

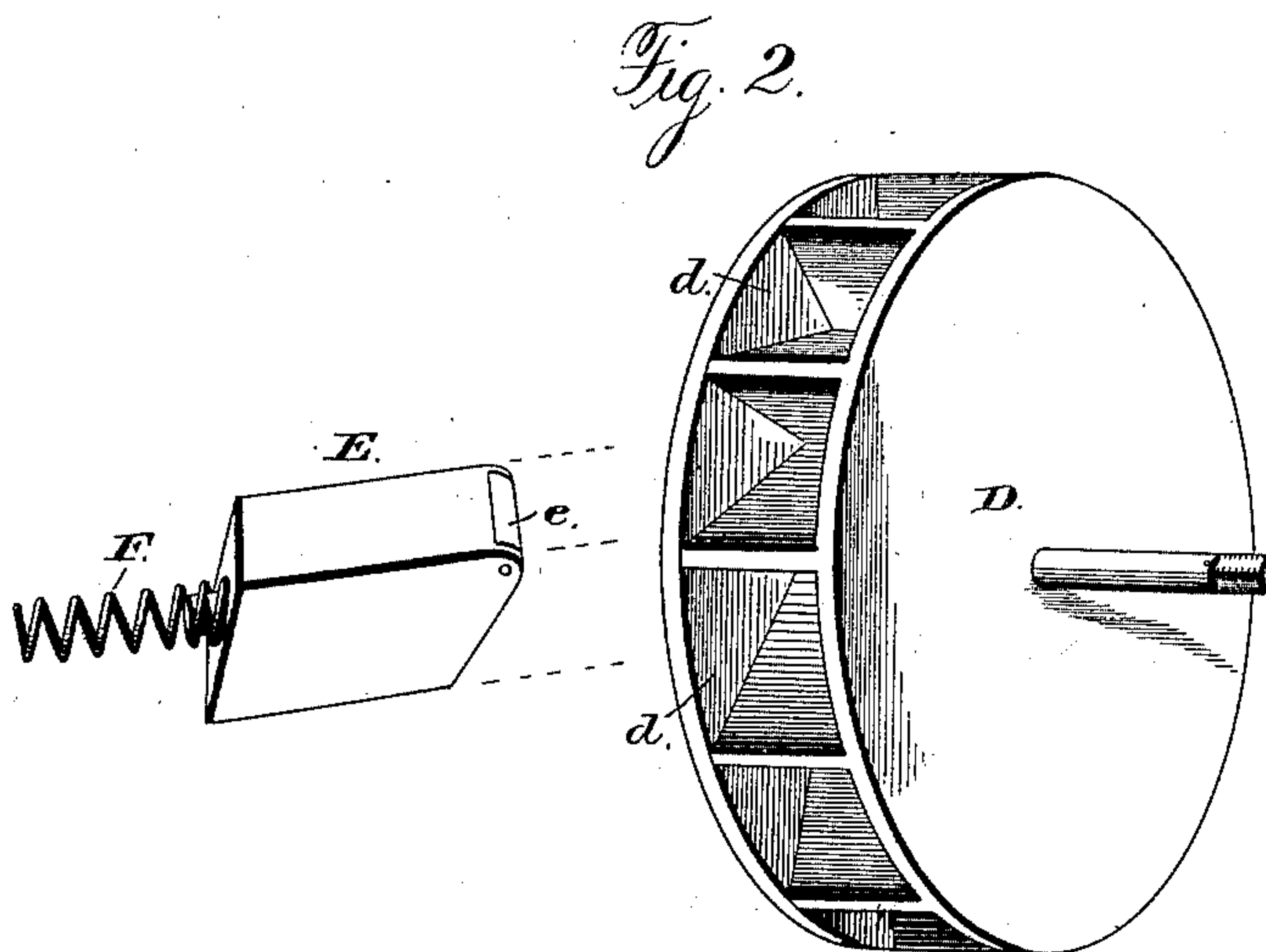
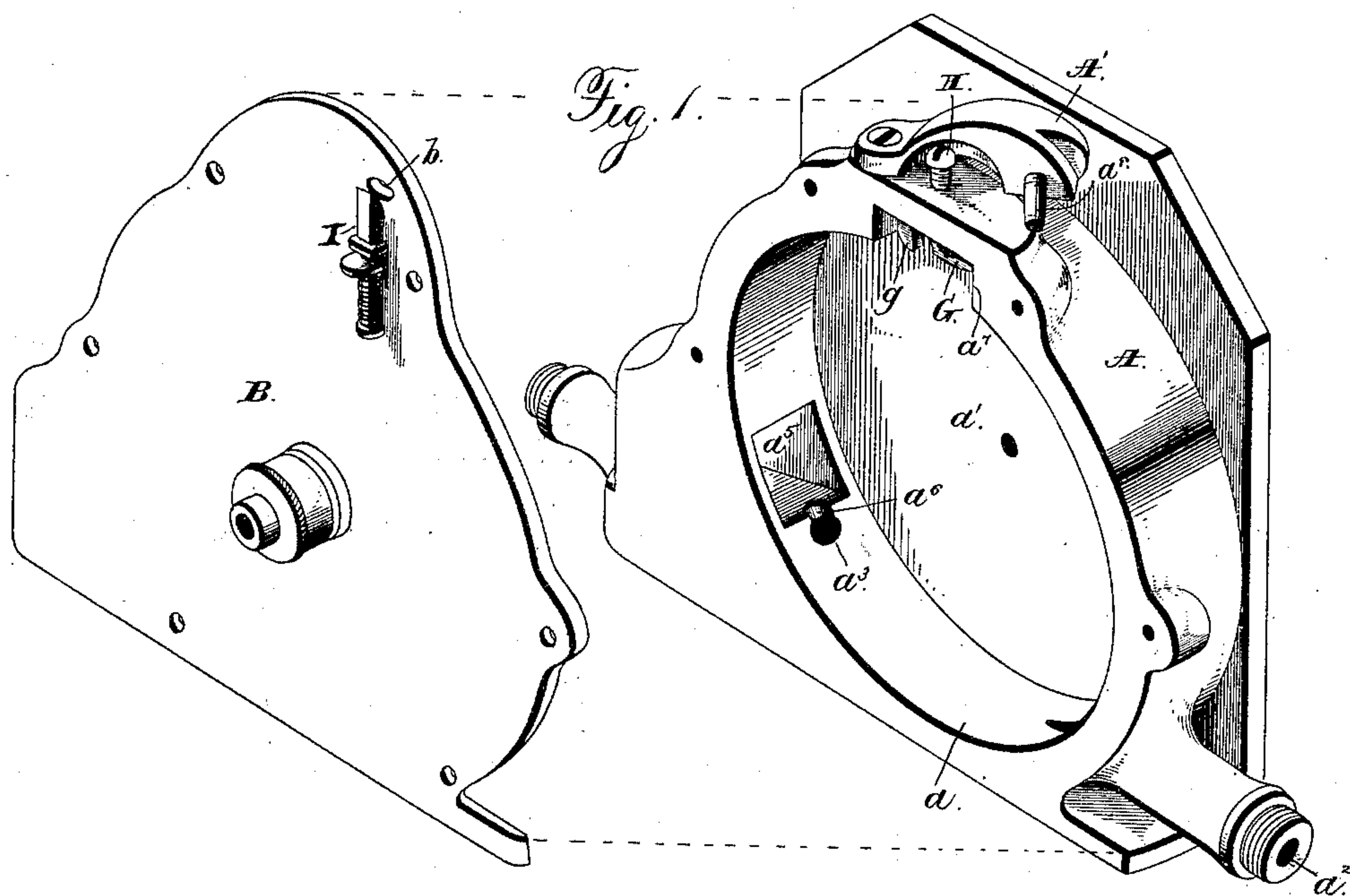
(No Model.)

2 Sheets—Sheet 1.

G. H. GLAD.
ROTARY WATER METER.

No. 440,559.

Patented Nov. 11, 1890.



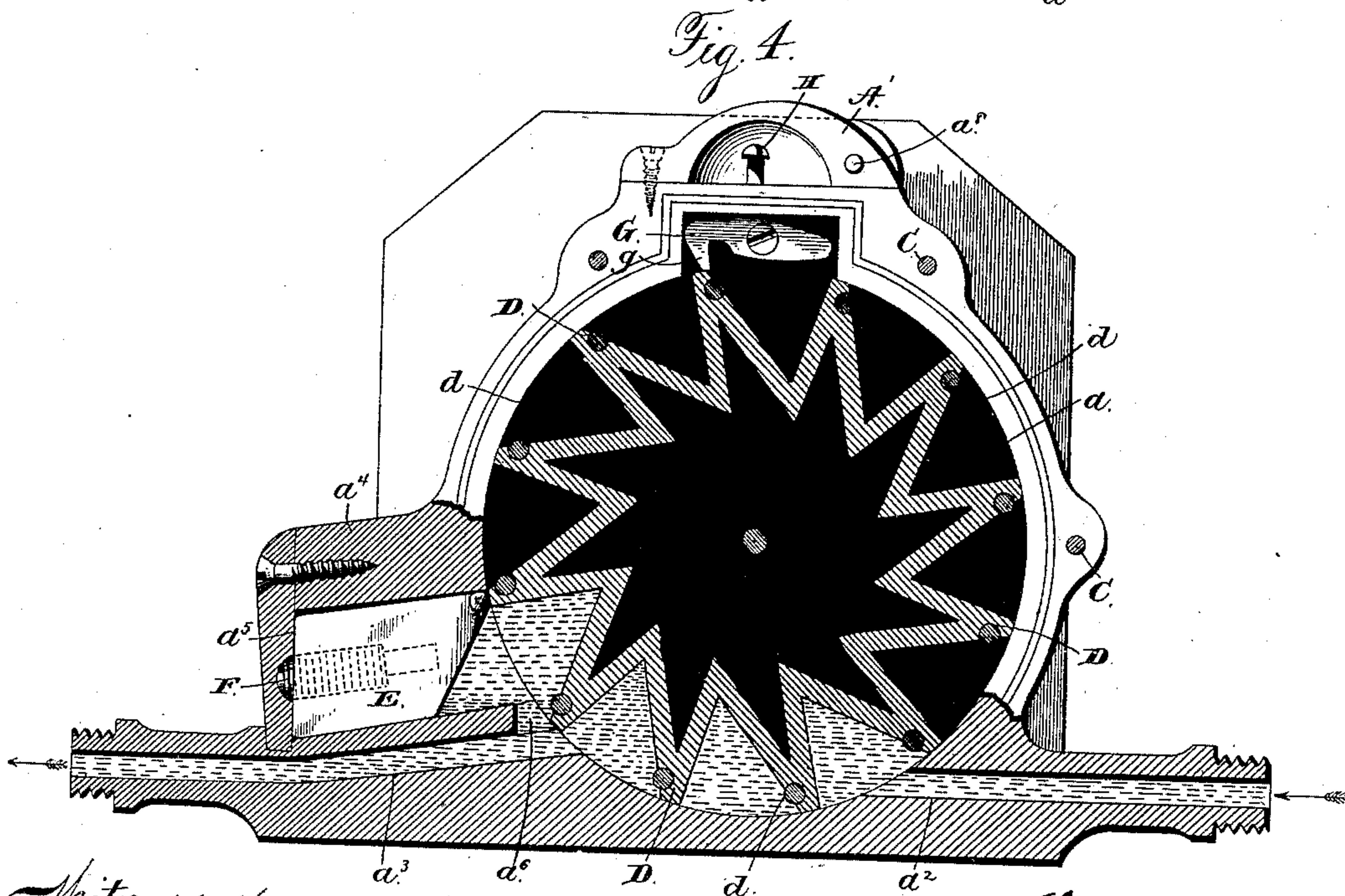
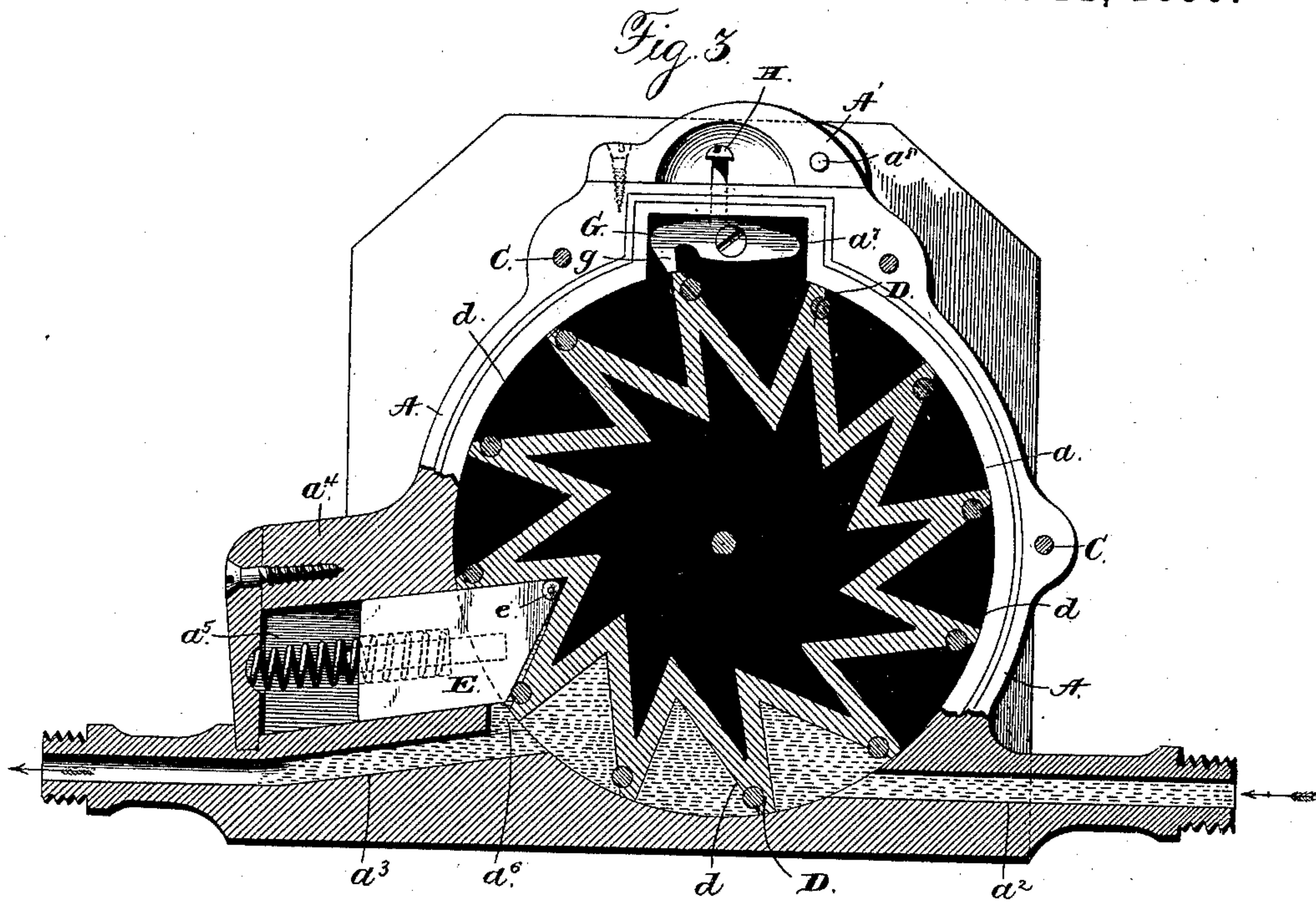
Witnesses:
Jas. C. Hutchinson
Henry C. Hazard

Inventor:
Gus. H. Glad, by
Crindle and Russell, his Attys.

2 Sheets—Sheet 2.

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Inventor.
Geo. H. Gladby
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UNITED STATES PATENT OFFICE.

GEORGE H. GLAD, OF BOSTON, MASSACHUSETTS.

ROTARY WATER-METER.

SPECIFICATION forming part of Letters Patent No. 440,559, dated November 11, 1890.

Application filed February 18, 1890. Serial No. 340,850. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. GLAD, of Boston, in the county of Suffolk, and in the State of Massachusetts, have invented certain new and useful Improvements in Meters for Measuring Fluids or Gases; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the parts of the casing of my meter separated from each other. Fig. 2 is a like view of the rotatable piston and the valve. Fig. 3 is a side elevation of said meter with the front of the casing removed to show the operative parts, the piston and valve being shown with the latter at the inner limit of its motion; and Fig. 4 is a like view of the same with said valve at the outer limit of its motion.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to enable water or gas to be accurately measured; and to such end my said invention consists, principally, in the construction and combination of the operative parts of the meter, substantially as and for the purpose hereinafter specified.

It consists, further, in the means employed for locking the piston, so as to prevent its rotation, substantially as and for the purpose hereinafter shown.

In the carrying of my invention into practice I employ a casing A, which has interiorly a cylindrical form, and is preferably constructed with its rear head a' cast with and forming part of the body and its front head B formed separately and secured in place by means of screws C and C in the usual manner.

Within one side at the bottom of the casing A is provided an opening a^2 , which extends horizontally inward and communicates with the interior space a at or near its lower side, while within the opposite side of said casing is provided a second opening a^3 , that in a like manner extends into said interior a , but communicates therewith at a somewhat higher point, as shown in Figs. 3 and 4. Said openings a^2 and a^3 are relatively inlet and outlet openings.

Within the cylindrical interior a of the

casing A is placed a piston D, which has such diameter as to cause its periphery to just clear the peripheral face of the same, and has such length as to cause its ends to bear against the heads a' and B. Said piston is suitably journaled within said heads, so as to be capable of rotation, and, if desired, has the joints between its ends and said heads packed in any usual manner. At equidistant points within the periphery of said piston are provided V-shaped recesses d and d , which are arranged with relation to the radii, so as to have in one direction an inclination or rake like the teeth of a saw.

Upon the side of the casing A, immediately above the outlet-opening a^3 , is a housing a^4 , which has an interior a^5 , that communicates with the interior of said casing, has in cross-section a rectangular form, and longitudinally has an upward and an inward inclination which corresponds to and is in a line with the upper side of one of the recesses d , when the same is caused to coincide with the upper side of said interior, as shown in Fig. 3.

Fitted within the housing a^4 is a block or valve E, which conforms to the size and shape of the interior a^5 , and is adapted to slide freely lengthwise of the same. Said valve has such length at the upper side as to just fill said opening longitudinally, and at its inner end is cut away upon a downward and outward line, so that when said valve is moved outward into one of the piston-notches d , said angular end will conform to and substantially fill the latter, as seen in Fig. 3. A spring F, placed within a recess in the rear outer end of said valve and bearing against the contiguous end of the opening a^5 , operates to move said valve to and hold it with a yielding pressure at the front inner limit of its motion. As thus arranged, if a fluid or gas under pressure is admitted through the opening a^2 to the interior of the casing, it will enter the adjacent recess d and move the piston D in a forward direction, each successive recess being thus filled as said piston revolves, so as to cause them to coincide with said inlet-opening. As each of said gas or fluid filled recesses d and d comes into coincidence with the discharge-opening a^3 , its contents are free to pass into and through the same.

As the piston is rotated by the action of

the fluid or gas, the lower inclined side of each recess is successively caused to bear upon the inclined end of the valve E, and, overcoming the outward pressure of the spring F, force said valve outward into its housing, as shown in Fig. 4, where it remains until the upper side of another recess passes the point of said valve, when the latter is by the action of said spring moved outward until it fills such recess and expels the contents of the same into the passage a^3 through a small channel a^6 , that is provided between the upper side of said passage a^3 and the lower side of the opening a^5 at the inner end of the latter. Each recess d has a predetermined capacity, and by means of any suitable registering mechanism connected with the front pivot d' of piston D the quantity of fluid or gas passing through may be accurately shown. In order that the operative mechanism may be locked and prevented from moving when desired, I pivot within a recess a^7 at the top of the casing A a pawl G, which, by movement upon its pivotal bearing, is adapted to have one of its ends g engaged with either of the A-shaped divisions between the recesses d and d of said piston, and when thus engaged effectually prevents all movement of the latter. Said pawl is moved into engagement by means of a screw H, that projects downward through the top of the casing, while when said screw is retracted said pawl is automatically moved out of engagement by the forward movement of said piston. The upper end of the screw H is inclosed by means of a hood A', which is pivoted at one end to or upon the casing A, and is adapted to be swung rearward so as to uncover said screw, or to be swung forward against the head B so as to cover said screw. When arranged as last stated, said hood is locked in place by means of a stud a^8 , which projects from its free end forward through an opening b in said head, and is engaged by a spring-actuated bolt I, that is screwed upon the front face of said head.

In order that the movement of the piston D may not be obstructed by the valve E, a friction-roller e is journaled upon the inner end of the latter and forms a rolling bearing between the same and the sides of the recesses d and d .

Having thus described my invention, what I claim is—

1. As an improvement in meters, a rotary piston which is provided with V-shaped peripheral measuring-recesses, in combination with a longitudinally-movable valve that has its end conformed to and adapted to substantially fill either of said recesses, and is held

with a yielding pressure at the inner limit of its motion, substantially as and for the purpose specified.

2. As an improvement in meters, the combination of the casing provided with a cylindrical interior and having inlet and outlet passages, the piston provided with peripheral measuring-recesses and journaled within said casing, and the valve in part shaped similarly to said measuring-recesses contained within a recess in said casing and adapted to be moved longitudinally into and out of each of said measuring-recesses as the same are brought into coincidence by the rotation of said piston, substantially as and for the purpose shown.

3. As an improvement in meters, the combination of the casing having a cylindrical interior and having inlet and outlet openings communicating with the lower portion of said interior, the rotary piston provided with peripheral measuring-recesses, and the reciprocating valve arranged in a recess immediately above said outlet-opening and communicating therewith, substantially as and for the purpose specified.

4. In combination, a meter-casing, a rotary piston, and a pawl which is pivoted within said casing and adapted, when turned on its pivotal bearing, to have its end engaged with the recessed periphery of said piston, substantially as and for the purpose set forth.

5. In combination with a cylindrical piston provided with peripheral measuring-recesses and journaled within a casing, a locking-pawl pivoted within a recess in said casing and having an end adapted to engage with the periphery of such piston, and a screw which passes inward to and impinges upon said lever and operates to move the same into and hold it in engagement with said piston, substantially as and for the purpose shown and described.

6. In combination with the operating-screw of the locking-pawl, a hood pivoted at one end and adapted to swing away from and over said screw, and provided upon its free end with an engaging-stud, and a spring-actuated bolt which is adapted to engage with said stud when said cover is closed over said bolt, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of February, 1890.

GEORGE H. GLAD.

Witnesses:

FRANK D. VON EUW,
ALOIS NAUMANN.