated May 24, 1870.

IMPROVEMENT IN WATER-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, GERARD SICKELS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in "Water-Meters," of which the following is a full, clear, and exact description, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 represents a vertical section of my improved water-meter.

Figure 2 is a horizontal section on the lines *x x*.

Figures 3 and 4 represent plan views with the cylindrical valve removed.

Figures 5, 6, 7, and 8 are details of parts of the machine.

The same letters refer to the same parts in the several figures.

The object of my invention is to simplify and modify the apparatus for measuring water, on which Letters Patent No. 88,221, dated March 23, 1869, have been granted to me; and

My invention consists in a cylindrical valve, provided with suitable slots, and divided off by a partition, in such a manner that one portion communicates with the inlet port and with passages leading to the working cylinder, while the other portion is connected with said passages and with the outlet-port; and

My invention consists further in giving the cylindrical valve a spirally reciprocating motion, produced by the pressure of the water upon the valve, for the purpose of changing the direction of the water from one side to the other of the movable wing in the lower cylinder, and by the oscillating motion of a disk, provided with two elevations and stop arrangement for arresting the forward motion of the valve and disk. The disk being actuated by the oscillations of the upright shaft, and by means of projections and stoppers.

Referring to the drawings—

A represents an upright cylinder, to the top of which is secured an upper cylinder, B, provided with four chambers or passages, 1 2 3 4.

Chambers 1 and 2 receive the inlet-pipe *g* and discharge-pipe *g'*, respectively, while chambers 3 and 4 communicate with the cylinder A by ports or openings O O'.

In cylinder A is placed a vertical partition, *r*, one side of which, being firmly secured to the cylinder, while the opposite side bears water-tight against the shaft *n*, in such a manner that the latter is free to vibrate with wing *p*.

To the upper portion of shaft *n* is firmly secured

a ring, Z, fig. 5, with drivers *y y* and a spindle, *m*, the latter to transmit motion to registering apparatus.

The position of partition *r* is arranged between the apertures O O', so as to give the wing *p* as much movement between them as may be desirable.

On spindle *m* is placed, loosely, the cylindrical valve D, consisting of the hub J, and the shell fitting snugly to the inside C of cylinder B.

The shell is connected with the hub J by the partitions *v v'*, which separate the valve into two distinct parts, one of which being open on the top and closed at the bottom, communicates, by port *f*, with the inlet-chamber 1 or pipe *g*, and with the slots *b d*, and ports *c e*, alternately with chambers or passages 4 and 3.

The other part of the valve, being closed on top and open from below, communicates, by port *i*, with the discharge, and, by slots *b' d'* and ports *c e*, alternately, with the chambers 4 and 3.

To the lower portion of hub J and shell of valve are attached rollers *l l*, resting upon disk *q*.

The disk *q* consists of a ring, provided with the elevations *t t* and stoppers *w w* and *u u*, the former to come in contact with the drivers *y y* of ring Z, the latter to move between the vertical projections of the surrounding fixed ring S.

The operation is as follows :

The water entering valve D through inlet *g* causes the same, by pressure, to move down by means of rollers *l l* and inclines *t t* of disk *q*, until stopped by the projections of ring S, thus placing the valve in the position that slot *b* comes opposite port *c*, and allowing the water to enter passages 4 and through apertures O into the lower cylinder A, where it forces the wing *p* in the direction of aperture O', while, at the same time, open communication is established between apertures O', passages 3, port *c*, and slot *d'*, port *i*, and the discharge-pipe *g'*, but by the motion of the wing *p*, the ring Z is carried around the drivers *y y*, which, coming in contact with stoppers *w w*, cause the disk *q* to move with it, carrying the elevations *t t* under rollers *l l*, and thus raise the valve D.

The stoppers *u u* of disk *q* strike now against the projections of ring S, arresting any further motion of disk *q*, the stroke of the wing being now terminated, and the motion reversed, by the reverse operation of the valve; the ring Z being carried in the opposite direction, its drivers *y y* will come in contact with stoppers *w w*, and move disk *q* until stoppers *u u* strike against the projections of ring S, when the valve motion is again reversed, &c.

A registering device may be attached to the up-

per portion of cylinder C and pin *m*, each movement of the latter indicating the amount of water passing through the meter.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The cylindrical valve D, having partitions *v v'*, slots *b b'* *d d'*, rollers *l l*, disk *q*, and rings Z and S, in com-

bination with cylinders B and A, substantially in the manner as above specified.

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

Witnesses:

GERARD SICKELS.

CARROLL D. WRIGHT,
AUSTIN S. HOWARTH.