

No. 708,296.

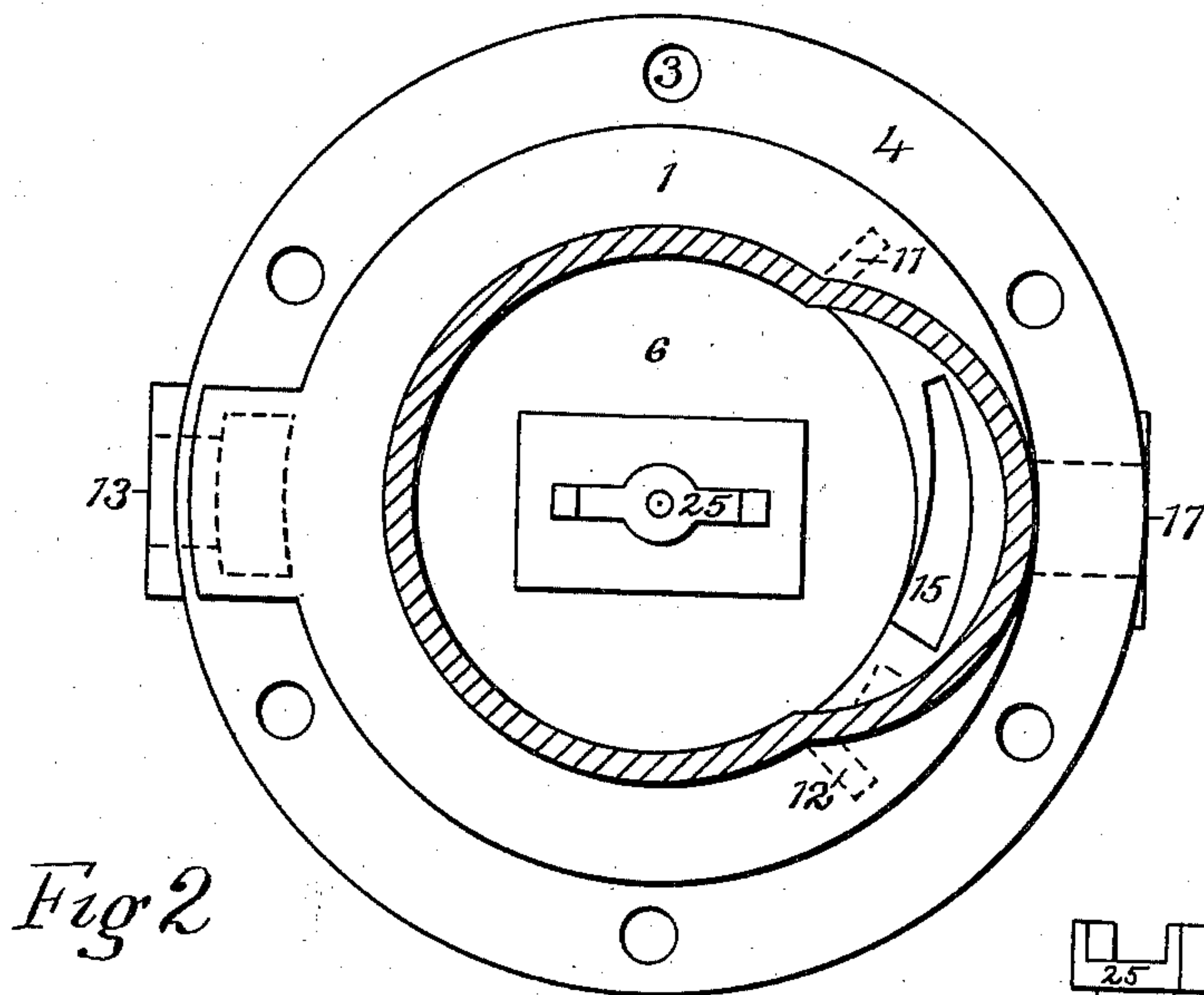
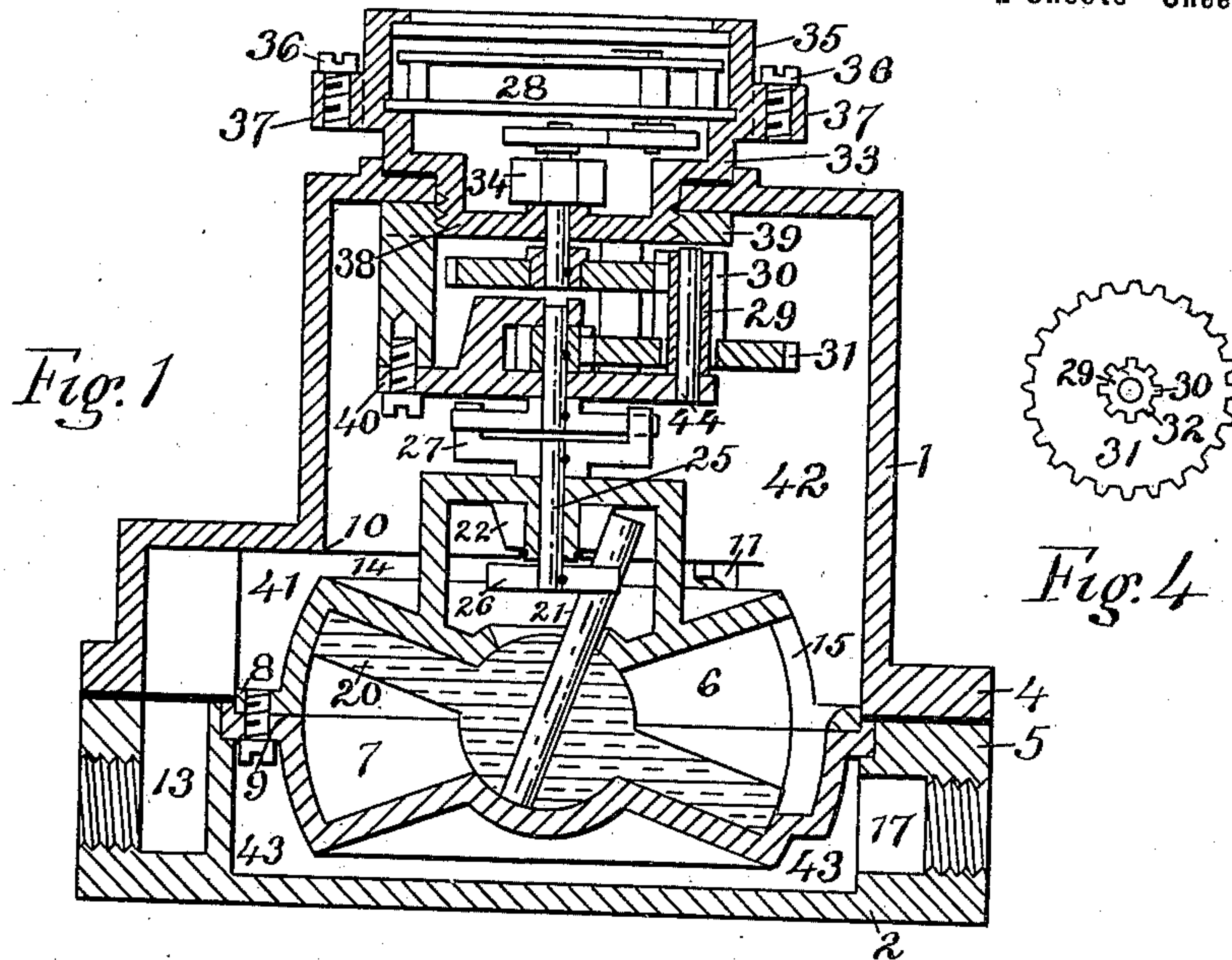
Patented Sept. 2, 1902.

G. B. BASSETT.  
WATER METER.

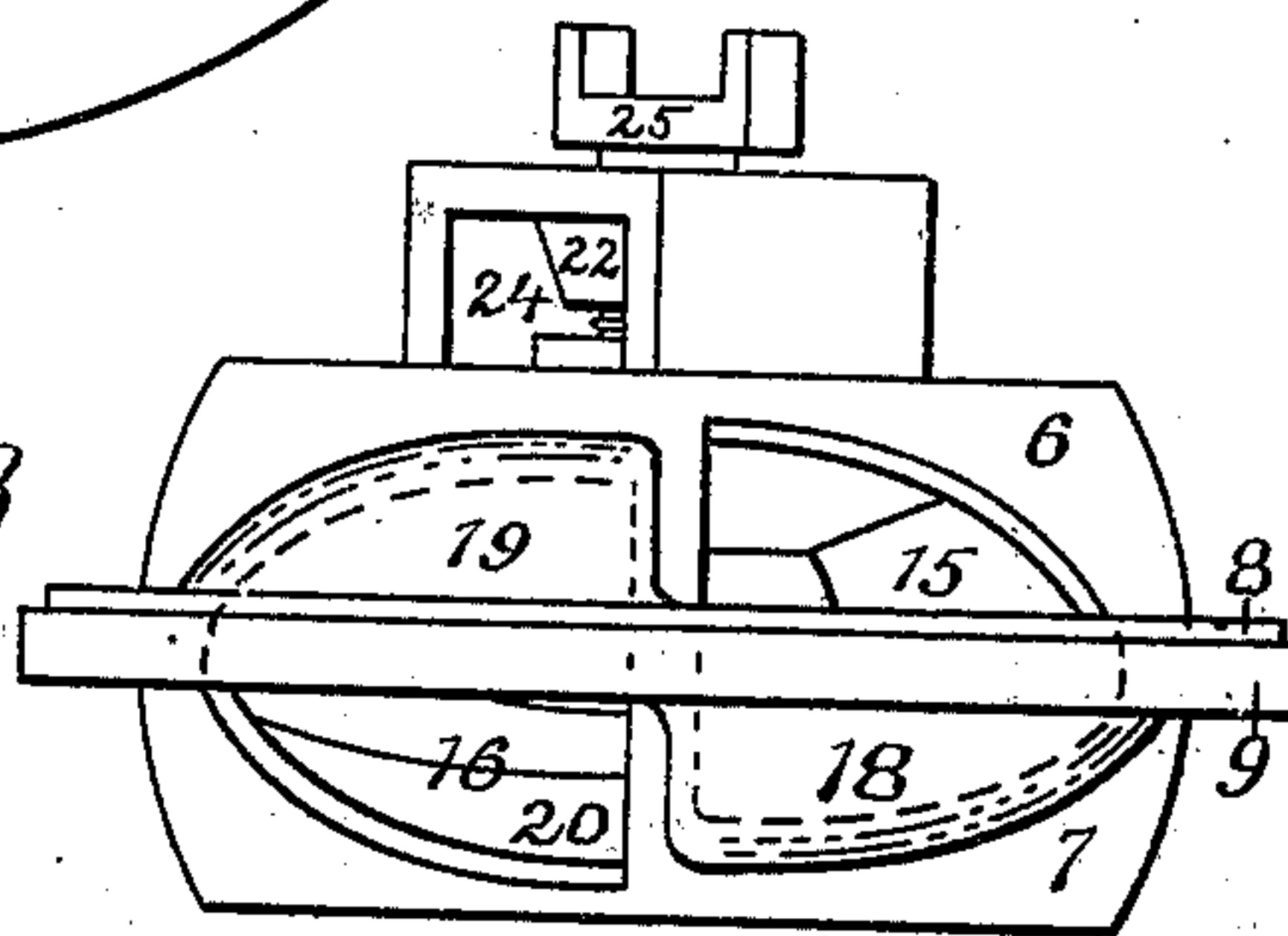
(Application filed Feb. 14, 1902.)

(No Model.)

2 Sheets—Sheet 1.



*Fig. 3*



Witnesses.

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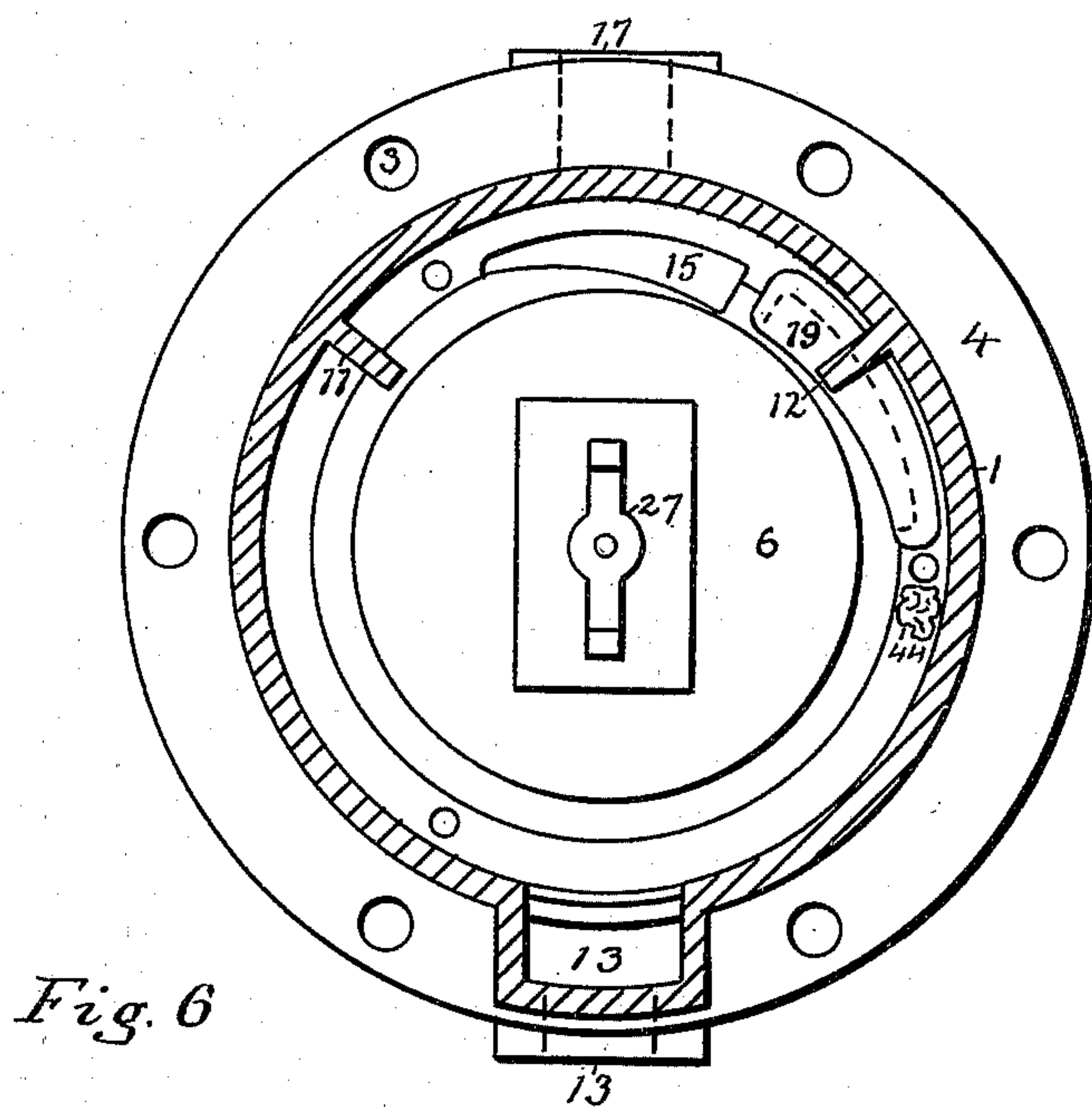
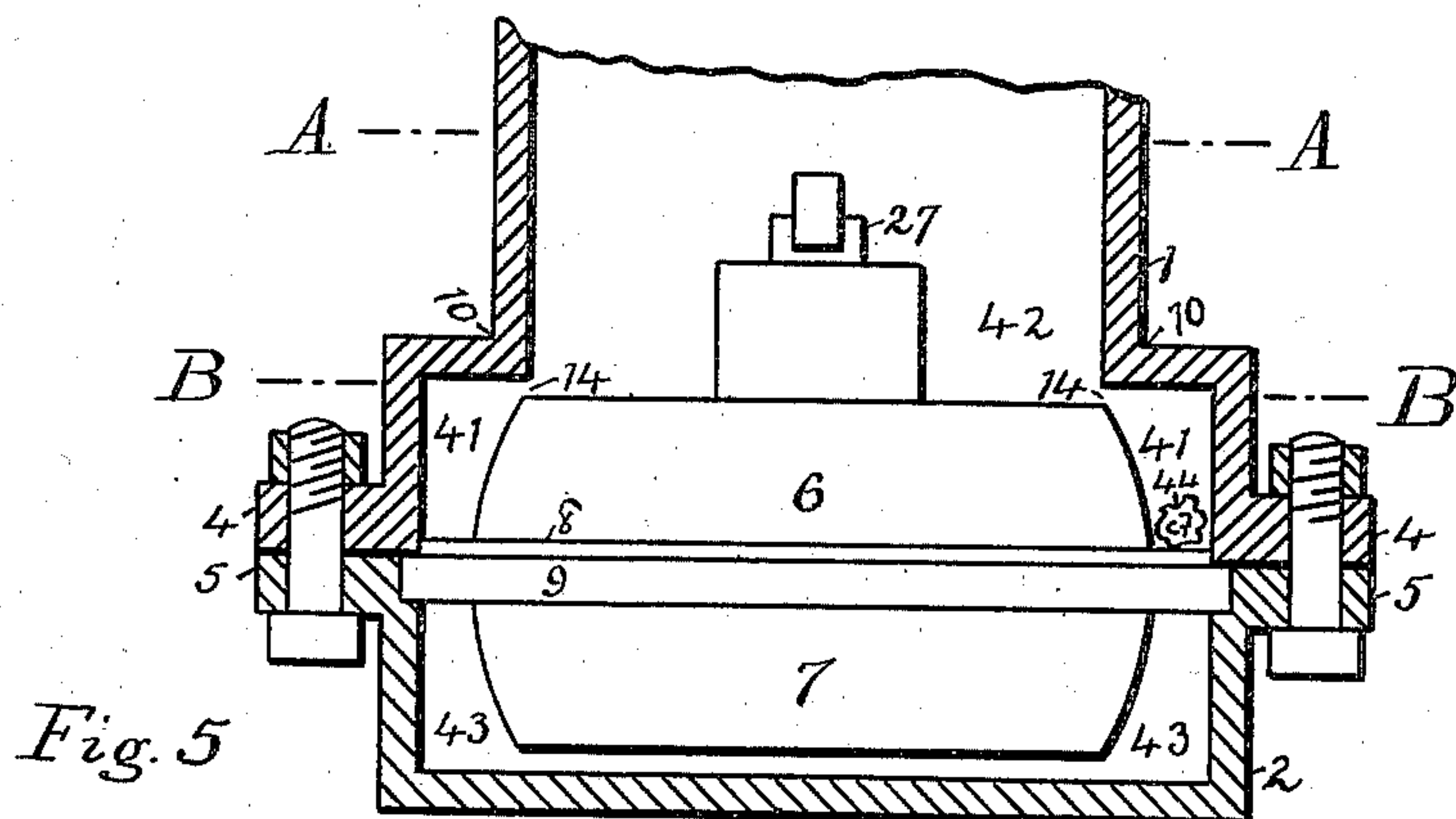
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

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## WATER-METER.

SPECIFICATION forming part of Letters Patent No. 708,296, dated September 2, 1902.

Application filed February 14, 1902. Serial No. 94,141. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE B. BASSETT, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Water-Meters, of which the following is a specification, reference being had to the drawings accompanying and forming a part thereof.

10 This invention relates to improvements in water-meters, and more particularly to disk water-meters of that class as shown in Letters Patent No. 501,203, granted to me on the 11th day of July, 1893, and No. 530,743, 15 granted to me on the 11th day of December, 1894.

The objects of my present invention are principally to improve the construction and arrangement of the outside casing, disk-chamber, and other parts in the construction of these meters for the purpose of reducing the cost of manufacture, allowing the more ready assemblage, separation, and adjustment of parts, increasing the durability and efficiency, and giving other advantageous results.

I will now proceed to definitely describe the manner in which I have carried out my invention and then claim what I believe to be novel.

30 In the drawings, Figure 1 is a central vertical section of my improved meter. Fig. 2 is a horizontal cross-section of same, taken just above the measuring-chamber on dotted line A A, Figs. 1 and 5. Fig. 3 is a side view of the measuring-chamber removed from the outer case. Fig. 4 is a top view of the intermediate gear and pinion removed from the meter. Fig. 5 is a central vertical section of the lower part of the outside case of my improved meter, taken at right angles to Fig. 1. Fig. 6 is a horizontal section of the outside case of my improved meter, taken on dotted line B B in Figs. 1 and 5.

45 The outer casing is composed of two detachable parts 1 and 2, which may be fastened together by bolts passing through holes 3 in their meeting flanges 4 and 5. The measuring disk-chamber is composed of two parts 6 and 7, which may be joined together by screws passing through their annular flanges 8 and 9, by which it is supported between parts 1 and 2 of the outer casing. The outer

casing 1 is bent inwardly at 10 and has two inwardly-projecting webs at 11 and 12. The disk-chamber and its annular flanges 8 and 9 divide the space surrounding the disk-chamber in the outer casing into three compartments. The first or receiving compartment 41 communicates with the inlet-opening 13 and lies entirely above the supporting-flanges 8 and 9 of the disk-chamber and extends horizontally around the upper part 6 of the disk-chamber to the webs 11 and 12. The second compartment 42 is also above the disk-chamber in outer casing 1 and contains the intermediate gearing and communicates with the first compartment by means of the elongated narrow space 14, and also communicates with the inlet part 15 of the disk-chamber. The third compartment 43 is entirely below the annular flanges 8 and 9 and communicates with outlet-port 16 of the disk-chamber and outlet-spud 17. The space surrounding the disk-chamber is thus divided into three compartments 41, 42, and 43. In the spherical side walls of the disk-chamber are formed the inlet-port 15 and the outlet-port 16, the upper edge of the inlet-port being higher than the upper edge of the outlet-port and the lower edge of the outlet-port being correspondingly lower than the lower edge of the inlet-port. The lower part of inlet-port 15 is covered by the hood 18, and the upper part of the outlet-port is correspondingly covered by the hood 19.

85 The measuring-disk 20 is provided with a controlling-shaft 21, which bears against the bearing-block 22, which block is supported in a chamber or recess 23, the walls of which are formed integral with the end wall of the disk-chamber. Said recess is provided with an opening 24 in its inclosing wall. The driver-shaft 25 projects into recess 23 and is provided at its lower end with a crank-arm 26, which contacts and is driven by bearing-shaft 21, and at its upper end with a clutch 27, which drives the intermediate gearing and indicator 28. Intermediate pinion 29, which turns loosely on shaft 44, has its teeth 30 only partly cut away and shouldered where it is pressed into intermediate gear 31, the central hole of which is correspondingly notched at 32 to receive said teeth.

Supporting-piece 33, on which is supported



the indicator 28, stuffing-box 34, and indicator-cap 35, which is attached to it by screws 36, passing through lugs 37, is provided at its lower part with a threaded projection 38, which extends through the wall of outer case 1 and is clamped firmly to it by means of the nut 39, located on the inside of the outer case. To nut 39 may be attached the intermediate gear-frame 40.

To more clearly show my principal improvements, I will enumerate them, as follows:

My first improvement consists in forming a receiving-compartment or gravel-chamber 41, containing no working parts and located entirely above the supporting-flanges 8 and 9 of the measuring-chamber and communicating to the passage-way of the inlet-port of the measuring-chamber by an elongated narrow slot, through which no large pieces of gravel 44 or other foreign materials can pass. By this arrangement the gravel-chamber 41 is at once accessible for inspection and cleaning immediately on the removal of part 1 of the outer case without removing the measuring-chamber. Heretofore such gravel-chamber has been located below the flanges 8 and 9 of the disk-chamber, and it has been necessary to remove the disk-chamber to clean out the gravel.

My second improvement consists in forming the edges of the inlet and outlet ports of the disk-chamber so that when the web of the disk between the ports is at its point of greatest oscillation the edge of one port only will overlap the edge of the disk. By this arrangement the inlet-port 15 can be considerably enlarged on the inlet side of the dividing-flanges 8 and 9 and the outlet-port 16, correspondingly enlarged on the outlet side of said flanges, thus affording the water easy access to and egress from the measuring-chamber and at the same time preventing it flowing by the disk when at its points of greatest oscillation opposite said parts. Heretofore the inlet and outlet ports to the disk-chamber or their edges have been horizontally or vertically symmetrical or so shaped as to both lap over the edge of the disk at one of its points of greatest oscillation.

My third improvement consists in forming an opening 24 for inspecting the disk-spindle 21 and bearing 22, supported in the recess, which has walls formed integral with the end wall of the disk-chamber. By this arrangement the support for the bearing-block may be machined at the same time and made permanently and truly concentric with the ball-socket in the end wall of the disk-chamber and the contact of the disk-spindle 21 with the lever-arm 26 and the bearing-block 22 be inspected through the opening 24. Heretofore where the contact of the disk-spindle with the lever-arm and bearing-block has been accessible and observable the walls of the recess containing them have not been integral with the end walls of the disk-chamber.

My fourth improvement consists in form-

ing notches around the edge of the central hole in intermediate gear-wheel 31, into which the teeth or parts of the teeth of pinion 29 fit when the two are permanently pressed together. By this arrangement the pinion and its companion gear are very securely fastened together, and the gear will not slip and turn without turning its central pinion. Heretofore the pinion has been pressed into a smooth hole in the gear and the two held together by friction or by soldering the joint. While the two will generally hold together by simple friction when the pinion is solid or is tight on a shaft, they will not always do so, and the pinion is especially liable to slip around in the smooth hole of the gear if weakened by an open hole through the center of the pinion.

My fifth improvement consists of extending the bottom end of the supporting-piece 33 for the indicator through the outside case 1 and threading it and clamping it securely to the outside case by means of a nut on the inside of the outside case. By this arrangement the lugs 37 and screws 36 of the indicator-support may be placed in any desired axial relation to the meter-openings 13 and 17. Heretofore the indicator-support when extended through the outside case has been held in position by screws or bolts and its relative axial position determined by the position of said screws or bolts.

My sixth improvement consists of attaching the frame of this intermediate gearing to the clamping-nut 39 and making it a part of said frame. By this arrangement a less number of parts are needed to construct the meter, and the indicator and intermediate gearing are held truly concentric with each other. Heretofore the intermediate-gear frame has projected through the outside-case wall and been held by a nut located on the outside of the outer meter-case, or it has been fastened to the interior of the outside case by screws or bolts.

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

1. In a disk water-meter the combination with an inner disk-chamber and an outer case, a gravel-chamber communicating with the inlet-opening of the outside case and a receiving-chamber communicating with the inlet-port of the disk-chamber, of a narrow slot extending along the top edge of the disk-chamber and connecting the gravel-chamber and receiving-chamber, substantially as and for the purpose described.

2. In a disk water-meter the combination with an inner disk-chamber and its projecting flanges of an outer surrounding case so formed as to divide the space above said flanges between the outer wall of the disk-chamber and the inner wall of the outside case into two communicating compartments both adjacent to the disk-chamber substantially as and for the purpose described.



3. In a disk water-meter the combination with an inner disk-chamber and its projecting flanges of an outer surrounding case so formed as to divide the space between the 5 outer wall of the disk-chamber and the inner wall of the outer case into three compartments adjacent to the disk-chamber two compartments being above said flanges and one compartment below said flanges, substantially as and for the purpose described. 10

4. In a disk water-meter an inner removable disk-chamber composed of two equal sections with inlet and outlet ports having the opposite part of each port formed unequally 15 in the spherical side walls of both sections substantially as and for the purpose described.

5. In a disk water-meter the combination with a disk and its disk-chamber of an inlet-port and an outlet-port formed in the spherical side wall of said disk-chamber with one 20 edge each that does and one edge that does not alternately overlap the edge of said disk when the edge of said disk between said ports is at its points of greatest oscillation, substantially 25 as and for the purpose described.

6. In a disk water-meter the combination with the disk-chamber of an inlet-port and an outlet-port formed in the spherical side wall of said disk-chamber each with one diagonally opposite edge cut away so as to afford the water easy access to and egress from 30 said measuring-chamber.

7. In a disk water-meter the combination with the disk-chamber, the disk and its spindle, a recess formed by walls integral with the end walls of said disk-chambers and into which recess said disk-spindle projects, of an opening into said recess through the side of said integral walls for the purpose of observing 40 said spindle.

8. In a water-meter, the combination with an intermediate toothed wheel and notches formed in the edge of a central hole in said

wheel, a pinion with teeth adapted to fit said notches and prevent said pinion turning in 45 said wheel when the two are permanently joined, of shoulders formed in said pinion-teeth, substantially as and for the purpose described.

9. In a water-meter, the combination with 50 a hollow pinion and shouldered toothed projections formed on said pinion of a gear-wheel and notches formed in the edge of a central hole formed in said wheel adapted to fit said projections and prevent said pinion turning 55 in said wheel when the two are permanently joined, substantially as and for the purpose described.

10. In a water-meter, the combination with a shaft, a hollow pinion turning loosely on 60 said shaft and shouldered teeth formed on said pinion, of notches formed on the edge of the central hole of a gear-wheel mounted on said shouldered pinion-teeth, substantially 65 as and for the purpose described.

11. In a water-meter, the combination with a supporting-piece for the indicator and stuffing-box and a threaded projection on the lower end of the supporting-piece extending 70 through the outer wall of the meter-case of a clamping-nut located on the inside of the meter-case and mounted onto the projection of said supporting-piece, substantially as and for the purpose described.

12. In a water-meter, the combination with 75 a supporting-piece for the indicator and stuffing-box and a clamping-nut therefor located in the interior of said meter, of an interior intermediate gear-frame mounted on said clamping-nut, substantially as and for the 80 purpose described.

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Witnesses:

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