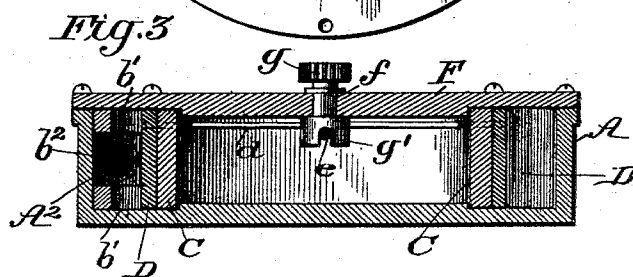
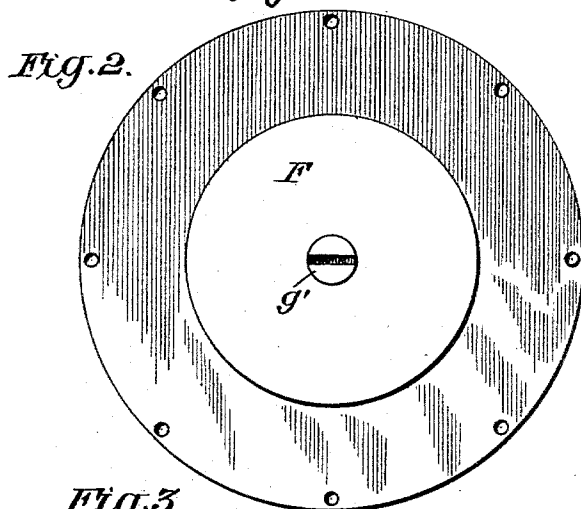
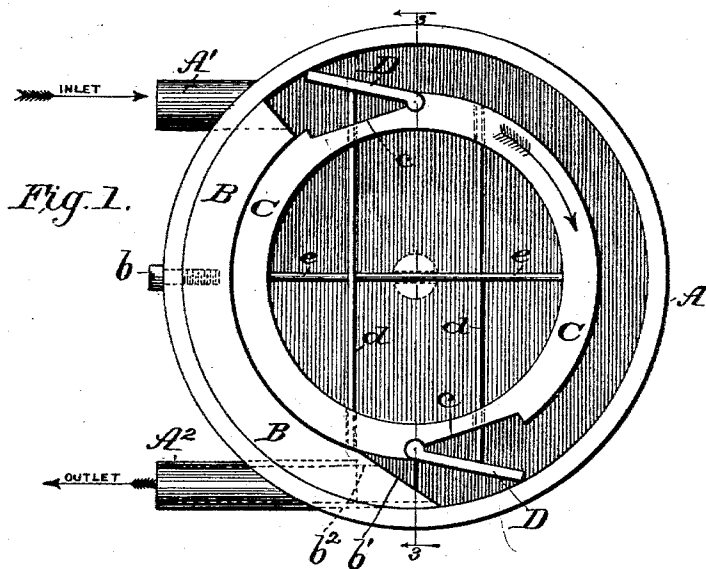


(No Model.)

J. G. SUMMERS.
ROTARY WATER METER.

No. 571,703.

Patented Nov. 17, 1896.



WITNESSES:

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JAMES G. SUMMERS, OF CHARLESTON, WEST VIRGINIA.

ROTARY WATER-METER.

SPECIFICATION forming part of Letters Patent No. 571,703, dated November 17, 1896.

Application filed July 25, 1896. Serial No. 600,506. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. SUMMERS, of Charleston, in the county of Kanawha and State of West Virginia, have invented a new and useful Improvement in Rotary Water-Meters, of which the following is a specification.

The object of my invention is to provide a simple, durable, and accurate water-meter of an automatic character which shall start of itself when the water is being used and accurately register the amount passed and stop when the use of the water is discontinued. It belongs to that class of rotary water-meters in which a revolving hub is arranged within an outer casing and carries on its outer periphery hinged pistons or wing-valves which are opened outwardly at the inlet for water and, receiving the pressure of the same, cause the hub to revolve until they come to the outlet, when they fold inwardly in moving past the abutment between the inlet and outlet ports.

My invention consists in the peculiar construction and arrangement of the devices for working the pistons or hinge-valves and in the means for connecting the revolving hub to the registering gears, as will be hereinafter more fully described.

Figure 1 is a plan view of the water-meter with the face-plate bearing the registering gears removed. Fig. 2 is an inside face view of said face plate, and Fig. 3 is a central section through line 3 3 of Fig. 1.

In the drawings, A represents the outer case, which is of circular form and provided with a circular disk-shaped cover F, detachably fitting upon its upper side and closing in the case with a water-tight joint. Within this case in concentric position is a hollow ring-shaped hub C, which is sufficiently smaller than the case to leave an annular chamber around the same within the case. On one side of the meter between the outer case and internal hub and filling such space is a solid curved abutment B, secured to the outer case by a set-screw b. On one side of this abutment there is an inlet A', opening into the annular space, and on the other side an outlet A². In the outer periphery of the revolving hub C there are formed two or more recesses c, in which are hinged at one end small

pistons or wing-valves D, that are capable of closing into the said recesses c and passing by the abutment B or of being extended outwardly about their axes to contact with the inner periphery of the outer case, so as to stand across the annular space between and receive the pressure of water on their faces to turn the hollow hub in the direction of the arrow.

At the end of the abutment near the outlet it has a tapered cam-surface b' with a channel-way b², through which the water in the annular space is allowed to flow to the outlet A².

In the hollow hub there are two sliding stems d, extending across and entirely through guide-holes in both sides of the hub and arranged in parallel position and close to the diametrical line of the hub. One end of one stem bears against the inner side of a piston or valve D, and its outer end protrudes through the opposite side of the hub to be acted upon by the cam end b' of the abutment, so that when such end strikes the cam b' the latter forces the stem longitudinally through the hub and striking against the inner side of the piston D, throws it open and holds it open while the pressure of the water on its face turns the hub around. When the piston D reaches the other side of the abutment and the water in front of said piston has passed out at A², said piston strikes the inclined cam of the abutment, forcing the stem d inwardly and folding into the recess c, so that it may pass by the abutment. In this way as long as there is water being drawn from the outlet A² the hub C is continuously revolved, and when the flow of water stops the hub comes to a standstill.

To impart the rotary motion of the hub to a suitable register to record the number of revolutions and the volume of water passed through, a diametrical bar e is fastened to the hub, and in the face-plate F in central position to the case there is a short shaft f, which has a small gear-wheel g on its outer end that may be connected to any desired number of registering wheels with index-hands, while on the inner end of said shaft is a bifurcated or slotted head g', which when the cover is put on the case straddles the bar e and causes the rotation of the latter (with the hub) to be imparted to the gears outside. This means of

connecting the revolving hub to the gears is a simple and practical one that permits the parts to be easily separated and opened for inspection or repairs.

- 5 In defining my invention with greater clearness I would state that I am aware that it is not new in water-meters to connect diametrically-opposite pistons in a revolving hub by rods, so as to give the opposite pistons a reversed motion, and I do not claim these cross-
10 rods broadly.

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

- 15 1. The combination with an outer case having an outlet and an inlet port, and an abutment with inclined end between said outlet and inlet; of a rotary hub arranged within the case and having recesses in its periphery
20 provided with hinged pistons, and slide-rods extending entirely through the hub at one side of the center or diametrical line and bearing at one end against the inner face of the hinged pistons at points removed from their axial centers, and at the other end extending through
25 the opposite side of the hub and adapted to bear against the inclined end of the abutment

to open the pistons substantially as and for the purpose described.

2. The combination in a water-meter, of a revolving annular hub a diametrical bar fixed to the same, a detachable cover, and a central shaft in said cover having a gear-wheel on one end and a slotted or bifurcated head on the inner end adapted to straddle the diametrical bar and impart the revolution of the hub to the registering device substantially as and for the purpose described.

3. The combination of the case A having inlet-port A' and outlet-port A², the abutment B arranged between the said ports and having an inclined and chambered end, a set-screw b for holding said abutment to the case, the revolving annular hub C with recesses c c, hinged pistons D and slide-rods d d arranged outside of the diametrical line and bearing against the hinged pistons at points removed from their axial centers, and means for transmitting its revolutions to registering devices substantially as shown and described.

JAMES G. SUMMERS.

Witnesses:

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