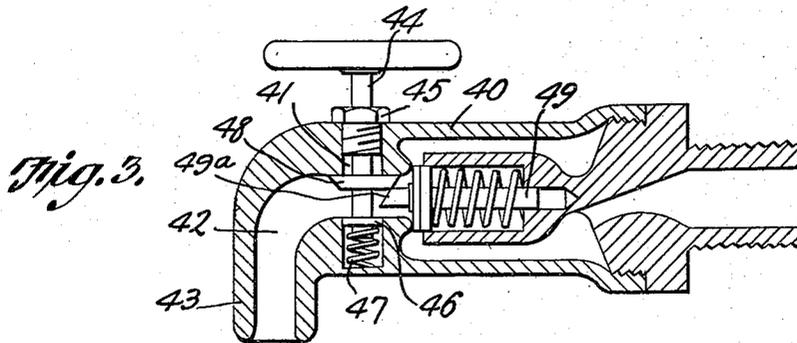
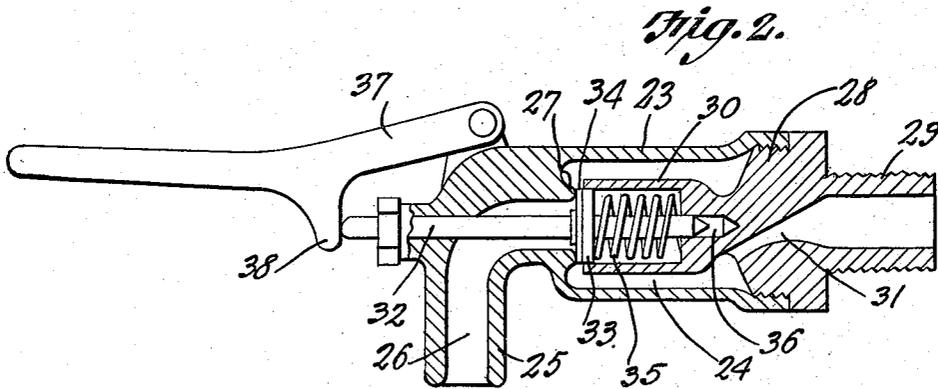
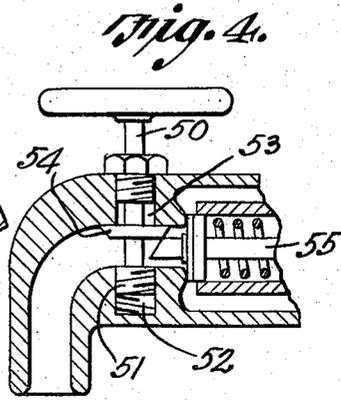
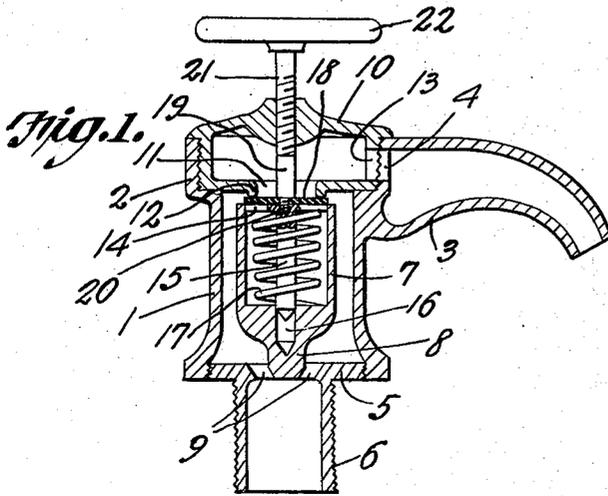


W. G. ESTEP.  
 VALVE.  
 APPLICATION FILED MAR. 24, 1915.

1,166,584.

Patented Jan. 4, 1916.



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM G. ESTEP, OF DUQUESNE, PENNSYLVANIA.

## VALVE.

1,166,584.

Specification of Letters Patent.

Patented Jan. 4, 1916.

Application filed March 24, 1915. Serial No. 16,649.

*To all whom it may concern:*

Be it known that I, WILLIAM G. ESTEP, a citizen of the United States, residing at Duquesne, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Valve, of which the following is a specification.

The present invention appertains to valves, and aims to provide a novel and improved valve structure having unique means for controlling the passage of water there-through and whereby the valve will operate in a thoroughly efficient, practical and desirable manner.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein—

Figure 1 is a sectional view of one form of the invention. Fig. 2 is a sectional view of a modified form of valve. Fig. 3 is a sectional view of another variation. Fig. 4 is a sectional view of still another form of the invention.

In carrying out the invention, reference being had to Fig. 1, the valve structure comprises a cylindrical open ended casing 1, which has one end portion enlarged or counter bored, as at 2, and the said end portion of the casing 1 is provided at one side with a laterally projecting outlet spout or nozzle 3 and with a lateral opening 4 establishing communication between the nozzle 3 and space within the end portion 2 of the casing.

A plug or plate 5 is threaded or otherwise engaged within the other end of the casing 1, the casing 1 being preferably disposed upright, and the portion 2 being disposed at the upper end of the casing, while the plug 5 is arranged at the lower end thereof. The plug 5 is provided with a depending or outstanding nipple 6 for the attachment of the valve to the water or other fluid pipe, and the plug 5 carries a cup 7 within the casing 1, the bottom of the cup 7 having a shank 8 which is integral with the central portion of the plug 5. The mouth of the cup 7 is

arranged adjacent the enlarged end portion 2 of the casing, and the cup 7 is disposed concentrically within the casing. The plug 5 is provided with apertures 9 establishing communication between the nipple 6 and interior of the casing, and the apertures 9 are located around the shank 8 in order that the water or other fluid may flow readily from the nipple 6 into the casing 1 around the cup 7.

A chambered or hollow cap member 10 is threaded or otherwise engaged within the enlarged portion 2 of the casing and seats against the ledge or shoulder formed by the said enlarged portion 2, and the inner or lower wall of the chamber 10, which provides a partition within the casing, is provided with a central opening 11, and with an annular depending rib or lip 12 surrounding the opening 11. One side of the cap member 10 is provided with an opening or aperture 13 registering or coinciding with the opening 4, whereby communication is established between the chamber within the cap member 10 and the nozzle 3.

A valve disk 14 is slidable within the mouth portion of the cup 7 and is provided with an integral depending valve stem 15 which has its lower or free end slidable within the bore or recess 16 provided in the bottom of the cup 7. A coiled wire expansion spring 17 is disposed within the cup 7 between the bottom thereof and the valve disk 14 for yieldably raising the valve disk. A packing disk or gland 18 of rubber, fiber or similar material is secured upon the valve disk 14 and is arranged to contact with the rib or lip 12 for normally closing the opening 11. A member 19 forming an outwardly projecting extension of the valve stem 15, is provided with a reduced end 20 engaged through the gland 18 and threaded into the central portion of the valve disk 14 and the upper end of the valve stem 15, and thereby serves to clamp the packing or gland 18 upon the valve disk 14.

An actuating screw 21 is threaded through the top or outer portion of the cap member 10, and is equipped with a suitable hand wheel or other handle 22, and the lower or inner end of the screw 21 bears against the member or extension 19 whereby when the screw 21 is screwed inwardly, it will force the valve disk or head 14 away from the valve seat provided by the rib or lip 12. Ordinarily, the screw 21 is screwed up-

wardly or outwardly, so that the valve disk or head 14 will be seated under the influence of the spring 17, to close the opening 11 and therefore prevent the flow of water or fluid through the structure. When the screw 21 is threaded downwardly or inwardly, it will unseat the valve disk or head, and this will allow the water to flow from the annular space between the walls of the casing 1 and cup 7 around the edge or rim of the cup, thence through the opening 11 into the chamber of the cap member 10, and thence through the openings 13 and 4 into the nozzle 3 from which the water or fluid is discharged. When the valve is opened, the water or fluid will flow therethrough in a steady and desirable manner, without sputtering or splashing, and the means employed for controlling the passage of water through the valve will render the valve efficient and practical in use.

The cap member 10 may be readily unscrewed and removed for purpose of repairing, replacing, cleaning or inspecting the various parts of the valve.

In the modified form of the invention illustrated in Fig. 2, the valve casing 23 which is disposed horizontally in this instance, is provided with an enlarged chamber 24 therein, and is provided at one end with a depending spout or nozzle 25, the passage or bore 26 of which extends to one end of the chamber 24 and is of smaller diameter than the said chamber. The casing 23 is provided at the adjacent ends of the chamber 24 and passage 26, with an annular rib or lip 27 projecting into the chamber 24 around the passage 26 and forming a valve seat. A plug 28 is threaded into that end of the casing 23 remote from the spout or nozzle 25, and closes the chamber 24, the plug 28 having a nipple 29 upon its exterior, and a cup 30 within the chamber 24 having its mouth or end projecting adjacent the rib or lip 27. The passage or duct of the nipple 28 extends through the plug 28 at one side of the cup 30. The valve stem 32 is slidable through the outer end of the casing 23 and extends through a portion of the passage 26 and the cup 30, and a valve disk or head 33 is carried by the stem 32 within the mouth portion of the cup 30. A packing disk or gland 34 is applied to the face of the disk or head 33 to contact with the rib or lip 27, and a coiled wire expansion spring 35 is disposed within the cup 30 between the bottom thereof and the disk 33 for normally seating the disk or head for closing the valve. The inner or rear end of the valve stem 32 slides within the bore or recess 36 provided in the bottom of the cup 30. An actuating lever 37 is fulcrumed to the top of the casing 23 and is provided with a depending tappet 38 bearing against the outer end of the valve stem 32, whereby

when the lever 37 is swung downwardly, the valve stem 32 will be moved inwardly or rearwardly for opening the valve.

Fig. 3 illustrates a valve resembling in its general construction, the valve illustrated in Fig. 2, but a different device is depicted for opening the valve. Thus, the valve casing 40 is provided with a bore 41 intersecting the passage 42 of the spout or nozzle 43, and extending from the top of the casing to a point short of the bottom thereof. An actuating spindle 44 is slidable through a plug 45 threaded into the upper end or mouth of the bore 41, and the lower end of the spindle 44 carries a collar 46 slidable within the lower end portion of the bore 41, there being a coiled wire expansion spring 47 between the collar 46 and the bottom of the bore 41, for normally raising the spindle 44. The spindle 44 carries a beveled or frusto-conical collar 48 within the passage 42 which cooperates with the outer beveled end 49<sup>a</sup> of the valve stem 49, whereby when the spindle 44 is depressed against the tension of the spring 47, the collar 48 will force the valve stem 49 inwardly to open the valve. When the spindle 44 is released, the same will be returned to normal position by the spring 47.

Fig. 4 illustrates a modification of the actuating means for the valve, the actuating means generally resembling the actuating means disclosed in Fig. 3, with the exception that the lower end of the spindle 50 is provided with a screw threaded portion 51 which is threaded within the lower end portion 52 of the bore 53, whereby the spindle 50 when rotated will be moved upwardly or downwardly for correspondingly moving the frusto-conical collar 54 which actuates the valve stem 55.

It will be observed that the several forms of the invention have common and characteristic features and advantages, due to the generic and specific details of construction.

Having thus described the invention, what is claimed as new is:

1. A valve comprising a casing having a partition therein provided with a central opening and an annular rib surrounding said opening, a plug engaged within the casing and forming an inlet thereto and having a cup whose mouth is arranged adjacent said rib, the bottom of the cup having a bore, a valve disk slidable within the mouth portion of the cup and having an integral stem slidable in said bore, a coiled expansion spring within the cup between the bottom thereof and the valve disk, a packing disk upon the valve disk and seatable against said rib, and a member forming an extension of said stem projecting through said opening and having a reduced end threaded into the valve disk and stem and clamping the packing disk against the valve disk.

2. A valve comprising a casing, a cham-  
bered member engaged within one end of  
the casing, the inner wall of said member  
providing a partition within the casing and  
5 having an opening, said member having an  
opening at one side, and the casing having  
an outlet registering with said second men-  
tioned opening, a plug engaged within the  
other end of the casing and forming an inlet  
10 thereto and having a cup, a valve head slid-  
able within the cup and seatable against

said partition to close the first mentioned  
opening, and a valve unseating member en-  
gaged through the outer portion of said  
member.

In testimony that I claim the foregoing  
as my own, I have hereto affixed my signa-  
15 ture in the presence of two witnesses.

WILLIAM G. ESTEP.

Witnesses:

JOSEPH CONLIN,  
FRED GERDTS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."