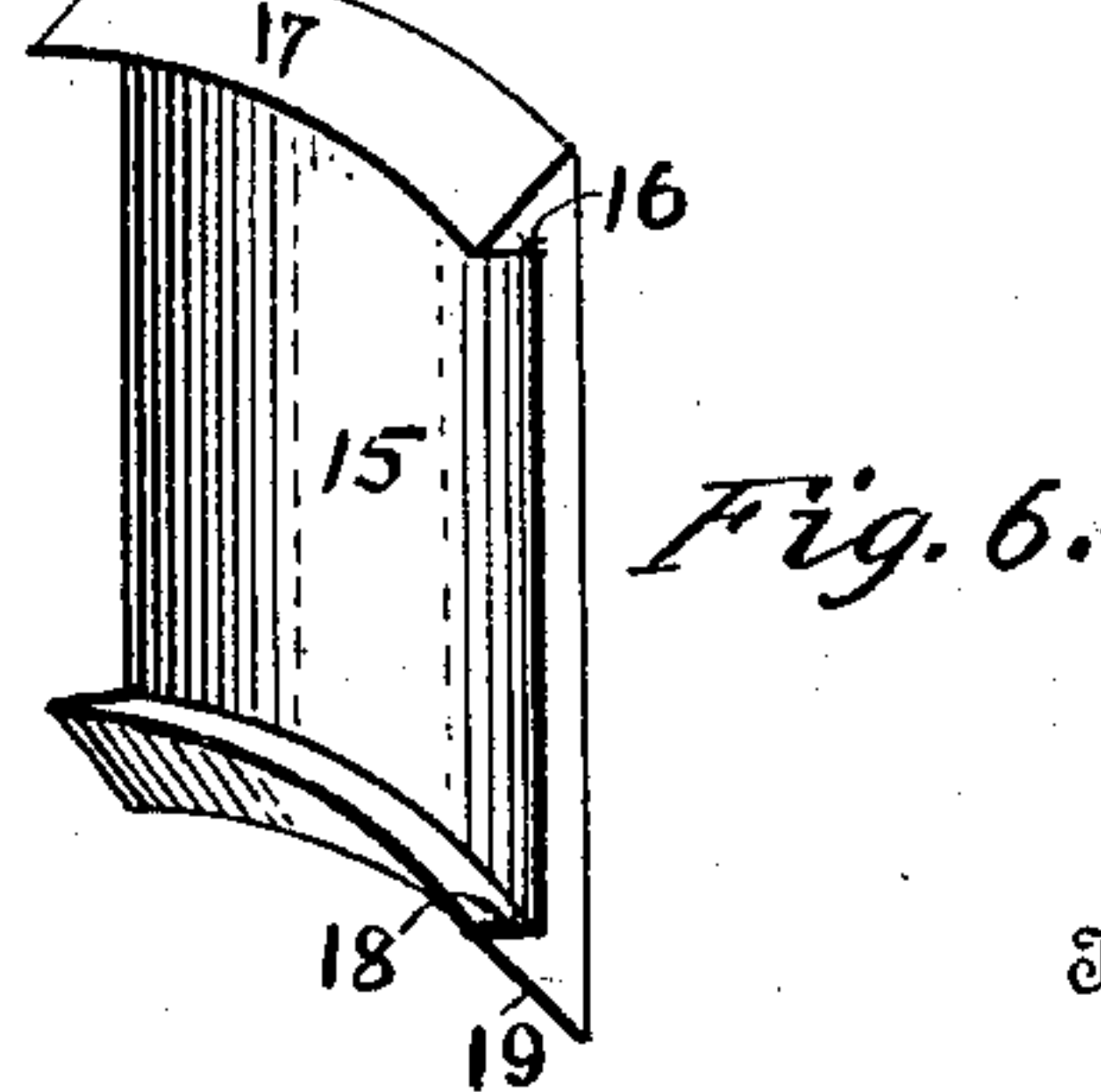
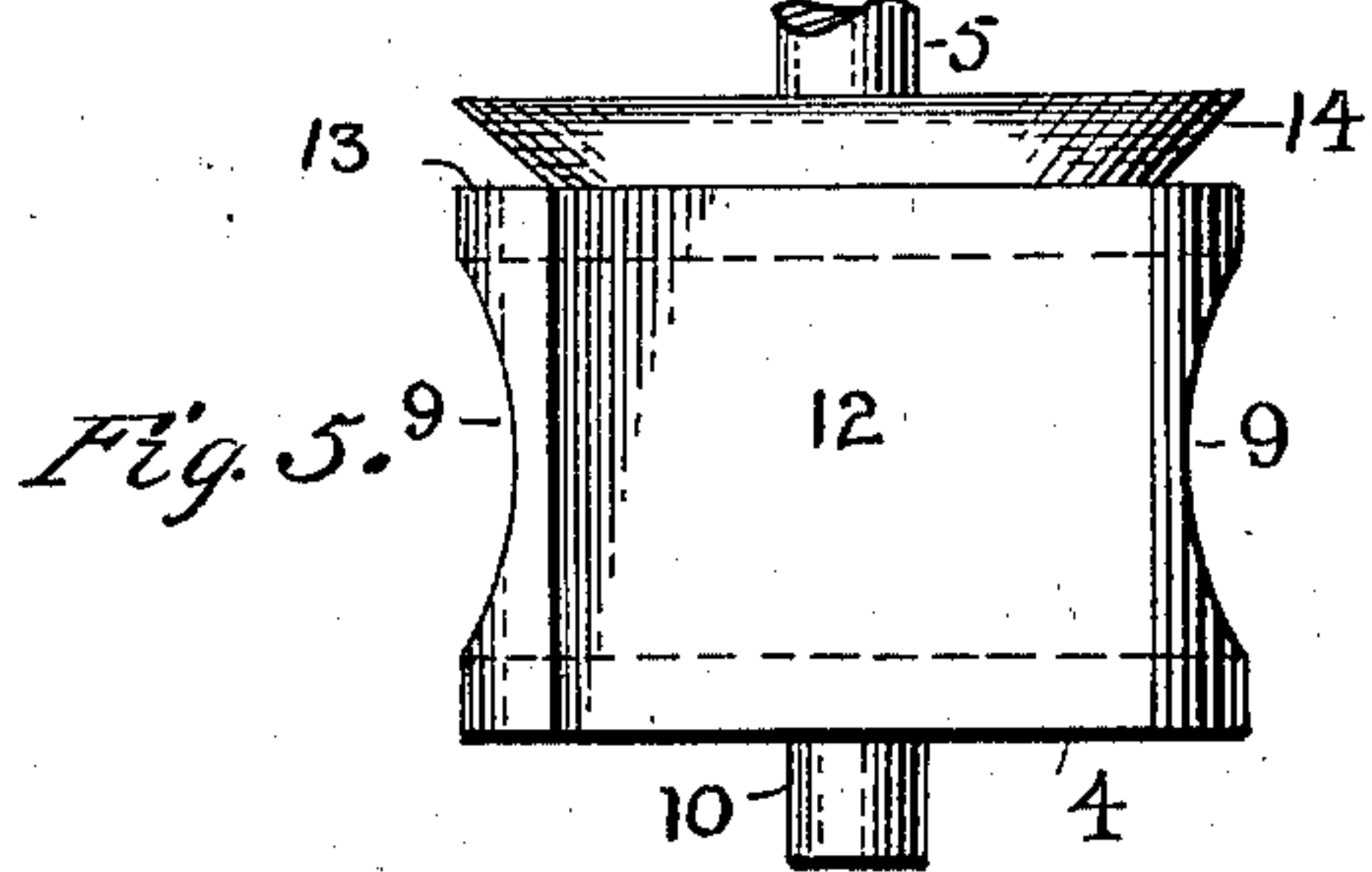
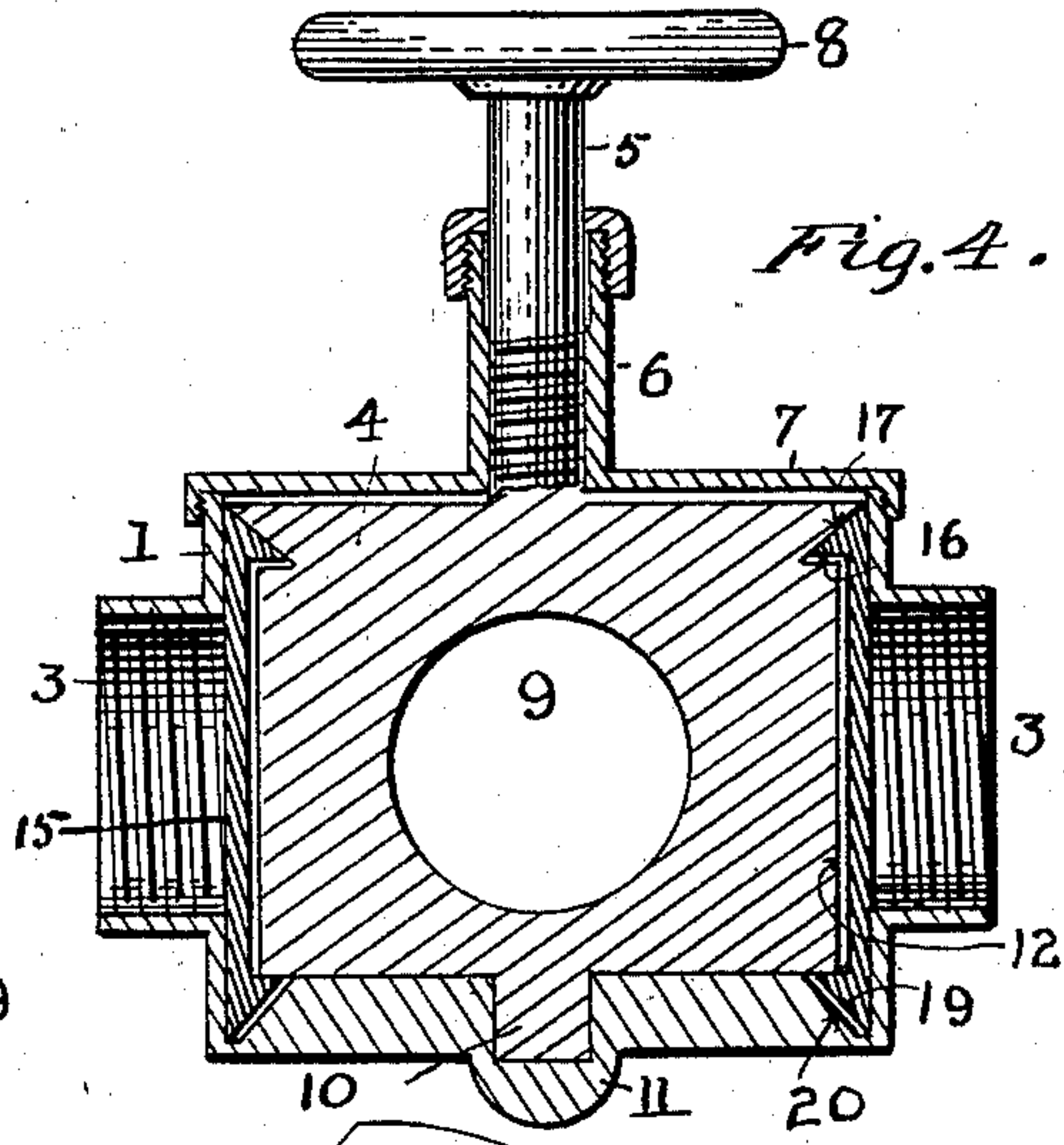
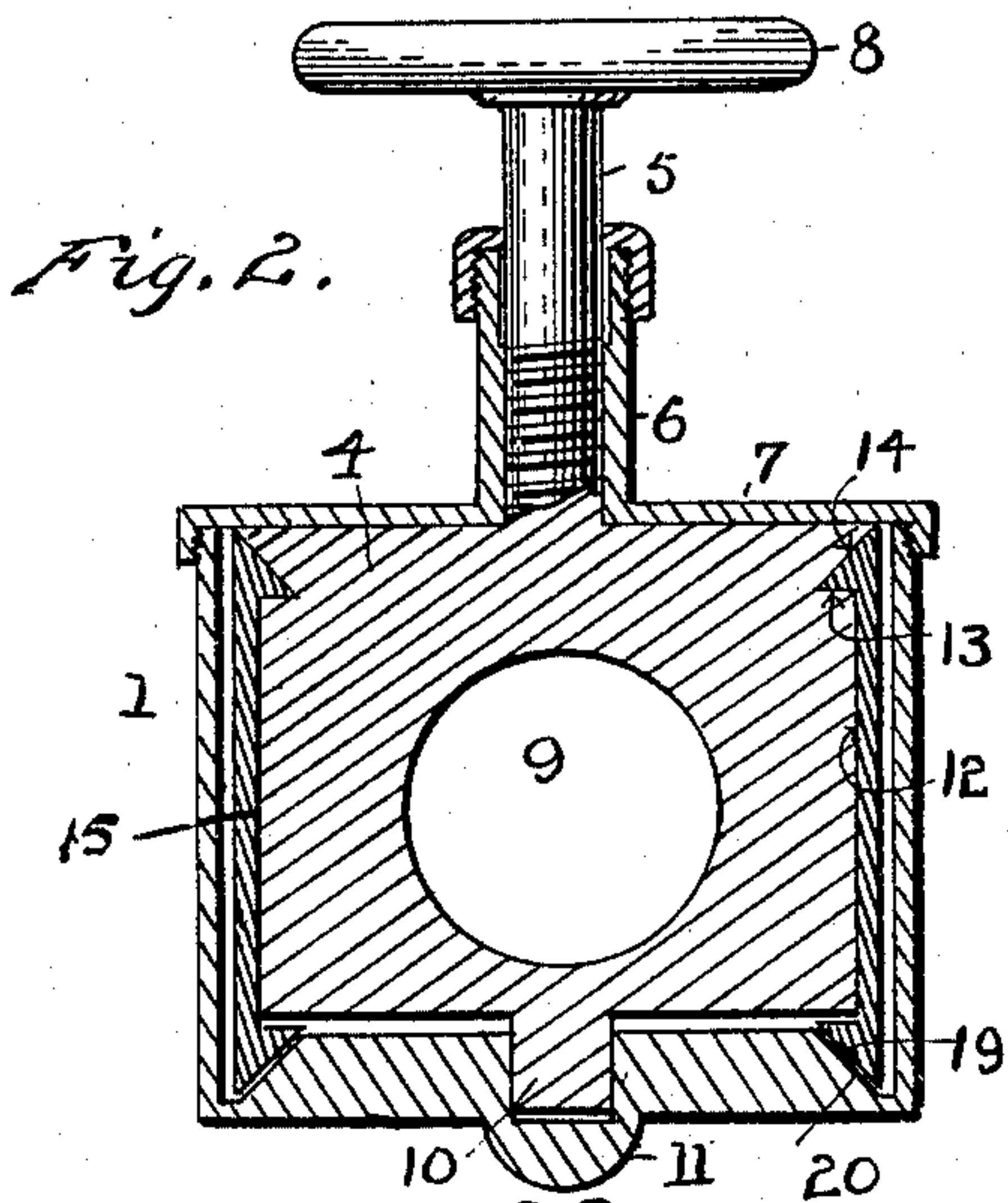
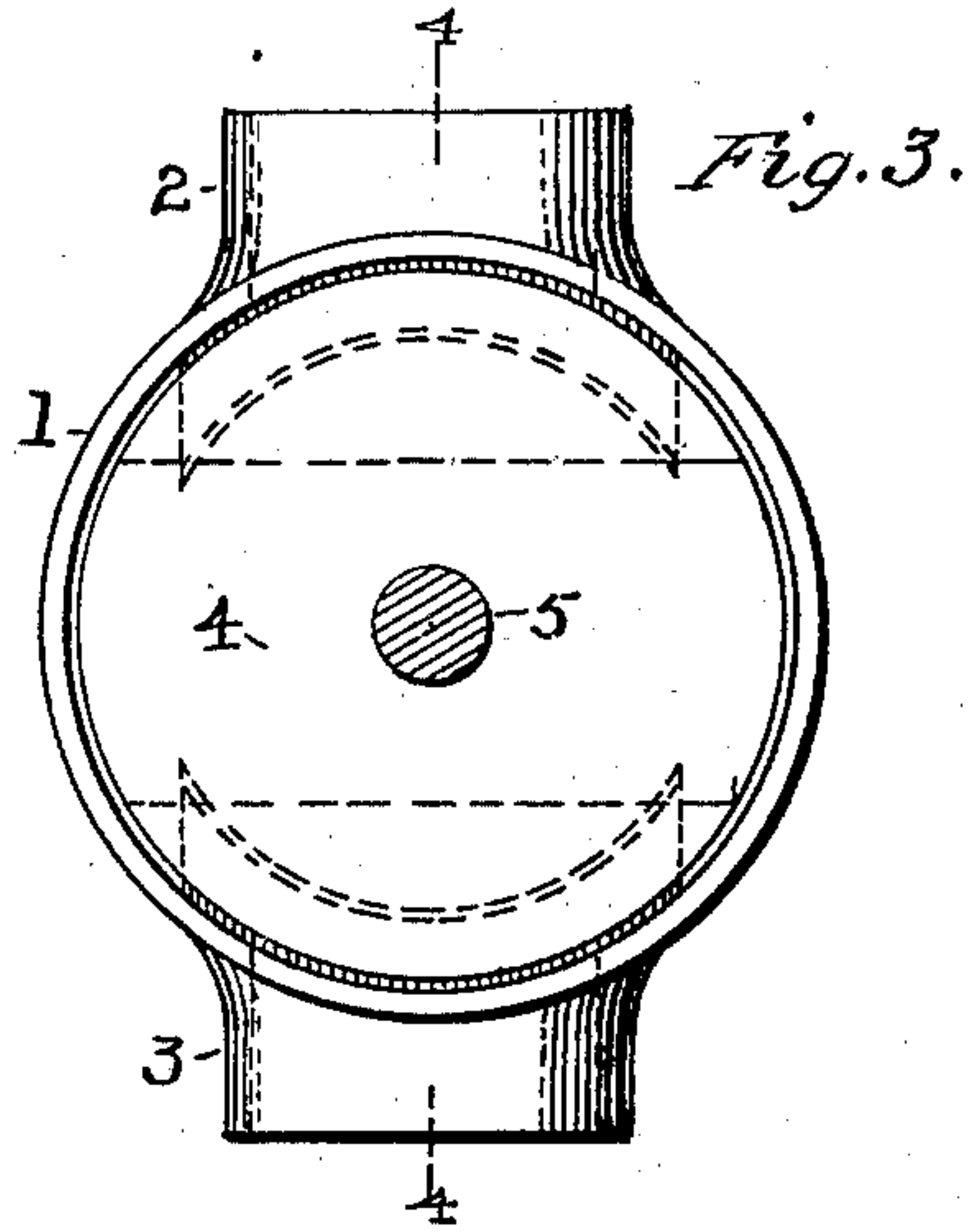
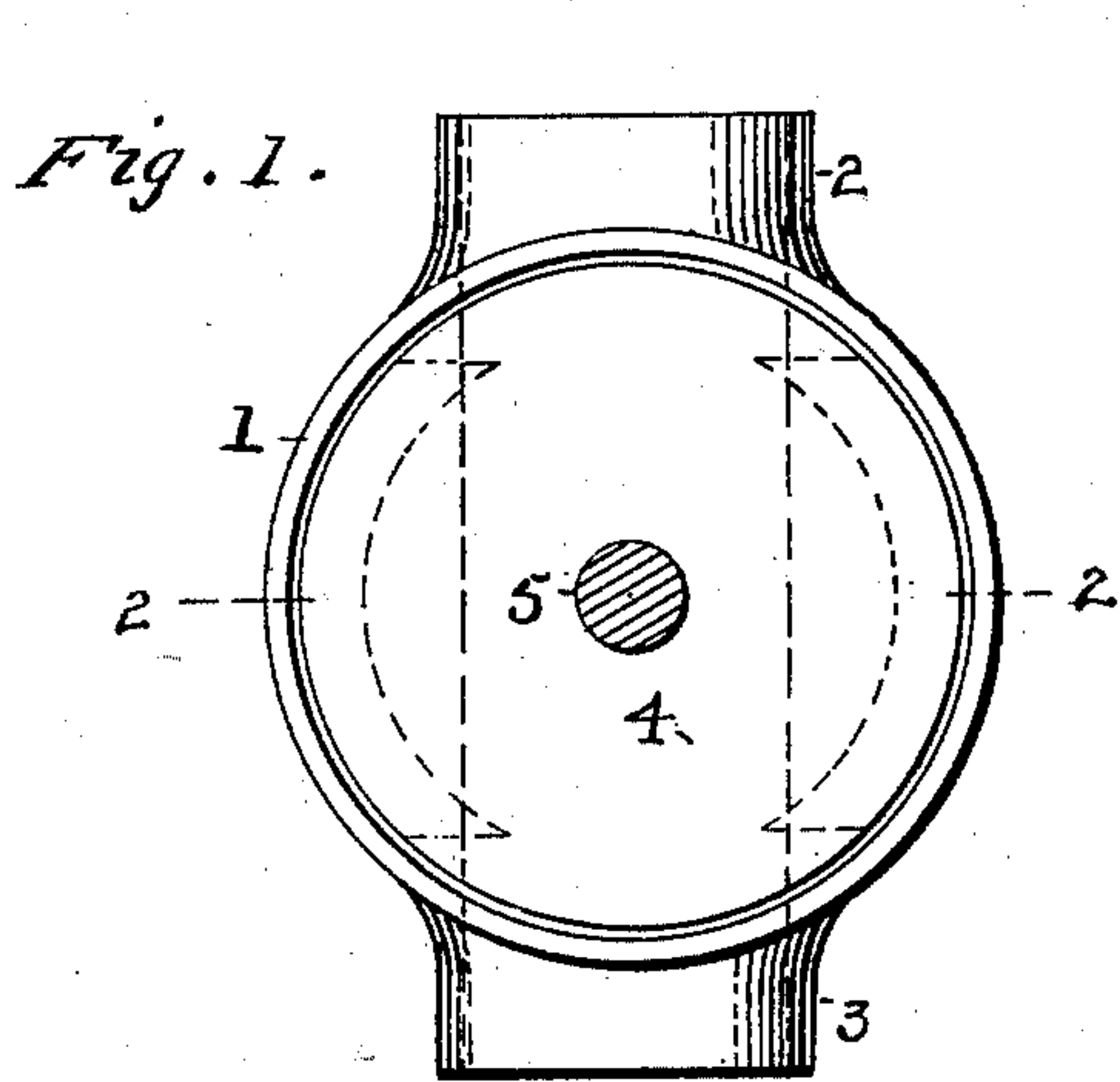


No. 720,012.

PATENTED FEB. 10, 1903.

E. M. ERDMAN.
STRAIGHTWAY VALVE.
APPLICATION FILED OCT. 25, 1902.

NO MODEL.



Witnesses
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By

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UNITED STATES PATENT OFFICE.

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ONE-HALF TO WILLIAM J. MATZ, OF POTTSVILLE, PENNSYLVANIA.

STRAIGHTWAY VALVE.

SPECIFICATION forming part of Letters Patent No. 720,012, dated February 10, 1903.

Application filed October 25, 1902. Serial No. 128,819. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. ERDMAN, a citizen of the United States, residing at Pottsville, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Straightway Valves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to straightway valves for water, steam, gas, and the like; and its object is to provide a straightway valve in which there shall be a free and uninterrupted flow through it when open, which shall automatically bring a plate or plates into position to shut off the flow when the valve is closed and at the same time automatically force said plate or plates tightly against the seat or seats provided therefor, and which shall have only so much angular movement in opening and closing as shall suffice to fully open and close the port.

The invention is in some respects similar to the straightway valve for which I obtained a patent on September 16, 1902, No. 709,146, but is simpler in construction and operation than that one.

My invention consists of a turning-plug straightway valve in which the plug is cylindrical and has a transverse port through it. In one or both sides of the plug between the ends of the port are recesses in which a plate fits, the outer surface of the plate being normally flush with the surface of the plug.

The plate is wide enough to completely cover the opening through which the fluid to be controlled is brought to the straightway valve. The upper and lower ends of the plate are chamfered off and the plug has a beveled undercut portion to cooperate with the upper chamfer, while the bottom of the casing in which the plug turns has a similar bevel to cooperate with the lower chamfer. A shoulder on the plug engages with a lip below the upper chamfer, so that the plate is carried

up and down with the plug as it turns, the plug having a screw-threaded stem to give it this endwise movement in opening and closing. When the valve is closed, the plug moves downward, and the beveled portion on the plug and the casing operates to force the plate laterally away from the plug and tightly against the wall of the casing adjacent to the inlet or outlet, or both.

In the accompanying drawings, Figure 1 is a top plan view of a valve embodying my invention, the casing being uncovered and the valve being open. Fig. 2 is a longitudinal section of the same on the line 2 2, Fig. 1. Fig. 3 is a top plan view of the valve closed. Fig. 4 is a longitudinal section of the same on the line 4 4, Fig. 3. Fig. 5 is an elevation of the turning plug. Fig. 6 is a perspective view of a plate.

The drawings show a straightway valve provided with two plates—one for closing the inlet and the other the outlet of the casing. Although the latter plate could be dispensed with, if desired, yet for the sake of simplicity I shall confine the following description to the construction shown.

The casing 1 has an inlet 2 and an outlet 3 opposite to each other. The interior of the casing is cylindrical to receive the cylindrical turning plug 4, which has a screw-threaded stem 5, meshing with screw-threads in a boss 6, projecting from the center of the top 7 of the casing and having a suitable handle 8. The plug has a transverse port 9, which registers with the inlet and outlet when the valve is open, as shown in Fig. 1. The bottom of the plug may have a central pin 10, entering a socket 11 in the bottom of the casing, to assist in centering it in the casing. The plug is slightly less in length than the casing, and the pitch of the screw-threads on the stem is such that when the valve is open the plug abuts against the top of the casing, as shown in Fig. 2, and when closed it rests solidly on the bottom of the casing, as shown in Fig. 4. The top and bottom of the casing thus act as stops to determine the proper positions of the plug when open and closed. In opposite sides of the plug between the ends of the port 9 are recesses 12, extending the full length of

the plug and having at their upper ends a shoulder 13 and a deeper undercut bevel 14. In each recess is a plate 15, having its outer surface curved to lie flush with that of the plug when the plates stand close to the plug, as shown in Fig. 2. At the upper end of each plate is a lip 16 to engage with the shoulder 13, by means of which the plate is carried up and down with the plug as it turns.

10 Above the lip is a chamfered portion 17, cooperating with the bevel 14 on the plug. The lower end of the plate has a projecting lip 18, below which is a chamfered portion 19, cooperating with a beveled groove 20, around

15 the outer edge of the bottom of the casing. When the valve is open, the space between the chamfer 19 and the bevel 20 is a little less than that between the bottom of the plug and the bottom of the casing. The lip 18 also

20 stands a little above the bottom of the casing. The operation is as follows: Suppose the valve to be open, as shown in Figs. 1 and 2. The plates rest in the recesses and the plug is free to be easily turned by its stem. To

25 close the valve, the stem is given a quarter-turn, which carries the plug down against the bottom of the casing, as shown in Fig. 4, and swings the plates around opposite the inlet and outlet. Just before the plug seats on the

30 bottom of the casing the chamfer 19 strikes the bevel 20, and then the two beveled surfaces 14 20 act to force the plates laterally away from the plug and tightly against the walls of the casing adjacent to the inlet and

35 outlet, thus closing these openings very effectually and preventing all leakage. When the plug is turned back to open the valve, the plates are loosened and the plug can thus turn easily.

Having thus described my invention, what I claim is—

1. In a straightway valve, the combination with a turning plug having a transverse port and a recess in one or both sides provided with a beveled upper portion, of means for moving said plug endwise in opening and closing, a casing having a beveled groove in its bottom, and a plate in each recess having chamfered portions at each end to cooperate with the bevels on the plug and casing.

2. In a straightway valve, the combination with a turning plug having a transverse port and a recess in one or both sides provided with a beveled upper portion and a shoulder adjacent thereto, of means for moving said plug endwise in opening and closing, a casing having a beveled groove in its bottom, and a plate in each recess having at its upper end a lip to engage with the shoulder and a chamfered portion to cooperate with the bevel on the plug, and a chamfered lower end to cooperate with the beveled groove in the bottom.

3. In a straightway valve, the combination with the turning plug 4, of the screw-threaded stem 5, the casing 1 somewhat longer than said plug, and the plates 15 having the lips 16, 18 and the chamfered portions 17, 19, said plug having the recesses 12 provided with shoulders 13 and beveled portions 14, and said casing having in its bottom the beveled groove 20, all arranged and operating substantially as hereinbefore set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD M. ERDMAN.

Witnesses:

E. K. PHILLIPS,
FRANK LITTLE.