

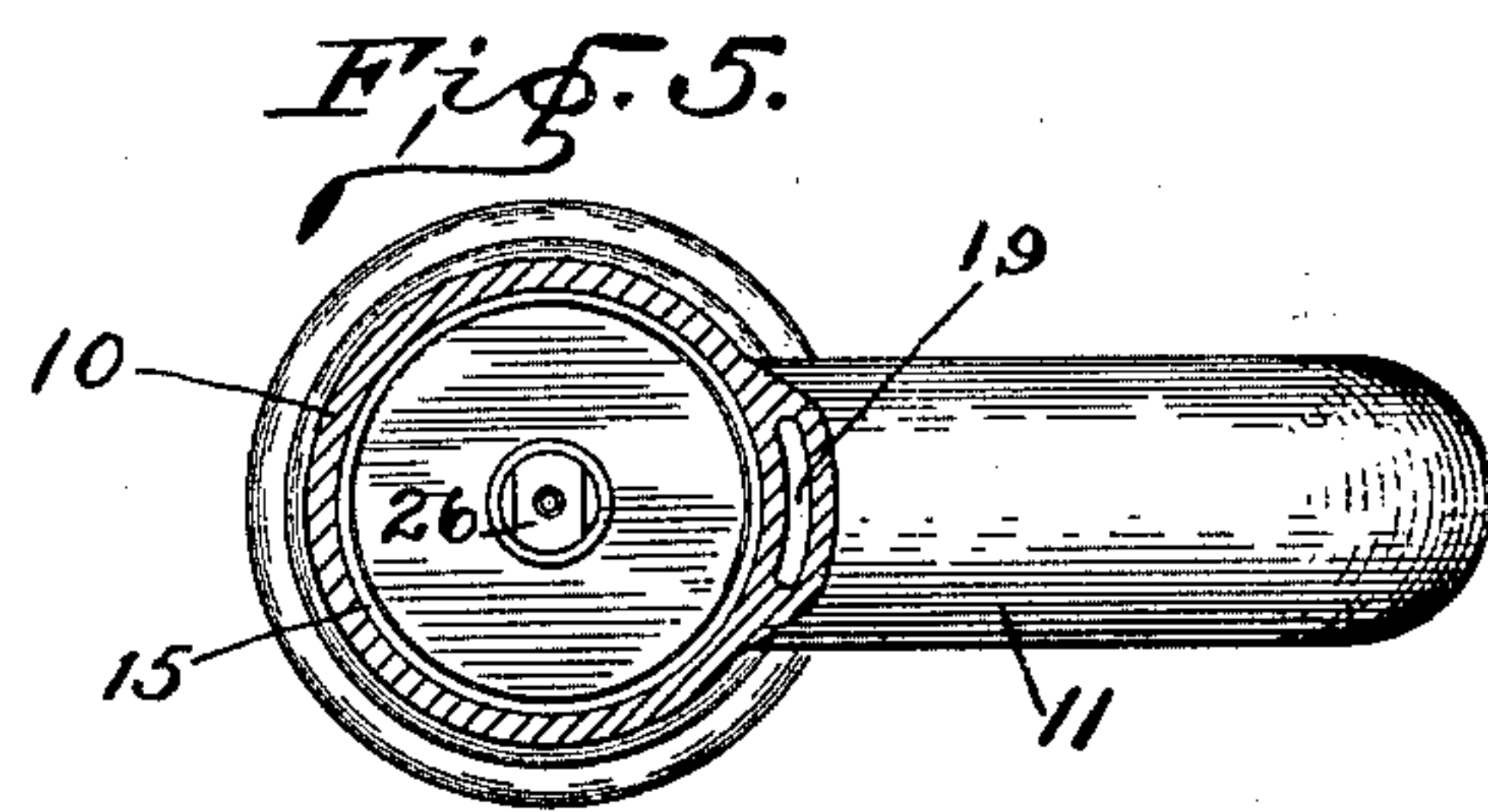
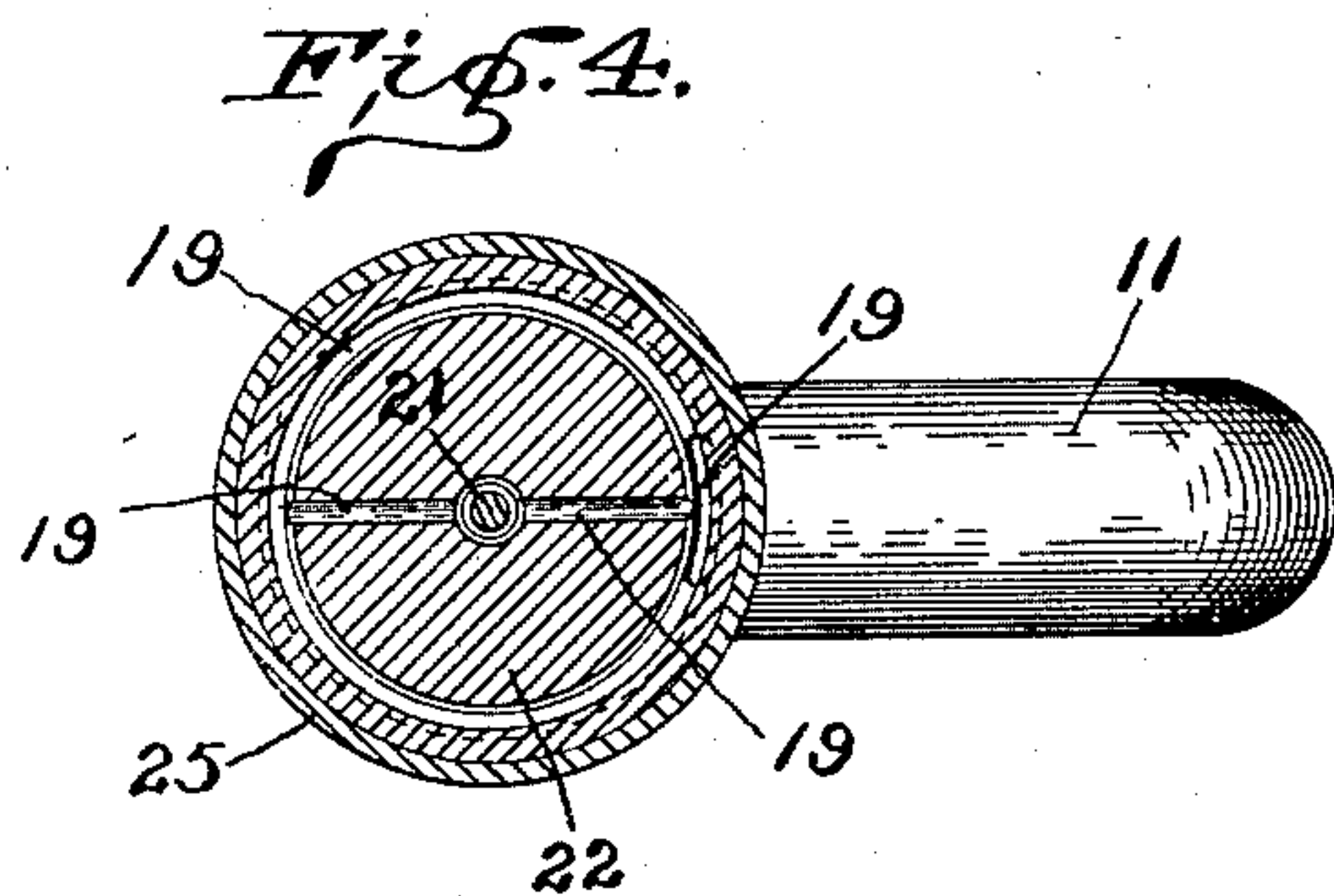
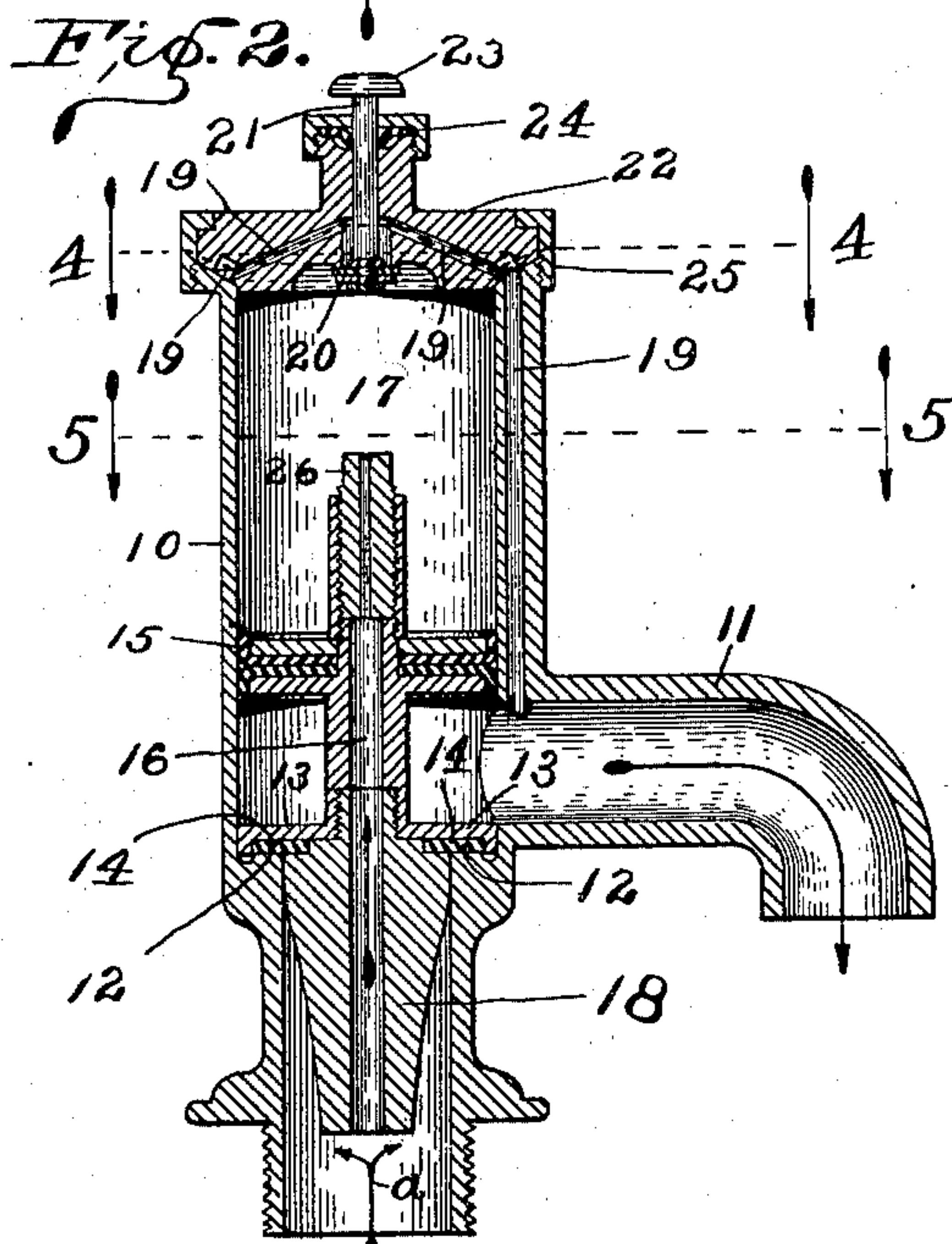
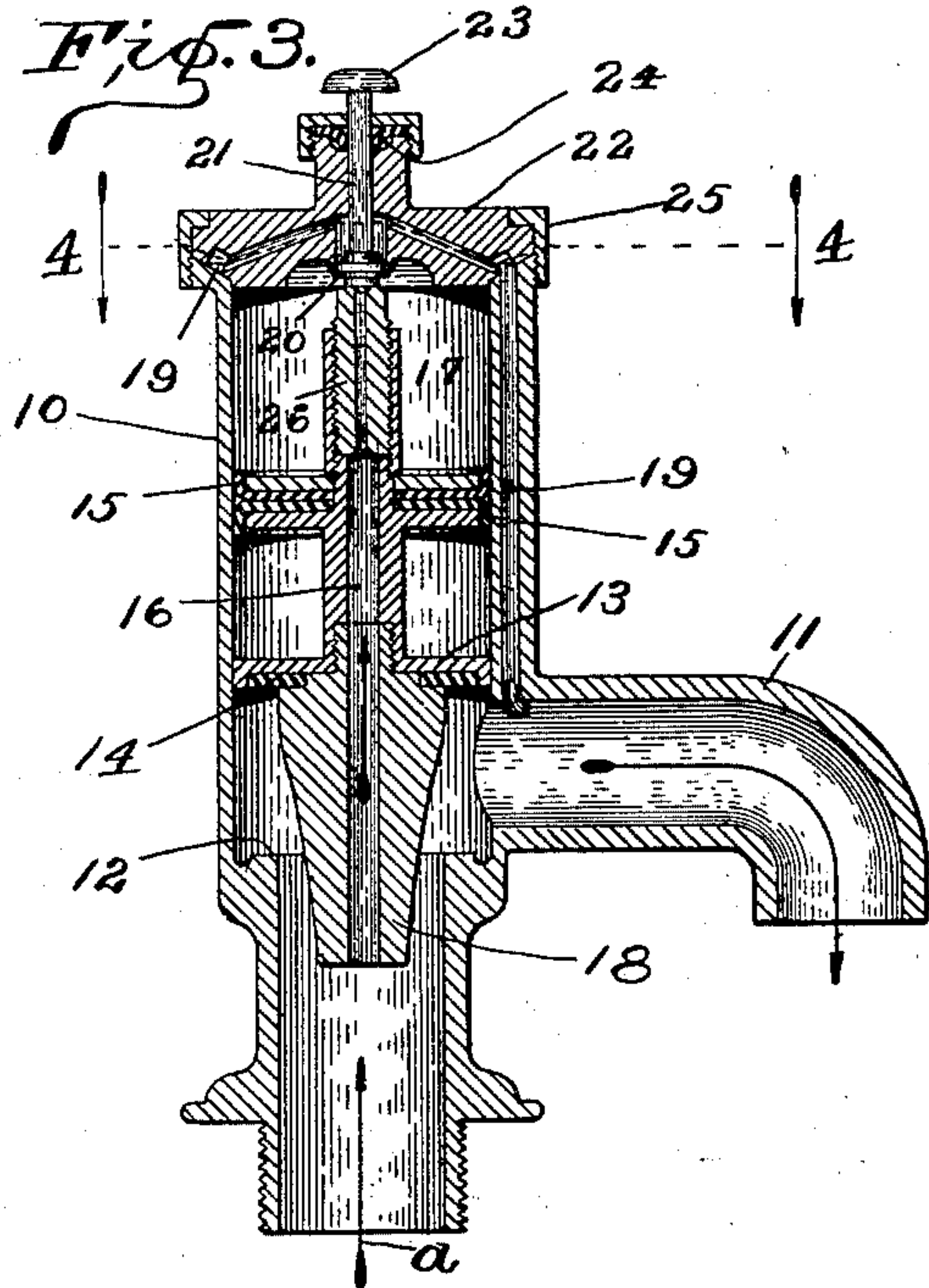
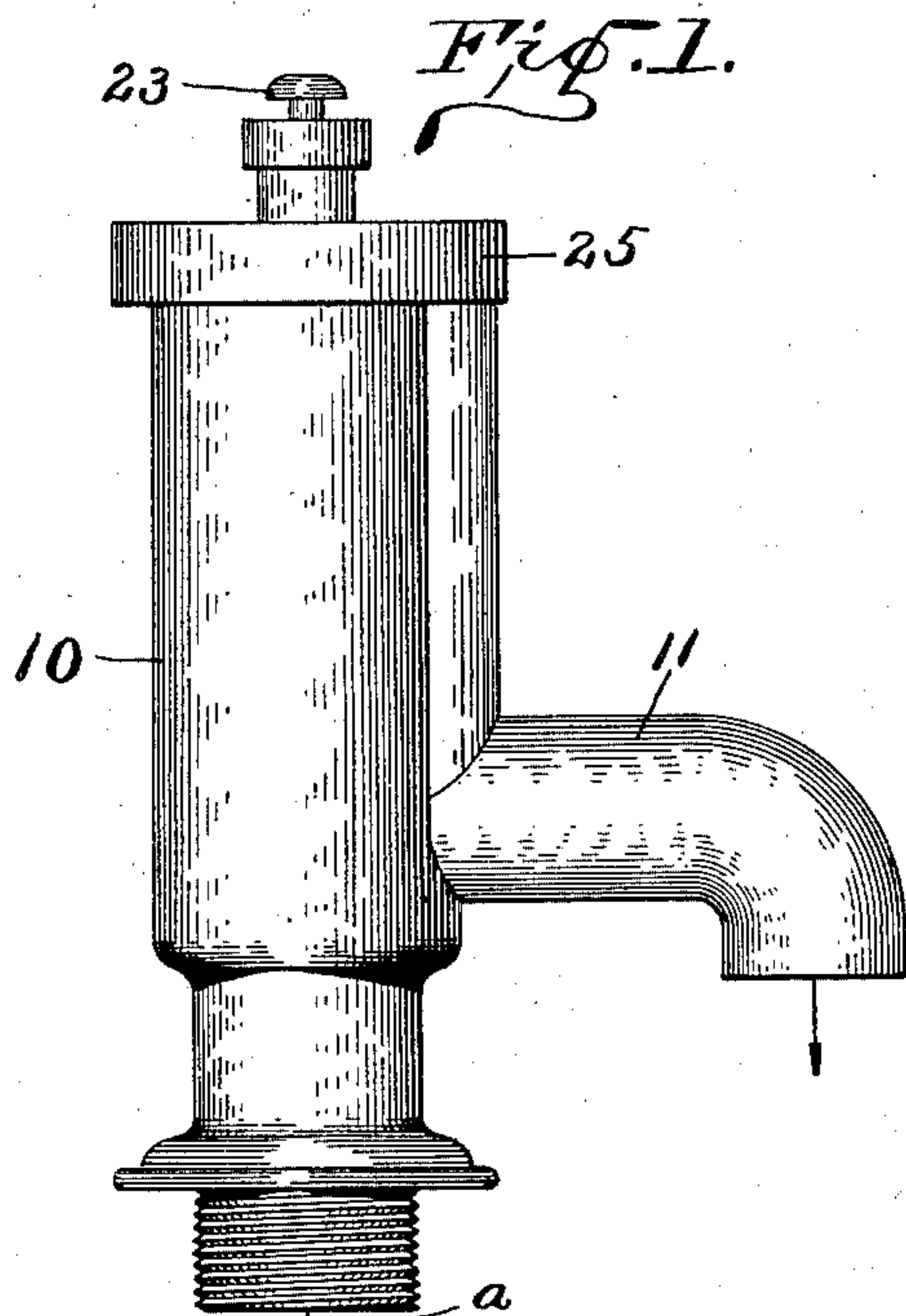
No. 685,932.

Patented Nov. 5, 1901.

J. W. NETHERY.
VALVE OR FAUCET.

(Application filed June 22, 1901.)

(No Model.)



WITNESSES:

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JOSEPH W. NETHERY, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE NETHERY HYDRAULIC VALVE COMPANY, OF INDIANAPOLIS, INDIANA; NEW YORK, N. Y., AND JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

VALVE OR FAUCET.

SPECIFICATION forming part of Letters Patent No. 685,932, dated November 5, 1901.

Application filed June 22, 1901. Serial No. 65,663. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. NETHERY, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Valves or Faucets, of which the following is a specification.

This invention relates to that variety of faucets or valves by means of which a predetermined amount of fluid may be drawn, whereupon the valve will automatically close; and its objects are simplicity and efficiency of operation, ease and accuracy of adjustment, and inexpensiveness and durability of construction.

A faucet embodying my said invention will be first fully described, and the novel features thereof then pointed out in the claims.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference characters indicate similar parts, Figure 1 is a side elevation of a faucet embodying said invention; Fig. 2, a central vertical sectional view of the same with the valve in closed position; Fig. 3, a view similar to Fig. 2 with the valve in open position; and Figs. 4 and 5, horizontal sectional views looking downwardly from the dotted lines 4 4 and 5 5, respectively, in Fig. 2.

Assuming this faucet to be arranged in the ordinary way in a lavatory, fluid enters, as is usual, from a suitable supply-pipe connected with the ingress-opening of the body 10 and emerges through the nozzle 11. Within the body 10 is a valve-seat 12, upon which the main valve 13 rests. This valve, by means of the gasket 14 and cup-leathers 15, is adapted, when seated in the position shown in Fig. 2, to tightly close the spaces both above and below the outlet, and thus completely prevent fluid from flowing out through the nozzle from either direction. The main-valve structure has a central perforation 16, which leads up through the same to the chamber 17 in the upper portion of the valve-body, thus permitting the fluid to flow in a fine stream from the source of supply to said chamber,

and thus keep said chamber filled when the valve is at rest, so that the pressure will be equal (in proportion to the area) upon both ends of the valve. The upper end of the valve carrying the cup-leathers 15 is, as shown, somewhat larger than the opening in the valve-seat 12, and consequently the tendency of the fluid-pressure is to keep the valve closed, except when in operation, as will be presently described. The structure of the main valve is prolonged below the valve-seat, and this portion of prolongation 18 is tapered, as shown in the drawings, and is thus adapted as the valve raises and lowers to gradually enlarge or diminish the available opening to the outlet or nozzle 11. In other words, as the valve begins to open a small flow is started at first, which gradually increases until the valve is entirely open, when the flow should be equal to the full capacity of the nozzle or outlet, and as the valve closes the flow will be gradually cut off until it ceases altogether, instead of being stopped suddenly or abruptly.

Leading from the upper end of the chamber 17, around to and discharging into the nozzle 11, is a by-pass 19, the cross-sectional area of which is greater than that of the perforation 16, leading up through the center of the main valve. I prefer to make it flat in shape, as shown in Figs. 4 and 5. The mouth of this by-pass is closed when the valve is at rest by the starting-valve 20, which has a stem 21, extending up through the top 22 of the faucet-body to the outside, where it preferably terminates in a push-button 23, which can be pressed upon by the operator. This stem should be provided with an ordinary stuffing-box 24 to prevent leakage. The top or head 22 of the main body 10 is shown as secured to said body by means of a flanged screw-ring 25. The by-pass 19 is partly within this head or top, and the continuation of the said by-pass in the said head may be formed in any way desired. I have shown it as in the form of an annular opening extending around said head near its periphery and

thence continuing by means of two inclined branches to the center and terminating in a small central chamber in the head 22, just above the valve 20. Whatever the form of construction it will be understood that this by-pass must extend from the valve 20 to a point below the upper portion of the main valve where the cup-leathers 15 are shown.

The operation is as follows: The fluid enters the faucet from the supply-pipe in the direction indicated by the arrows *a*, and having filled the chamber 17 the main valve is held closed by the ordinary fluid-pressure. Any one desiring to draw a supply of fluid simply presses on the starting-valve stem, forcing said starting-valve 20 off its seat, and thus opening the by-pass 19. This by-pass being larger in cross-sectional area than the perforation through the main valve enables the pressure in the chamber 17 to be immediately released, so that the pressure on the under side of the main valve will operate to raise it off its seat and move it from the position shown in Fig. 2 to the position shown in Fig. 3. This permits the fluid to flow uninterruptedly from the source of supply through the valve-seat 12 and the nozzle or outlet 11. The main valve, however, in opening as it reaches its final position strikes and closes the starting-valve 20, and therefore the small amount of fluid which passes up through the fine perforation in said main valve will at once begin to fill the chamber. The area of the upper end of the valve being somewhat greater than that of the lower end, this pressure is enabled to slowly and gradually close said main valve, and when it is completely closed the flow of fluid is entirely shut off. The single momentary pressure on the valve-stem 21 is therefore all that is necessary to set the fluid to flowing and maintain the flow until the predetermined amount has been drawn. The striking-point on the main valve may be an adjustable point 26, and the distance the main valve shall move before closing the starting-valve, and consequently the time said flow shall continue, may thus be adjustably determined. The amount of flow is also dependent upon the size of the perforation through the main valve. The smaller the perforation of course the smaller the flow of fluid from below to above the valve and the longer it will take to fill the chamber and cause said valve to close. As above stated, the by-pass must be larger than the perforation through the main valve in order that the pressure in the chamber may be relieved when the starting-valve is opened. Where a greater amount of fluid than the predetermined amount is desired, the operator has simply to

hold down the starting-valve until the desired amount has been drawn.

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

1. The combination, in a faucet, of a faucet-body containing a valve-seat around the inlet-opening, a chamber above said valve-seat, an outlet below said chamber, a by-pass leading around from the upper portion of said chamber to said outlet, a main valve one portion of which is adapted to rest on the main-valve seat and thus close the inlet to the valve and the other portion of which closes the bottom of said chamber, said main-valve structure being provided with a perforation leading from below the main-valve seat to said chamber, and a starting-valve adapted to close the by-pass, said main-valve structure being also adapted as it rises to close the starting or by-pass valve, substantially as shown and described.

2. In a faucet, the combination of the body having a valve-seat below the entrance to the nozzle, a chamber above said nozzle, a by-pass leading from said chamber around into said nozzle, a valve provided with a bearing-surface at its top and at its bottom and being of a length to close the entrance to said nozzle both from above and below, an aperture leading through said valve of smaller size than that of the by-pass leading from the chamber to the nozzle, a by-pass valve located above said main valve and adapted to be closed thereby when it opens, and a tapered extension formed on the lower end of the main valve adapted to extend through the lower valve-seat and operate to gradually increase or decrease the opening as said valve rises or falls, substantially as set forth.

3. The combination, in a faucet, of the nozzle, the faucet-body containing a valve-seat around the inlet, and below the nozzle, a chamber above the nozzle, and a by-pass leading from said chamber to said nozzle, a valve adapted to rest on said valve-seat and close the passage to the nozzle and extend above the nozzle and also close the lower end of the chamber, said valve being provided with a perforation extending through the same, and a by-pass valve arranged above the main valve and adapted to be closed by said main valve when the latter opens.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 17th day of June, A. D. 1901.

JOSEPH W. NETHERY. [L. S.]

Witnesses:

C. S. FRYE,

L. H. COLVIN.