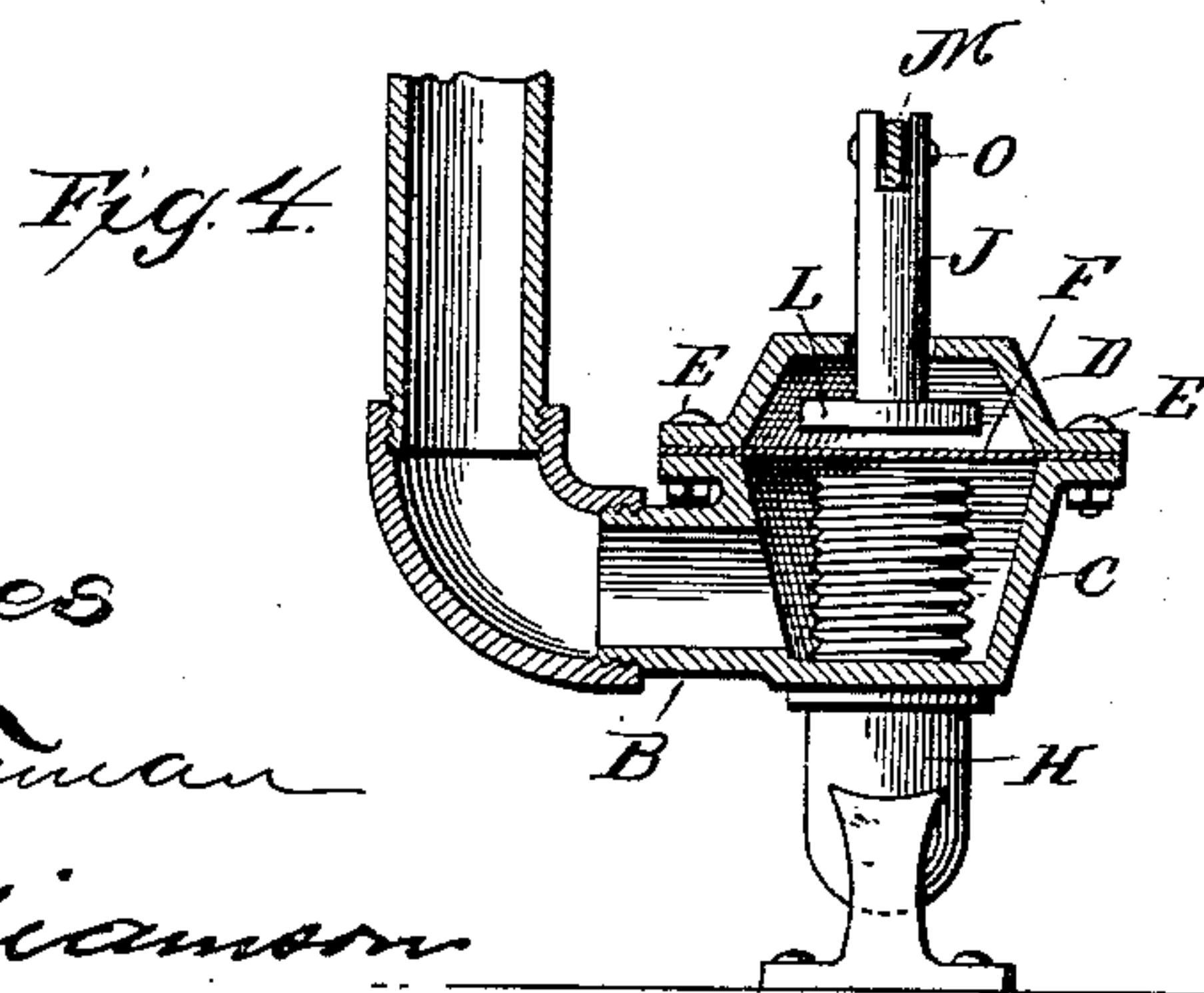
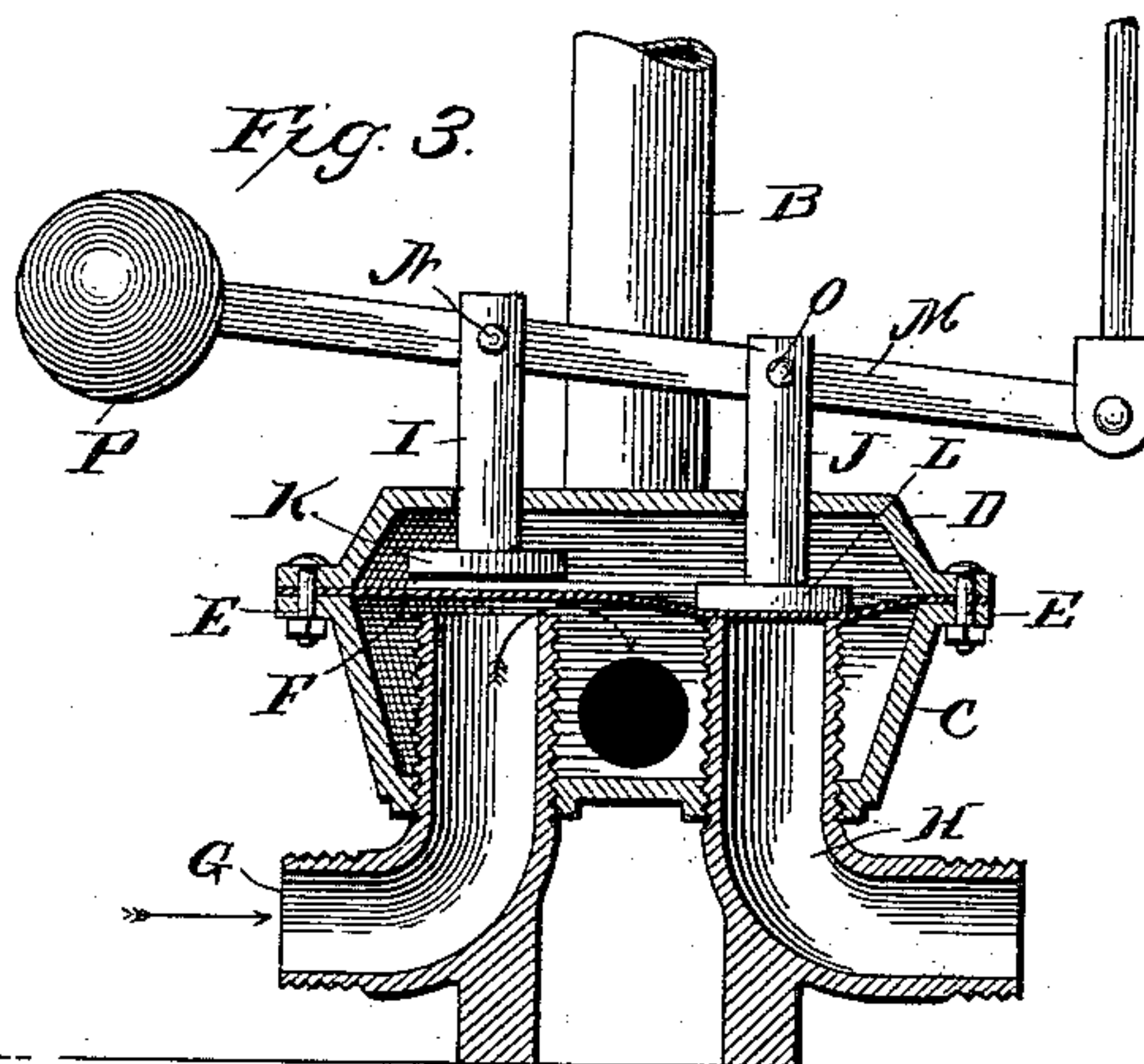
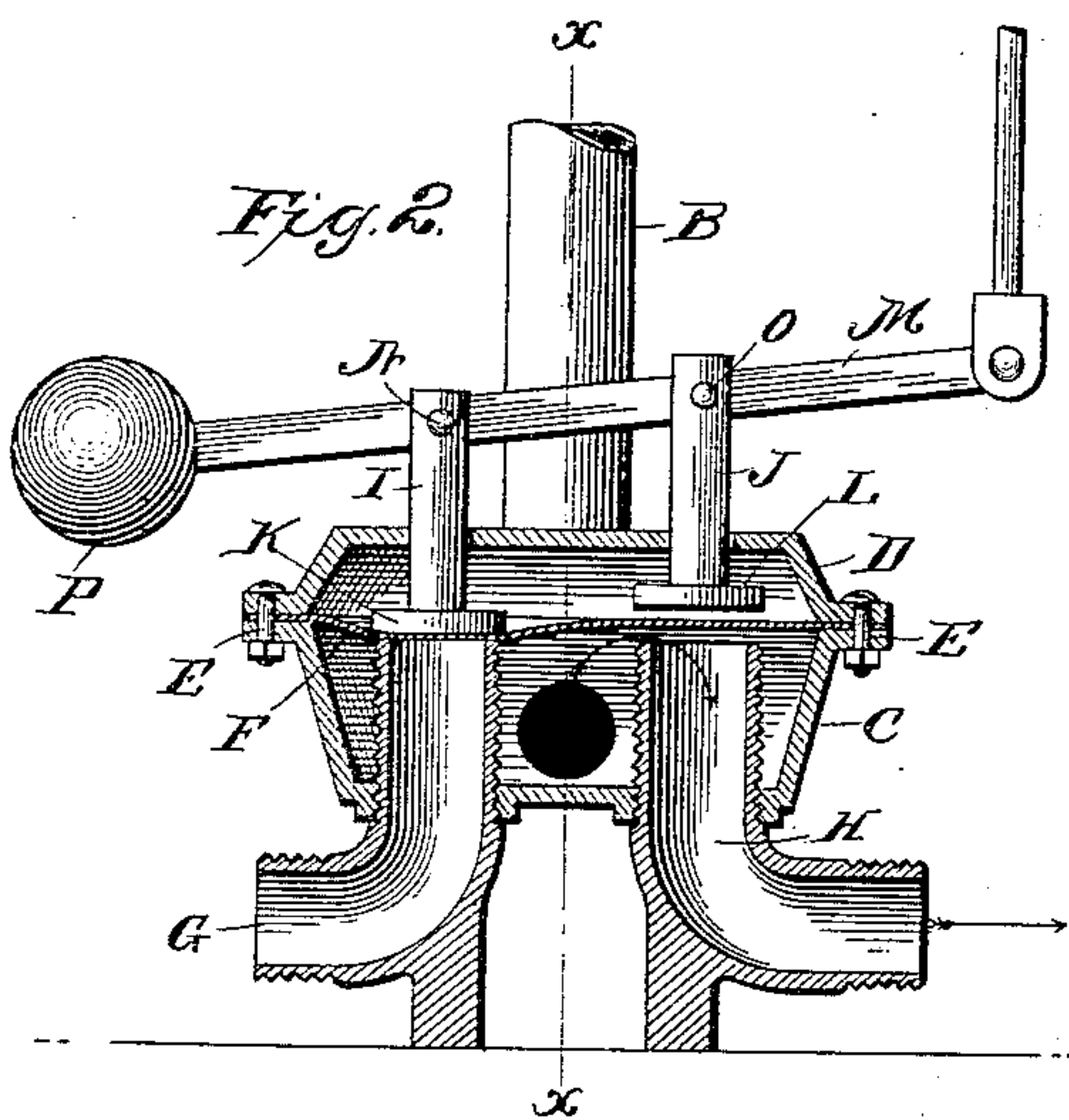
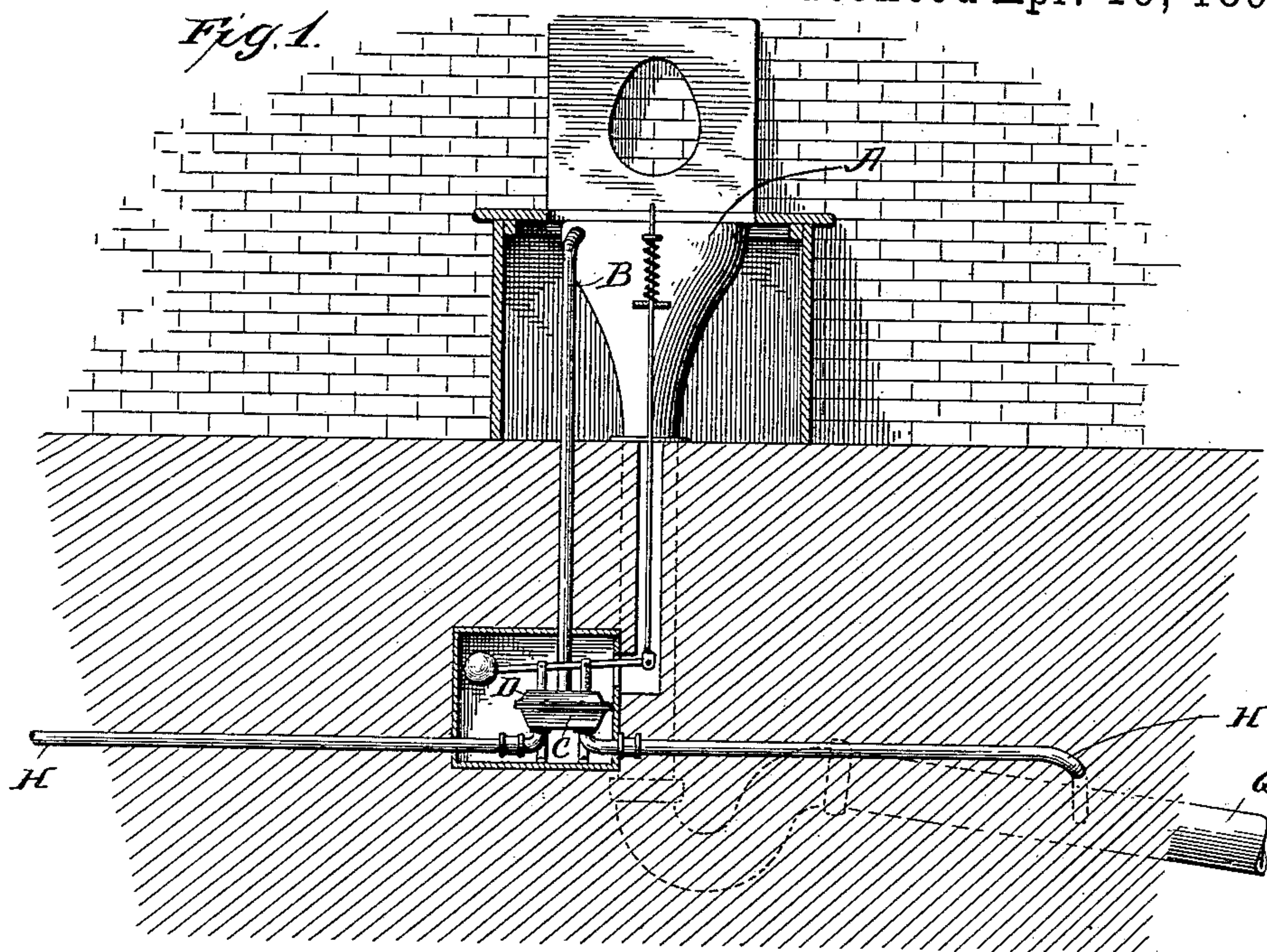


(No Model.)

M. FARRELL.
ANTIFREEZING VALVE.

No. 602,737.

Patented Apr. 19, 1898.



Witnesses
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UNITED STATES PATENT OFFICE.

MICHAEL FARRELL, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO
J. L. C. CRONYN, OF SAME PLACE.

ANTIFREEZING-VALVE.

SPECIFICATION forming part of Letters Patent No. 602,737, dated April 19, 1898.

Application filed June 18, 1897. Serial No. 641,377. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL FARRELL, a subject of the Queen of Great Britain, residing at Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Improvement in Antifreezing-Valves, of which the following is a specification.

My invention relates to a new and useful improvement in antifreezing-valves, and has for its object to provide a simple and effective means by which water may be withdrawn from a section of pipe leading from the valve to any suitable location after the supply-pipe has been closed, thereby preventing the freezing of water within this section of the pipe, which has heretofore occasioned so much annoyance and expense; and a further object of my invention is to so construct the valve as to close the waste-pipe when the supply-pipe is open; and still a further object of my invention is to trap the waste-pipe, thus preventing the passage of noxious gases to the outlet-pipe.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claim.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents an application of my improvement to a water-closet; Fig. 2, an enlarged section of the valve, the supply-pipe being closed and the waste-pipe opened; Fig. 3, a view similar to Fig. 2, showing the reversed position of the valve, whereby the waste-pipe is closed while the supply-pipe is open, thus permitting the free passage of water from the supply-pipe to the desired point through the outlet-pipe; and Fig. 4, a section at the line $x x$ of Fig. 2.

In carrying out my invention as here embodied, A represents the closet, and B the outlet-pipe leading thereto, and this pipe extends downward and enters the casing C of the valve at one side thereof, as clearly indicated in Figs. 2 and 4. The casing C is of

suitable size and shape to accommodate the several parts of the valve, and is preferably made in two sections, the upper section D being secured to the lower section by means of the bolts E, whereby access may be had to the interior of the casing when occasion requires, and by this arrangement the diaphragm F, which is secured between the two sections of the casing, extends over the upper open ends of the supply and waste pipe, but at a slight distance therefrom.

Valve-stems I and J pass downward through the upper section of the casing and carry upon their lower ends the plungers K and L, respectively, and these plungers are of somewhat larger diameter than the upper ends of the supply and waste pipes and are arranged thereover, so that in being forced downward they will carry the diaphragm into contact with the upper ends of these pipes, which will close the same and prevent the passage of water therethrough, as will be readily understood.

A valve-lever M is pivoted at N and O, respectively, to the valve-stems I and J and has a weight P upon its outer end, so that when no pressure is applied to its inner end this weight, utilizing the point N as a fulcrum, will elevate the valve-stem J, and consequently the plunger L, which will permit the diaphragm to resume its normal position at this point, thus opening the waste-pipe, as clearly shown in Figs. 2 and 4, and the opening of this pipe will permit the outward flow of water from the outlet-pipe B to a suitable drain-pipe Q, said drain-pipe usually being the connection between the closet and the sewer; but when pressure is exerted upon the inner end of the lever M to force the latter downward against the action of the weight P the plunger L will be carried downward, thereby causing the diaphragm to close the upper end of the waste-pipe H, and when this has been accomplished a further downward movement of the lever will utilize the point O as a fulcrum and elevate the outer end of the lever, thereby elevating the plunger K and permitting that portion of the diaphragm to resume its normal position, thus opening the end of the supply-pipe, which will permit the inward flowing of water through said

pipe, as indicated by the arrows in Fig. 3, and this water flowing through the casing will pass upward through the outlet-pipe B to the desired point.

5 From this description it will be seen that when the supply-pipe is closed the waste-pipe is open, and therefore no water can stand in the outlet-pipe B above the level of the valve, and as this valve is to be placed below the
10 frost-line it is obvious that no freezing can take place in the outlet-pipe. It is also to be noted that when the valve is operated to open the supply-pipe the waste-pipe is closed, thus preventing any loss of water through this
15 point; and it is still further to be noted that when the valve is in its normal position—that is, when the supply-pipe is closed and the waste-pipe open—a certain amount of water will remain in the casing below the dia-
20 phragm, the level of which will be above the lower end of the outlet-pipe, thereby completely sealing said outlet-pipe after the manner of a U-trap, and this will prevent the access of noxious gases to the outlet-pipe from
25 the waste-pipe.

One of the principal advantages of my improvement is its exceeding simplicity and small cost of manufacture and the fact that it can be quickly repaired by the removal of
30 the upper section of the casing and the replacing of a diaphragm should the old diaphragm become worn, and a further fact that when in use the valve can in no wise leak, since the diaphragm is preferably made of
35 rubber and forms a perfect joint between the

plunger and the ends of the pipes projecting within the casing, and should any leakage take place in the valve this leakage will be conveyed to the sewer through the waste-pipe.

Having thus fully described my invention, 40 what I claim as new and useful is—

In combination, a casing, made in an upper and lower section secured together by bolts passing through flanges surrounding the edges of the sections, a diaphragm secured 45 between the flanges, plungers above the diaphragm having stems projecting through the top of the upper section, right-angled pipe-couplings of less diameter than the plungers threaded through the bottom of the lower section and projecting upward directly beneath 50 the plungers, a supply-pipe connected to one of said couplings and a waste-pipe to the other, a valve-lever pivoted to the stems of the plungers above the casing, a weight secured on one end of the lever and a rod secured to the other end of the lever whereby one plunger will be depressed against the top of its coupling, the pivoting-point of the stem acting as a fulcrum for the valve-lever to ele- 60 vate the other plunger from off of its coupling, as and for the purpose described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

MICHAEL FARRELL.

Witnesses:

S. S. WILLIAMSON,

R. M. PIERCE.