

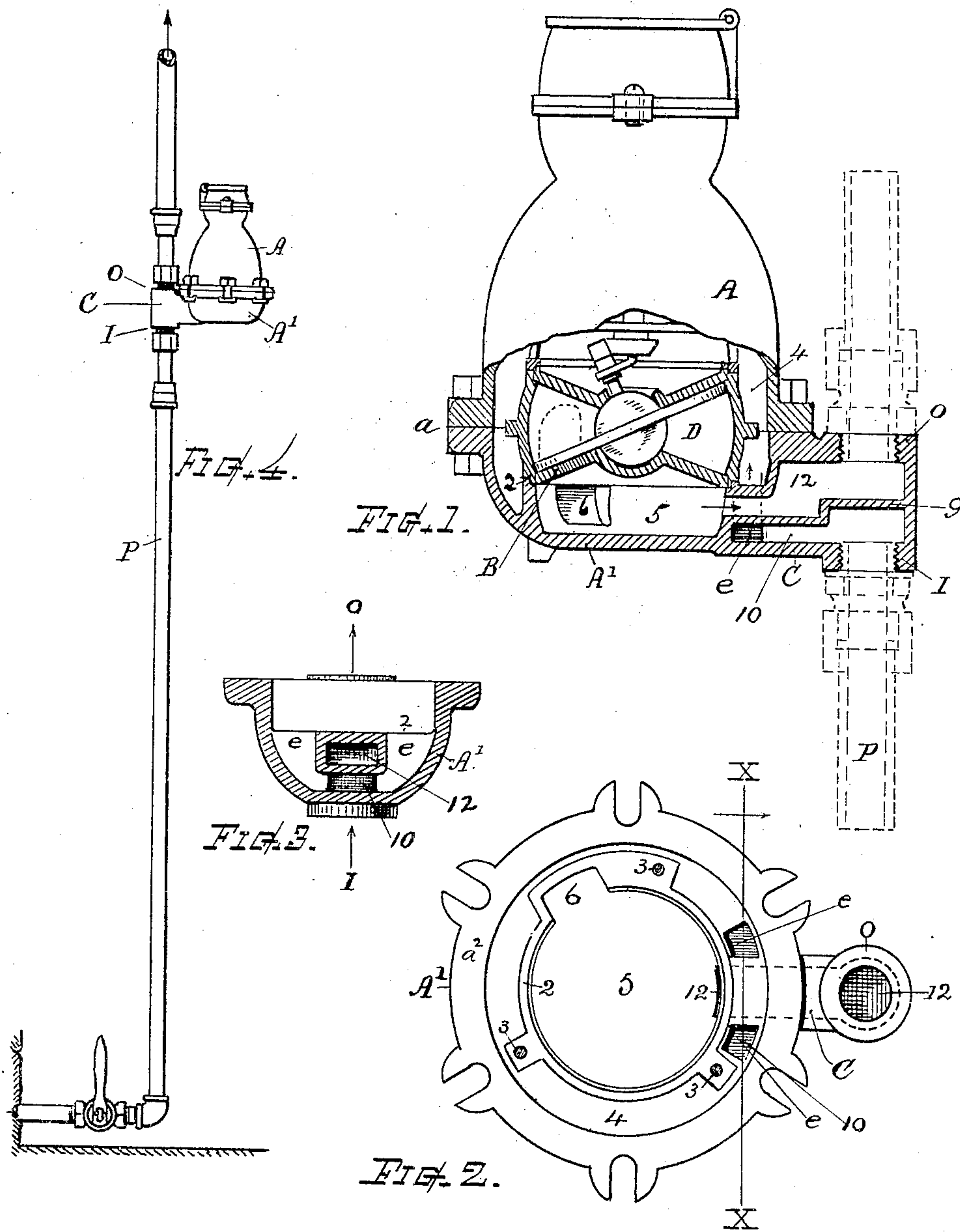
No. 803,919.

PATENTED NOV. 7, 1905.

C. F. MERRILL.  
WATER METER.

APPLICATION FILED MAY 11, 1905.

2 SHEETS—SHEET 1.



Witnesses.  
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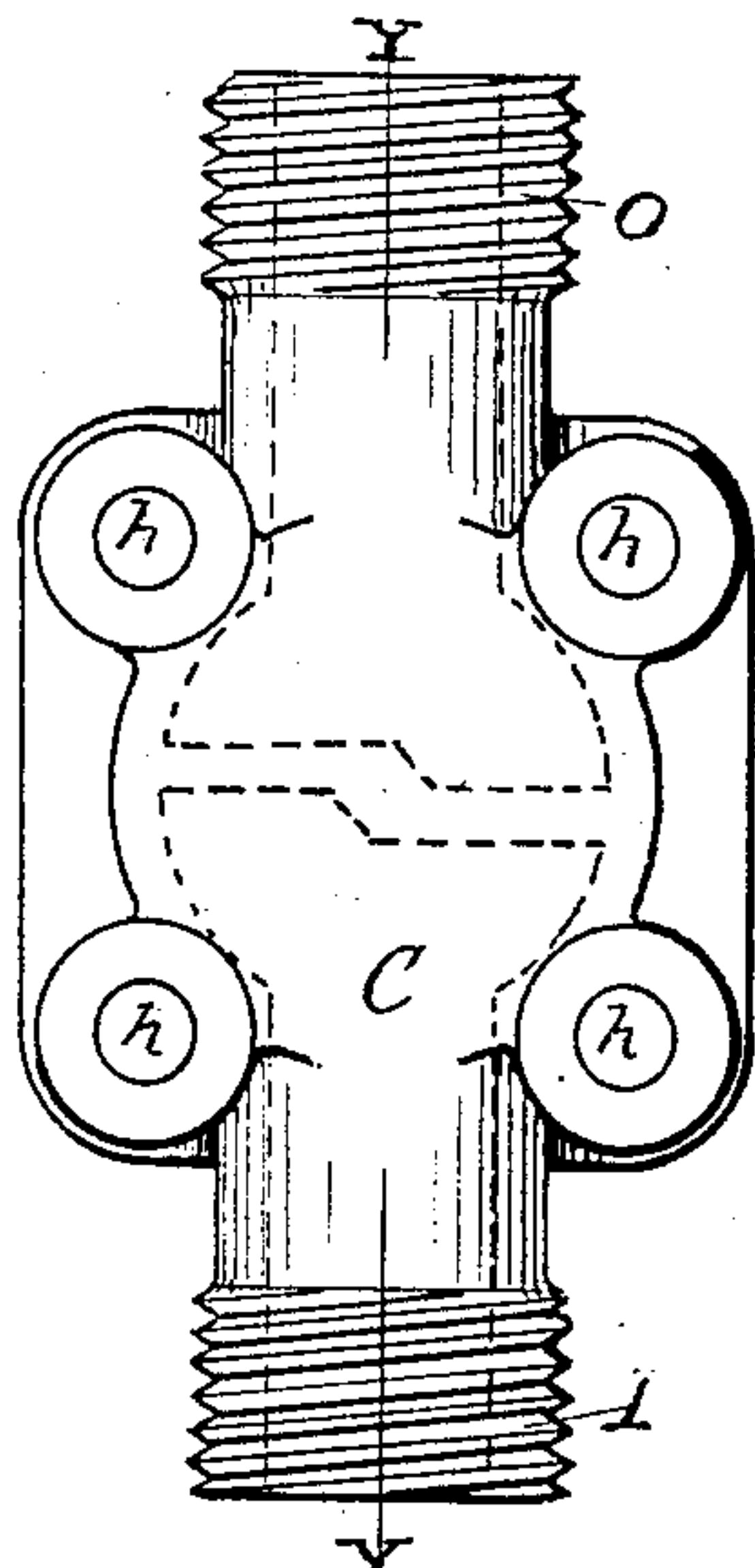


FIG. 6

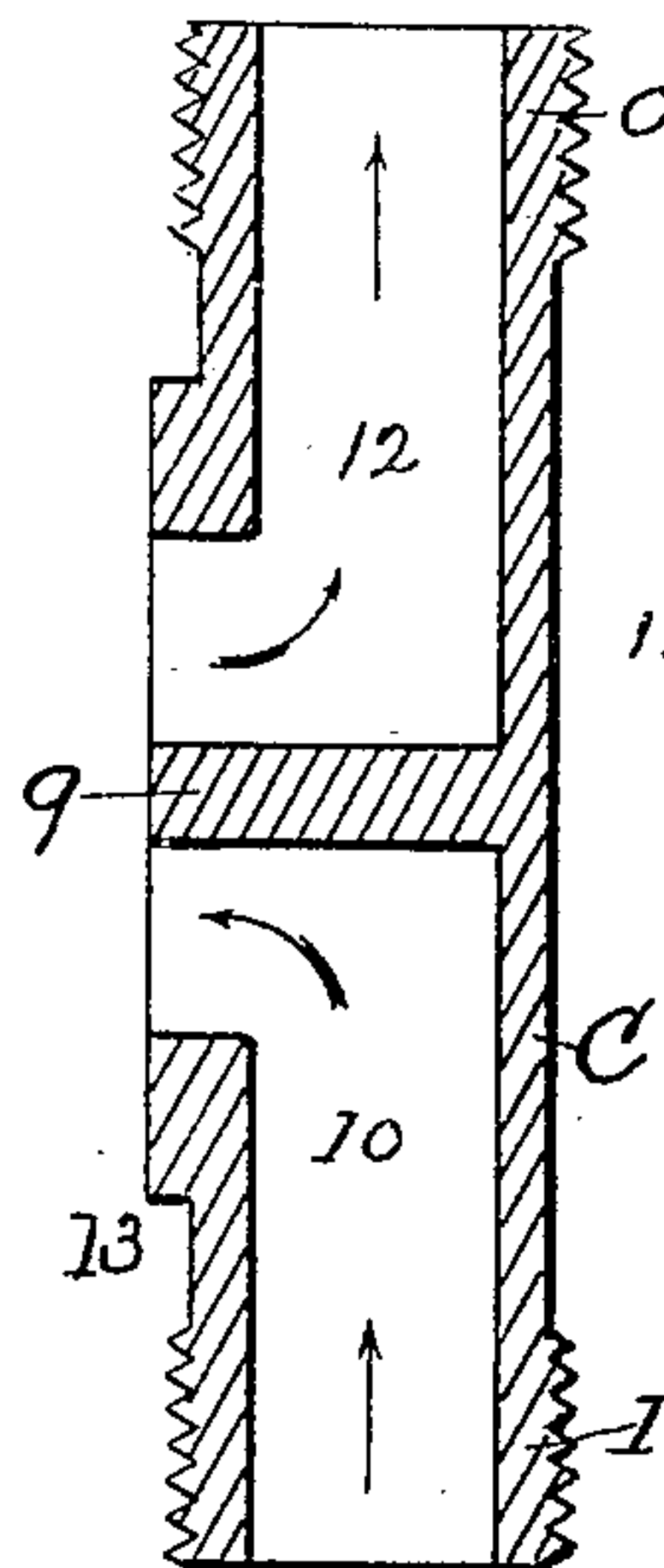


FIG. 8

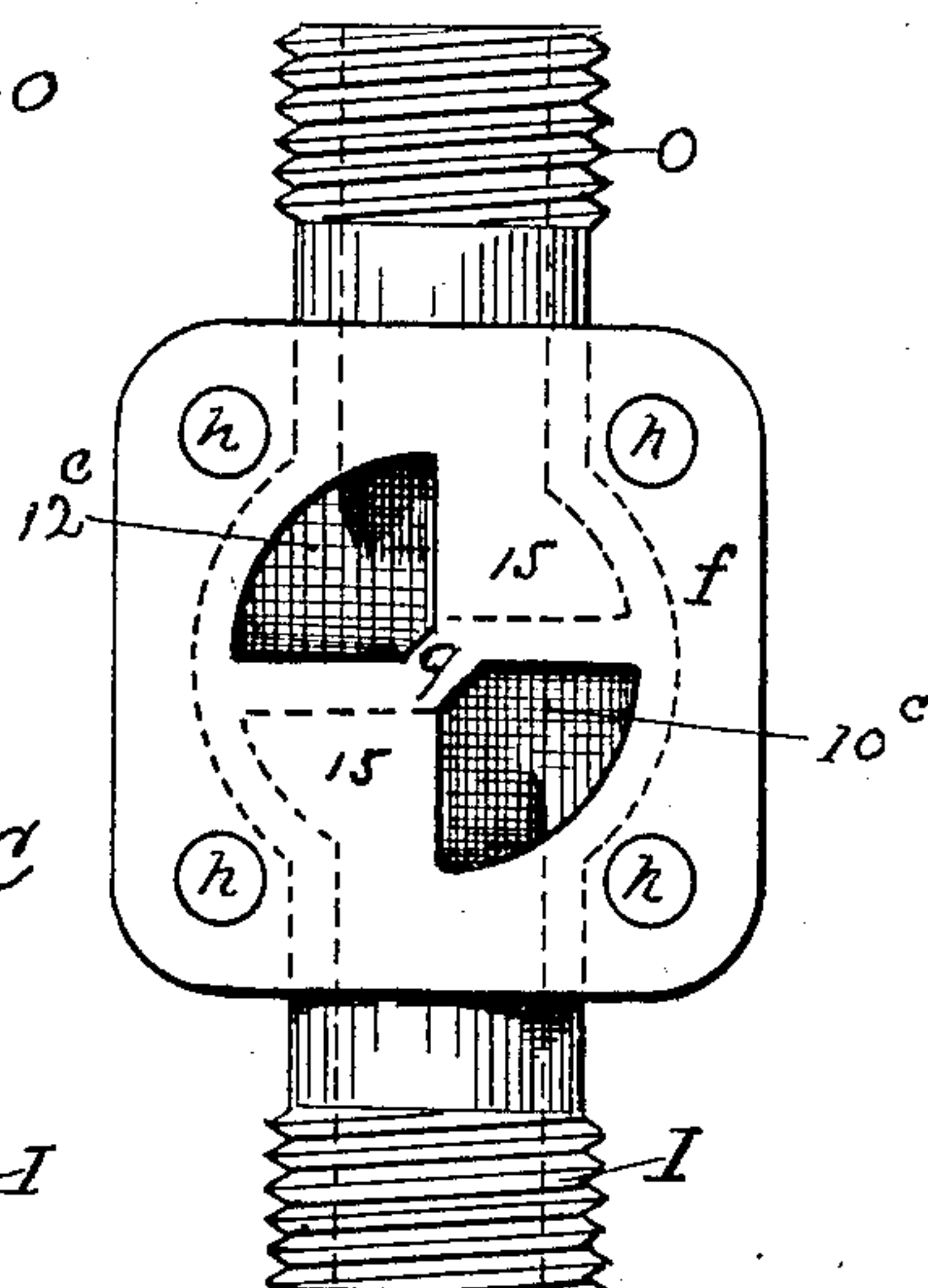


FIG. 7

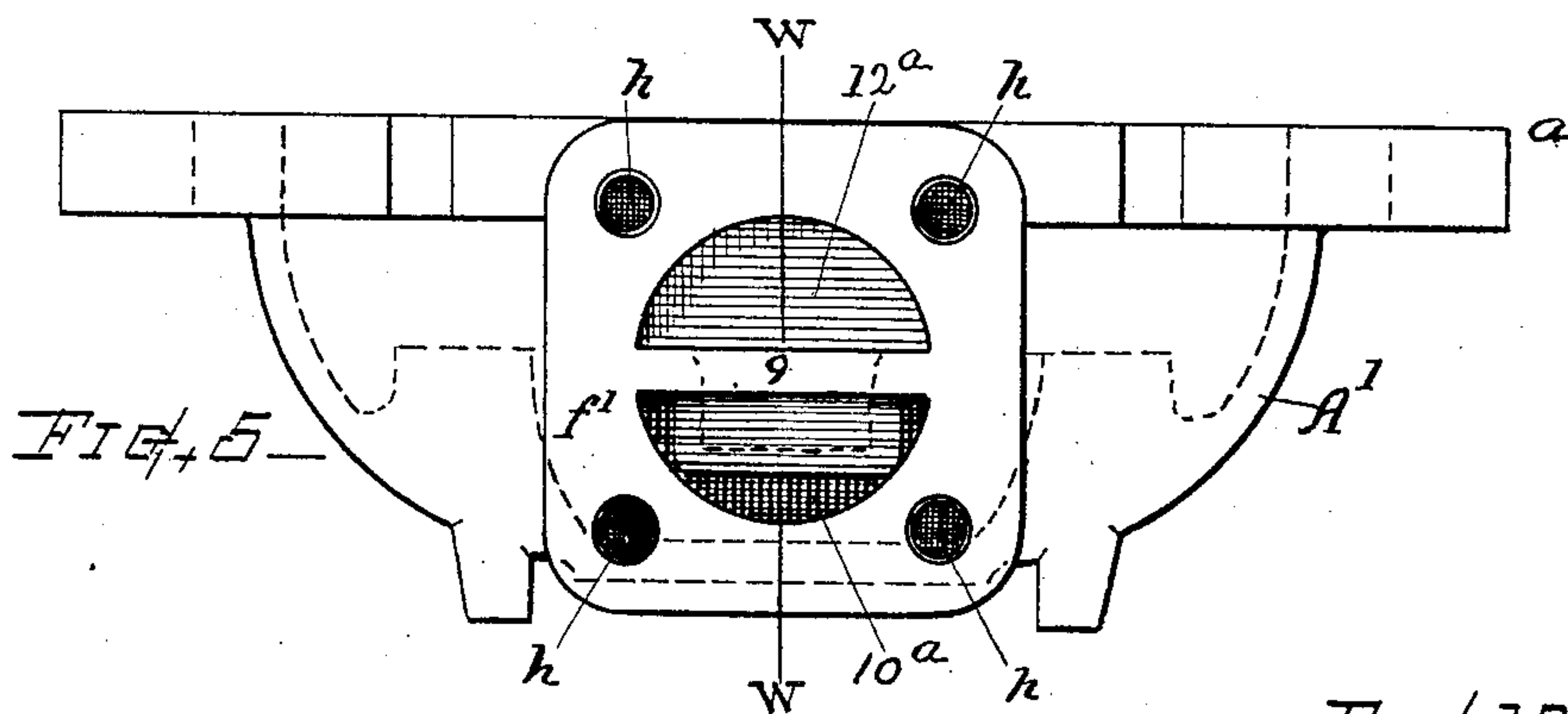


FIG. 5

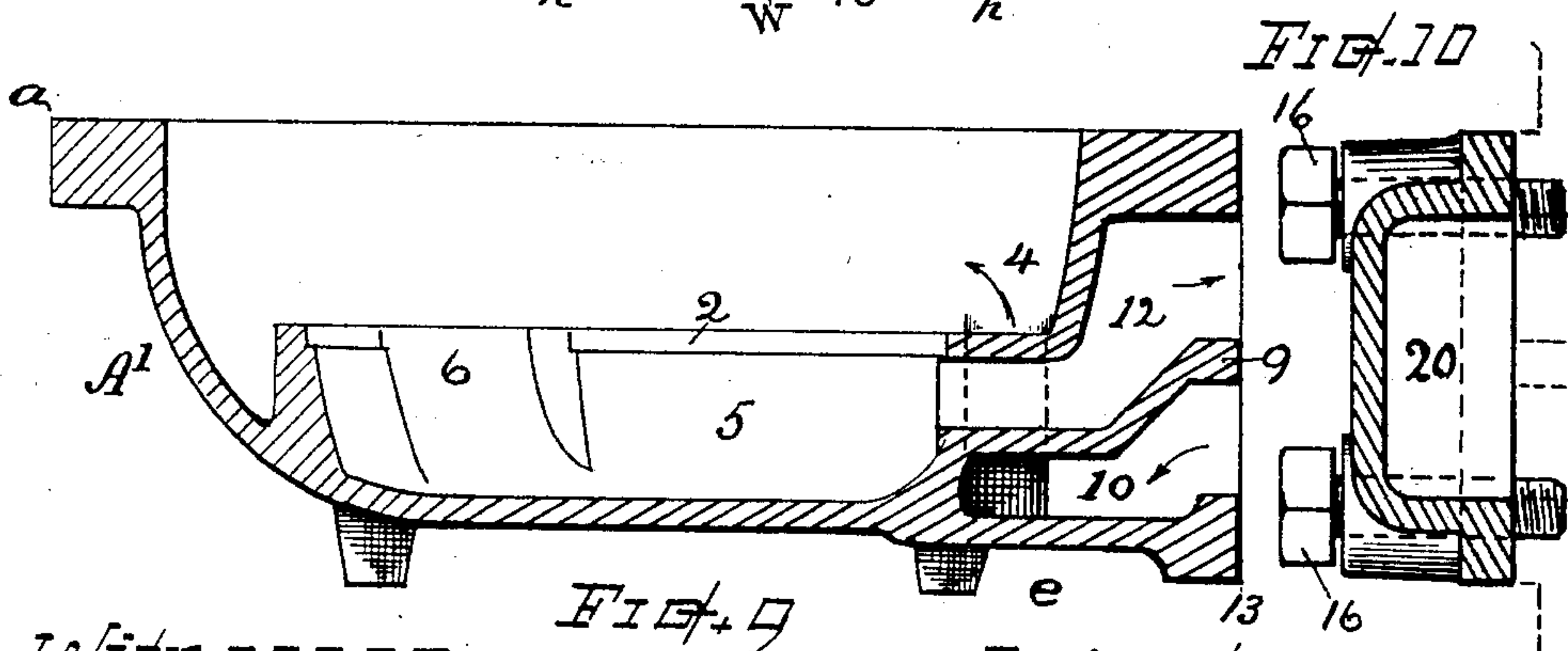


FIG. 9

FIG. 10

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# UNITED STATES PATENT OFFICE.

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## WATER-METER.

No. 803,919.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed May 11, 1905. Serial No. 259,865.

*To all whom it may concern:*

Be it known that I, CHARLES F. MERRILL, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Water-Meters, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The prime object of my invention is to provide a practically convenient and efficient construction and means in a water-meter having the usual horizontally-disposed rotating or nutating disk piston metering mechanism, whereby such meter is adapted for connection with a vertical or upright service-pipe.

Another object is to provide a water-meter with a connector means whereby the meter is adapted for attachment to a vertical service-pipe and by adjustment of such means for attachment to a horizontal service-pipe, as more fully hereinafter explained.

I attain these objects by the means illustrated in the accompanying drawings, (two sheets,) wherein—

Figure 1 represents in sectional view a water-meter embodying my invention. Fig. 2 is a plan view of the separate bottom part of the meter-casing provided with the offset connector head or member. Fig. 3 represents a cross-section at line X X on Fig. 2. Fig. 4 illustrates the manner in which the water-meter embracing this improvement can be combined with the service-pipe. Fig. 5 represents an elevation view of the bottom portion of a meter-casing constructed with the offset connector member made as a separable portion thereof, said view being shown with the connector member detached; and Fig. 6 shows the back view of the detached connector member separate from the meter-casing. Fig. 7 represents the uniting-face of the connector member, showing the form of passages therein and counter-matching arrangement of the attaching-screw holes. Fig. 8 represents a central vertical section of the connector member at line Y Y on Fig. 6. Fig. 9 is a vertical central section of the main portion of the meter-casing bottom at line W W on Fig. 5, and Fig. 10 represents a central section of a closure-cap corresponding to the

connector-face for use in facilitating the temporary disconnection of the meter for examination or repair.

This invention consists in providing a water-meter of the horizontally rotating or nutating disk-piston class with a body or meter-casing having at one side thereof an offset or projecting connector member comprising the inlet and outlet pipe connecting-spuds disposed in vertical relation and with waterway-passages and partition arranged therein substantially in the manner hereinafter explained, said connector member being either integral with or separably attached as a part of the meter-casing.

Referring to the drawings, A denotes the meter-casing, A' the bottom portion thereof, which is connected with the main body by bolts that engage the joint-flanges *a* in usual manner. The bottom portion A' of the casing is provided with a seat 2, upon which the inner or disk-chamber casing B is supported and in the present instance secured by screws that thread into the holes 3. The inflow to the disk-chamber or piston-chamber D is from the surrounding space or chamber 4, and the outflow from the piston-chamber is into the central chamber or space 5 of the bottom by way of a passage at 6.

In accordance with my invention there is provided at one side of the meter-casing an offset or projecting connector head or member C, having vertically-disposed inlet and outlet spuds or pipe-attaching hubs I and O, preferably in axial alinement with each other and by means of which the meter can be connected with an upright line of service-pipe P, while the meter mechanism is maintained in its proper horizontal relation, as shown. Between the lower or inlet spud I and the upper or outlet spud O there is arranged a partition 9, and the passage 10 below said partition is carried into the body for a suitable distance and is there bifurcated, divided, or turned outward and upward, as at *e e*, so as to open into the inflow chamber or space 4, surrounding the disk-chamber casing B, while the passage 12 above the partition 9 communicates with the outflow-chamber 5 within the bottom of the meter-casing, such outflow-passage 12 being arranged between and partitioned from the divided portions *e* of the inflow-passage 10, as shown. (See Figs. 2 and 3.)



The connector member, with the vertically-disposed attaching-spuds I and O, is shown in Figs. 1, 2, and 3 as made integral with the bottom portion of the meter-casing A'; but in Figs. 5 to 9 there is illustrated a form of construction wherein the connector member C is made as a separable part of the meter-casing secured in place by a close-fitting face-joint, as 13, and attaching-bolts in the holes *h*, and in which the passages and partition are made in a manner that will admit of the connector member being placed in either vertical or horizontal relation in respect to the horizontal meter mechanism. In Figs. 5 and 7, *f* and *f'* denote the countermatching faces of the members, formed approximately rectangular and provided with four holes *h* for the attaching screws or bolts, which holes are located at uniform distances from a common center. Across such center the partition 9 is arranged, as best shown in Figs. 5 to 9. In the member C the passages are reduced by flanges of metal at 15 to a quarter-section opening, as at 10° and 12°, while in the member A' the passages are given a half-section opening, as at 10<sup>a</sup> and 12<sup>a</sup>, Fig. 5. When the two members are united, either with the spuds I and O vertical or horizontal, the screws or bolts will fit the holes *h* and the inlet-way 10° will unite with the passage 10 for the inflow and the outlet-way 12° will unite with the passage 12 for the outflow.

The meter-casing bottom A', having the flange *a* and its seating-face *a'*, formed similar in size and structure to the regular bottoms heretofore combined with the upper casing A, can at any time be substituted in place of such regular bottom without change in any other part of the meter mechanism, thus readily adapting the meter for use on an upright service-pipe, as occasion may require, by simply interchanging the bottoms or connector member C of the meter-casing. With my improved meter-casing having the separable connector member thereon the water-meter can be readily and properly arranged in connection with either a horizontal or vertical service-pipe by simply removing and readjusting the connector member to bring the spuds into the desired relation.

To facilitate the temporary removal of the water-meter for inspection and repairs without necessitating a long stoppage of water service, I provide a hollow-faced cap 20, having a face of countermatching form, and screw-holes of similar location to those in the member C, but without the internal partition 9, (see Fig. 10,) which cap is attached to the connector member C in place of the casing A' and by the same bolts 16 when the latter is removed, there serving as a bypass for the service-water without disturbing any of the pipe-coupling joints which connect the inlet and outlet spuds or necessitating the insertion of a short length of pipe.

In some forms of meter-casings the offset connector member with the vertically-alined spuds may be arranged above instead of below the horizontal uniting-joint *a* of the meter-casing.

I claim and desire to secure by Letters Patent—

1. In combination, in a water-meter mechanism, the meter-casing comprising the upright body portion and detachably connected bottom member having the horizontal seat for the piston-chamber, and a central chamber within said seat, said bottom member provided at one side with upward and downward attaching-spuds disposed perpendicular to the plane of the piston-chamber seat, and a passage from one of the spuds into the space surrounding the said seat, and a passage to the other spud from the space or central chamber within the seat, substantially as set forth.

2. In a water-meter, in combination as described, a meter-casing containing a horizontally-disposed piston-chamber, and having an upwardly-projecting body portion above said piston-chamber, a piston within said piston-chamber, and a counteractuating connection carried by said piston and operative about an approximately vertical axis, said meter-casing being provided at one side with a lateral offset comprising oppositely-directed, vertically-alined pipe-connecting spuds, disposed axially perpendicular to the plane of the piston-chamber, substantially as set forth.

3. In a water-meter, in combination, with the horizontal meter piston-chamber, and meter-operating piston; the meter-casing comprising a body and bottom sections detachably united, as set forth, and provided upon one side of its bottom section with a sidewise projection extending beyond the uniting-flange and terminating with the upwardly and downwardly directed pipe-attaching spuds disposed vertically thereon, and a dividing partition and passages within said projection, extending from the respective spuds, and opening into the internal chambers of the meter-casing, substantially as described.

4. In a water-meter of the class described, in combination with the horizontally-disposed meter mechanism and the separable meter-casing, the detachable bottom portion of said casing provided with a seat for the piston-chamber casing with a surrounding inflow-chamber, and a central outflow-chamber, and having at one side a projecting connector-head comprising upward and downward pipe-connecting spuds in vertical axial alinement, a partition therein separating the interior between said spuds, passages at opposite sides of said partition communicating respectively with the inflow and outflow chambers of the meter, one of said passages



being direct, and the other bifurcated or carried around the first, substantially as set forth.

5 In a water-meter of the class specified, in combination with a horizontally-arranged meter mechanism, the meter-casing provided on its side with a lateral projection having a perpendicular joint-face, with half-segment openings therein, and a detachable portion 10 forming a part of said casing and comprising the oppositely-directed pipe-connecting spuds, its joint-face having quarter-segment openings, a transverse partition separating the interior of the casing adjacent to and between 15 said spuds, and the passages communicating below and above said partition, respectively with the inflow and outflow chambers of the meter, substantially as set forth.

20 6. In a water-meter of the class specified, in combination with the metering mechanism;

the meter - casing having the inflow and outflow chambers with lateral passages therefrom separated by an intervening partition, said meter-casing comprising a projecting connector member united thereto on 25 a vertical plane, and having the oppositely-directed axially-alined pipe-connecting spuds, the partition between said spuds conforming to said intervening partition of the passages, the adjacent uniting-faces and attaching- 30 screws therefor being disposed so as to countermatch when the axial line of the spuds is either vertical or transverse.

Witness my hand this 5th day of May, 1905.

CHARLES F. MERRILL.

Witnesses:

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CHARLES S. BACON.