F. V. SMITH.

BALL COCK.

APPLICATION FILED MAR. 23, 1917.

1,279,468. **Patented Sept. 17, 1918.**

Fig. 1.

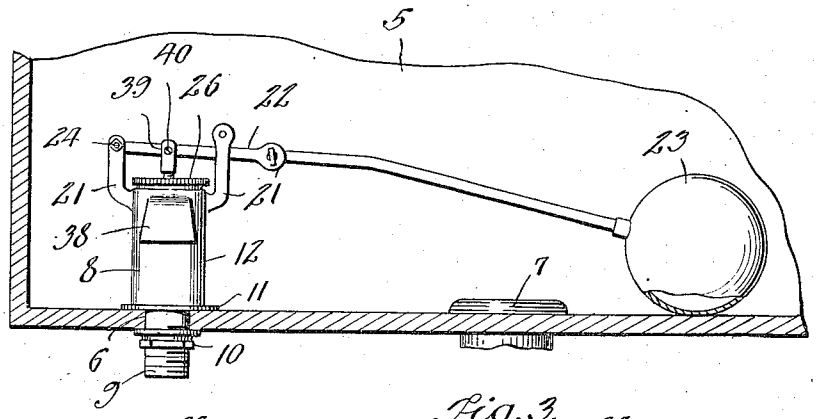


Fig. 2.

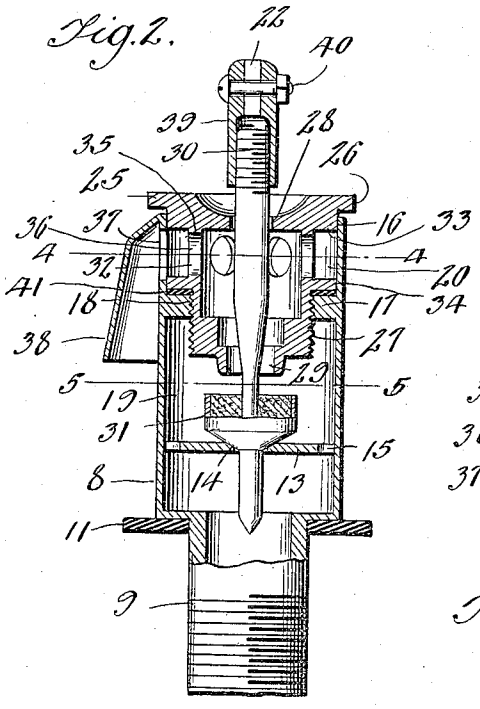


Fig. 3.

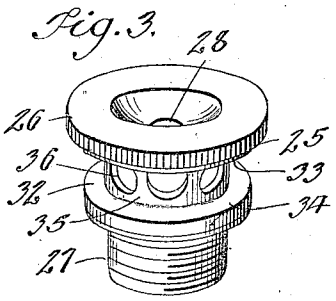


Fig. 4.

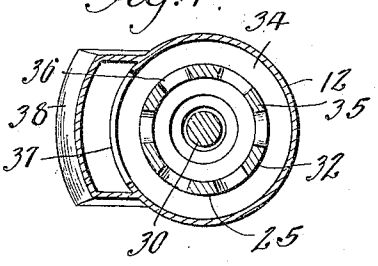
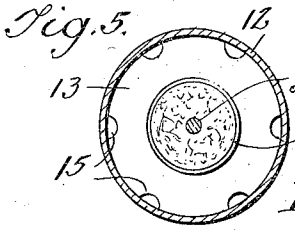


Fig. 5.



WITNESSES

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BALL-COCK.

1,279,468. Specification of Letters Patent. Patented Sept. 17, 1918.

Application filed March 23, 1917. Serial No. 156,900.

To all whom it may concern:

Be it known that I, FOREST V. SMITH, a citizen of the United States, residing at Lewiston, in the county of Androscoggin and State of Maine, have invented new and useful Improvements in Ball-Cocks, of which the following is a specification.

The present invention comprehends improvements in valves and more particularly that type installed in flush tanks and automatically operated by a float.

The primary object of this invention is the provision of a valve wherein the ingress of water into the tank is automatically controlled by a float and so designed as to readily adapt its connection with the flush tank and constructed of separable parts to facilitate the installation or removal of the same from the tank and to minimize the expense involved in repairing the valve, should the same become ineffective.

The chief characteristic of the invention resides in the novel construction of a valve, whereby when installed in the tank for use, the same will decrease the noise due to the inrush of water within the tank to a minimum.

With the above and other objects in view, the invention consists in the novel features, details of construction and combination of parts which will hereinafter be more fully set forth, illustrated in the accompanying drawings and pointed out in the appended claim.

Figure 1 is a view showing the device installed in a flush tank for use, the flush tank being shown in section;

Fig. 2 is a vertical sectional view taken through the casing with the valve installed therein; and

Fig. 3 is a perspective view of the cap.

Fig. 4 is a section on line 4—4 of Fig. 2.

Fig. 5 is a section on line 5—5 of Fig. 2.

Referring more particularly to the accompanying drawing, 5 denotes a flush tank provided at one end of the tank and in the bottom wall thereof with an inlet opening 6 and at its opposite end with the flushing conduit 7.

The attaching member 8 projects through the inlet opening 6 of the tank and has connected to the lower end thereof a pipe 9 leading from a suitable source of water supply for supplying water through the attaching member and into the flush tank 5, as will be obvious. A lock nut 10 serves as a means for establishing a liquid tight connection between the valve and flush tank and tends to hold the gasket 11 tightly against the inner face of the bottom and around the inlet 6 of the tank. Formed integral with the attaching member 8 on the upper end thereof and in communication therewith, is a hollow cylindrical casing formed of metal or the like material and indicated by the reference character 12. The bottom wall 13 of the casing is formed with a valve rest 14 and also a plurality of ducts 15. The ducts or intake ports 15 are disposed in spaced concentric relation with respect to the valve rest 14 and formed in the outer edge of the bottom wall of the casing, for a purpose to be hereinafter more fully set forth. Formed interiorly of the casing 12 at a point in adjacent relation to its upper open end 16 is an annular flange 17 provided with a threaded bore 18, dividing the casing into a lower inlet chamber and an upper outlet chamber designated respectively by the characters 19 and 20. Formed on the upper end of the casing at diametrically opposite points are spaced uprights 21. The arm 22 having the ball float 23 connected to the free end thereof is pivotally connected at one end between one of the spaced uprights 21 at the point indicated by the character 24.

The upper open end of the casing is closed through the employment of a cap 25 of hollow form, provided at its upper end with a notched operating disk 26 and at its lower end with an externally threaded bushing 27, the latter threadedly engaging in the threaded bore 18 of the flange for establishing a detachable and adjustable connection of the cap in the open upper end of the casing. Provided axially of the disk 26 is a bore 28 through which the stem 30 passes, while centrally of the bushing is an opening or intake port 29 the end of which constitutes a seat for the valve. The lower extremity of the valve stem 30 is of conical form to adapt the valve stem to project within the rest 14 of the bottom wall 13, upon the valve assuming the open position. A cup-shaped disk 31 is carried on the lower portion of the valve stem in which frictionally engages a gasket, which, when the tank is filled causes a liquid tight connection between the disk 31 and the wall of the intake opening 29 of the bushing. The character 32 denotes a cup formed at a point between the confronting portions of the notched disk

26 and the bushing 27 and communicates with the intake opening 29 of the bushing. This cup comprises spaced flanges 33 and 34 and the annular wall 35 of the cup is provided with a plurality of spaced apart concentrically arranged discharge ducts 36. The discharge ducts 36 of the cup register with the elongated discharge opening 37 formed in the wall of the upper outlet chamber 20, to permit of the ingress of the water through the conduit 38 and into the tank 5, previous to the floating of the ball.

Threadedly connected with the upper end of the valve stem 30 and for vertical adjustment is a fork shaped coupling 39 having a pivotal connection with the arm 22 through the employment of a bolt and nut connection 40, serving to operatively connect the valve stem with the float 23. In order that a liquid tight connection may be had between the bushing and casing, use is made of a gasket 41, which upon the connection of the cap with the casing reposes upon the flange 17.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of construction and the method of operation will be readily apparent to those skilled in the art to which the invention relates, and while I have described the principles of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as are within the scope of the appended claim.

What is claimed as new, is:—

A device of the class described comprising a casing having a screw threaded extension at one end and its other end open, an annular flange formed on the interior wall of said casing and having its inner periphery screw threaded, a valve rest carried by said casing adjacent its lower end, a screw threaded bushing engaging the screw threads in the flange and having a cap closing the open end of the casing, a valve stem passing through said cap and bushing, and said bushing having a valve seat at its lower end, a valve on said stem adapted to rest on said valve rest when in its open position, a float connected with said stem for raising the valve onto the valve seat, and said casing having an outlet in its upper end in communication with the interior of the bushing.

In testimony whereof I affix my signature.

FOREST V. SMITH.

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