J. H. CONNELL.

WATER METER.

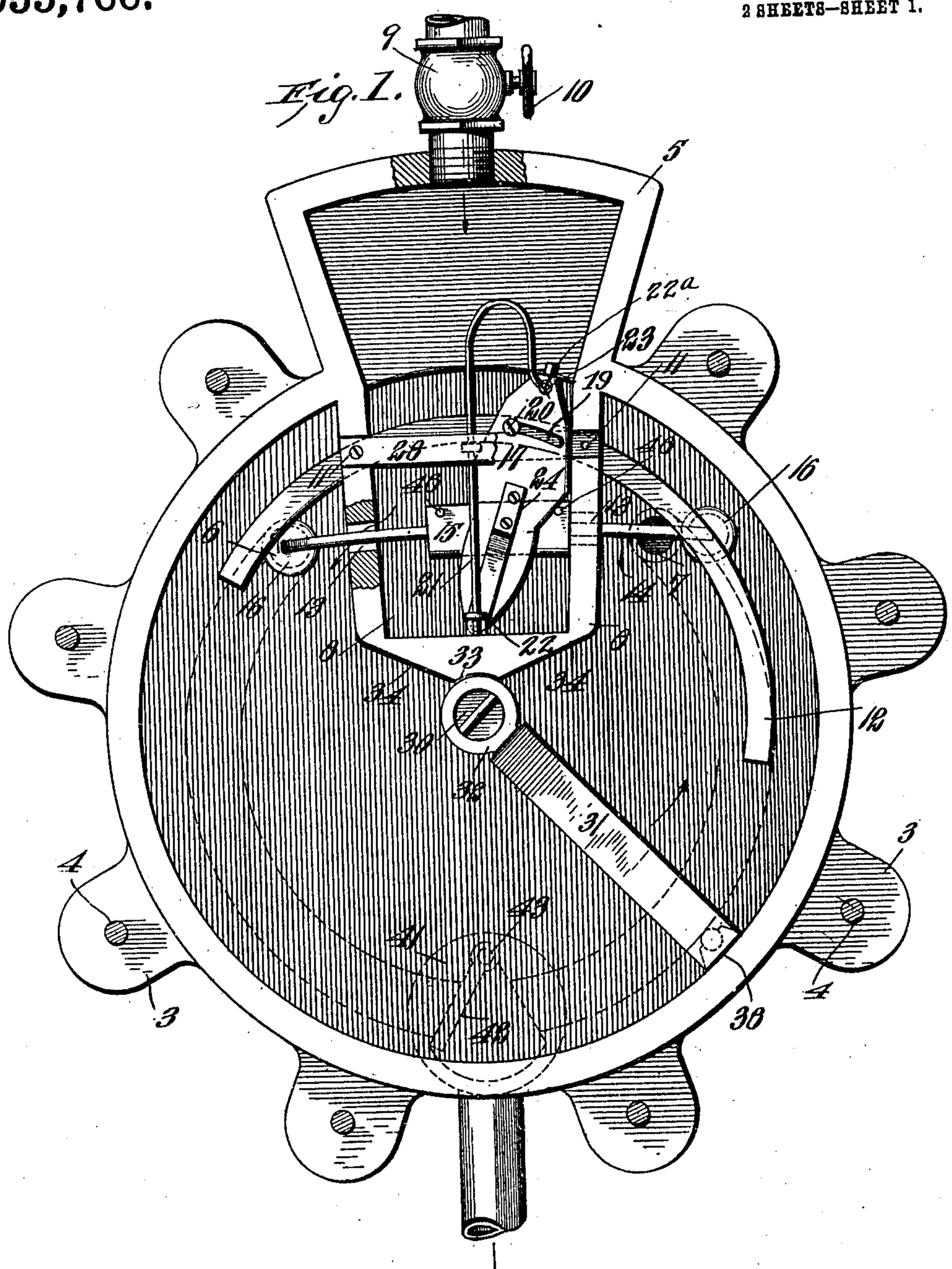
APPLICATION FILED JUNE 16, 1909.

955,766.

Patented Apr. 19, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

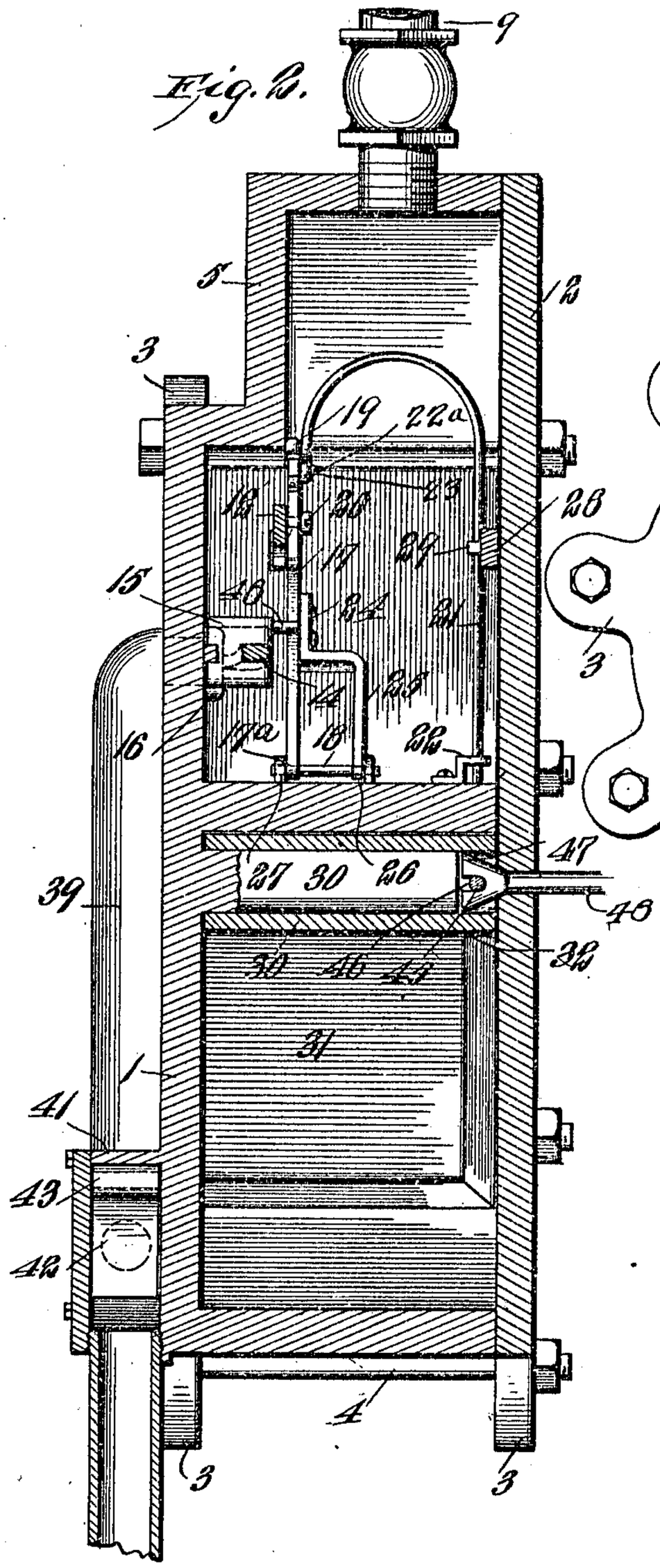


Fig. 3.

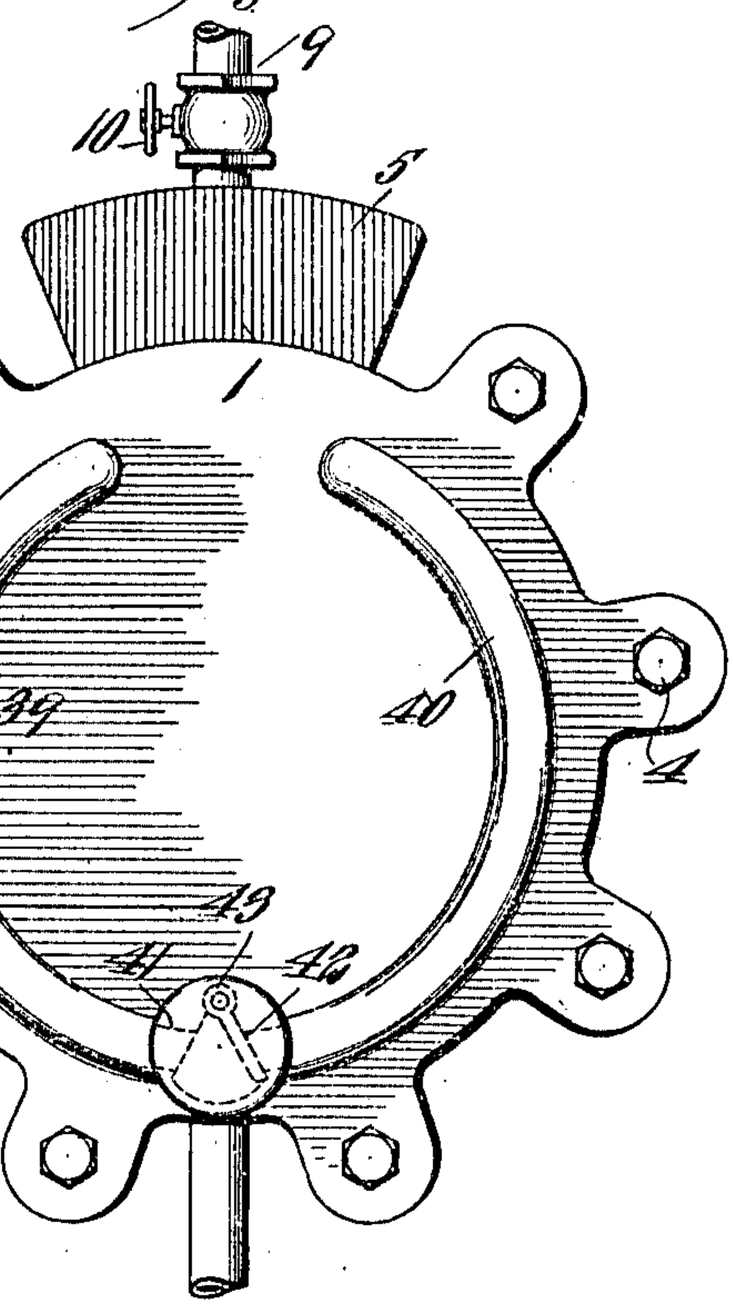
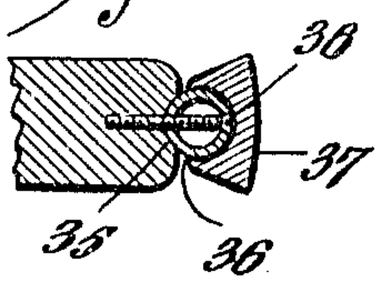


Fig. 4.



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JOHN H. CONNELL, OF CHARLESTON, WEST VIRGINIA.

WATER-METER.

955,766. Specification of Letters Patent. **Patented Apr. 19, 1910.**

Application filed June 16, 1909. Serial No. 502,464.

To all whom it may concern:

Be it known that I, JOHN H. CONNELL, a citizen of the United States, and a resident of Charleston, in the county of Kanawha and State of West Virginia, have made certain new and useful Improvements in Water-Meters, of which the following is a specification.

My invention is an improvement over my prior patent, Serial Number 767328 dated Aug. 9, 1904, and consists in certain novel constructions, and combinations of parts, hereinafter described and claimed.

Referring to the drawings forming a part hereof, Figure 1 is a front view of the improvement, with the cover removed, Fig. 2 is a vertical transverse section, Fig. 3 is a reduced rear view, and Fig. 4 is a partial longitudinal section of the vane.

The embodiment of the invention shown in the drawings, consists of a substantially cylindrical casing 1, and a cover 2, the cover and casing being each provided with spaced perforated ears 3, through which extend bolts 4, for securing the parts together. The casing is provided at its upper side with a lateral extension 5, and in its rear wall with discharge ports 6 and 7, and a valve chamber 8 is arranged between the ports, the extension 5 communicating with and forming a part of the said chamber.

The extension 5 is provided with an inlet 9 in which is interposed a manually controlled throttle valve 10, and the side walls of the chamber proper, are provided with registering openings 11, through which is slidable an arc shaped shifting bar 12, and with registering openings 13, through which are movable valve rods 14, the inner ends of the rods being connected with a block 15, and having on their outer ends valves 16, which are adapted to open and close the discharge ports 6 and 7 in a manner to be presently described. The ends of the block 15 also act as valves to alternately open and close the passages 13, as the block is shifted, as will be presently explained.

A plate 17 is provided at one end with a bearing 17ª pivoted on a pin 18, at the center of the lower end of the valve chamber, and near its upper end, the plate is provided with a transverse arc-shaped slot 19, in which moves a screw 20 connected with the shifting bar before mentioned. A bow spring 21 has its lower end passed through a bracket 22 on the inner face of the lower end of the valve chamber, and the upper end of the spring is arched and provided at its extremity with an eye 22ª, through which passes a screw 23 to secure the spring to the plate. The plate is provided on its front face with a bracket plate 24, having an offset portion 25 provided with a bearing 26, which with the bearing 17ª before mentioned, are both pivoted on the pin 18, which is journaled on the arms of a U-shaped bracket 27 secured to the floor of the chamber. The block 15 is provided with spaced pins 48 for engagement by the plate to shift the block. A cross bar 28 extends between the walls of the chamber, and is provided with a loop 29 through which the bow spring extends.

The casing 1 is provided at its center with a journal pin 30, and a radial wing or vane 31 is provided with a bearing 32 journaled on the pin. The vane is of a size to completely close the space between the cover and bottom of the casing, and between the valve chamber and the side wall of the casing, and the lower end of the chamber is recessed as at 33 to fit the rounded end of the vane, while the end wall is beveled as at 34 on each side of the recess to form a stop for limiting the movement of the vane in each direction. The outer free end of the vane is provided with a longitudinal groove 35, in which rests a tube 36 having secured thereto a packing 37 for engaging the peripheral wall of the casing, the tube being secured to the vane by screws 38.

The water is discharged through the ports 6 and 7, in a manner to be presently described, and into channels 39 and 40, which follow the periphery of the casing, and both open into a chamber 41 at the lower end of the casing, in which is pivoted a gate 42, which acts as a check valve for both channels. The gate is pivoted as at 43 in the chamber and depends from the pivot, and the ends of the channels are beveled as shown in Fig. 3, in order that the gate may closely fit against the said ends to alternately close the channels.

The end of the journal pin 30 stops short of the end of the bearing 32, and the said bearing is provided with a transverse pin 45, which is received in the slot 46 in the inner end of the tapered head 47 of the indicator stem 48, of any suitable form of indicator.

The operation of the device is as follows:

Water being admitted to the meter by the throttle valve 10, passes into the valve chamber, and through that one of the openings 13 which is uncovered into the body of the casing. The force of the entering water swings the vane 31 in the direction of the arrow as shown in Fig. 1, until the said vane engages and shifts the bar 12. When the bar is shifted by the vane the plate 17 is swung from the position shown in Fig. 1 and the valve 16 is moved to cover the discharge opening 7, which has heretofore been open, and to open the discharge opening 6, which has heretofore been closed. The block 15 also opens the opening 13 adjacent to the port 7 and closes the opening 13 adjacent to the port 6. The water now flows into the casing from the opposite side of the valve chamber and the movement of the vane 31 is reversed, until it again meets and shifts the bar 12. The pin and slot connection between the bar 12 and the plate 17 permits some lost motion between the parts, while the bow spring retains the plate in its swing position and also insures that it will be swung clear across the chamber, to positively move the block 15 to close one of the openings and retain it firmly closed.

I claim—

1. A water meter comprising a substantially cylindrical casing provided at its center with a journal pin, a radial vane journaled on the pin, a valve chamber arranged radially in the casing and closing the space between the inner end of the vane and the peripheral wall of the casing, and having in each side wall an outlet, said casing having a discharge opening on each side of the chamber, a block slidable in the chamber whose ends act as valves to alternately open and close the outlet ports, valves for alternately closing the discharge openings, connections between the valves and the block, a plate pivoted at one end in the chamber, and having in the other end an arc shaped slot, a bow spring pivoted by one end in the chamber, said plate having a recess for engagement by the other end, the block having spaced pins for engagement by the plate, and an arc shaped shifting bar provided with a pin for engagement with the slot and whose ends are adapted for engagement by the vane to be shifted.

2. In a device of the class described, a shifting bar provided with a pin, a swinging plate pivoted at one end and having an arc shaped slot for engagement with the pin, a spring comprising a substantially straight portion journaled radially of the shifting bar and having an arched portion whose free end engages the plate for the purpose set forth.

3. In a device of the class described, a valve chamber having oppositely arranged outlet ports, a block slidable in the chamber and whose ends are adapted to alternately open and close the said ports, a plate pivoted at one end, to the chamber, the block having spaced pins between which the plate is recessed, a bow spring comprising a straight portion journaled in front of the plate, and an arched portion whose free end engages the free end of the plate, and an arc shaped shifting bar movable through the chamber and having a pin, the plate having an arc shaped slot for engagement by the pin.

4. In a device of the class described, a valve chamber having oppositely arranged outlet ports, a block slidable in the chamber and whose ends are adapted to alternately open and close the said ports, a plate pivoted by one end, to the chamber, the block having spaced pins between which the plate is recessed, a bow spring comprising a straight portion journaled in front of the plate, and an arched portion whose free end engages the free end of the plate, and means having a lost motion connection with the plate for swinging the same.

5. In a device of the class described, a valve chamber having oppositely arranged outlet ports, a block slidable in the chamber and whose ends are adapted to alternately open and close the said ports, a plate pivoted by one end, to the chamber, the block having spaced pins between which the plate is recessed, a bow spring comprising a straight portion journaled in front of the plant, and an arched portion whose free end engages the free end of the plate, and means for swinging the plate.

6. In a device of the class described, a valve chamber having oppositely arranged outlet ports, a block slidable in the chamber and whose ends are adapted to alternately open and close the said ports, means for moving the block, and a spring for retaining the block in adjusted position, said spring comprising a straight portion journaled in front of the block and substantially parallel therewith, and an arched portion whose free end engages the block.

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Witnesses:
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