A. N. PASMAN.

BALL COCK.

APPLICATION FILED JAN. 18, 1918.

1,295,789. Patented Feb. 25, 1919.

Fig. 1

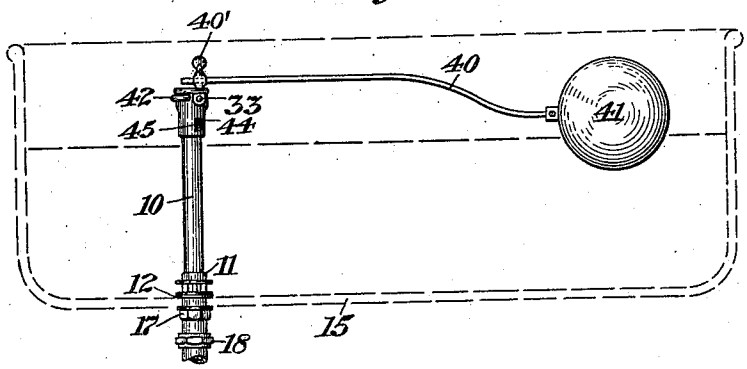


Fig. 2

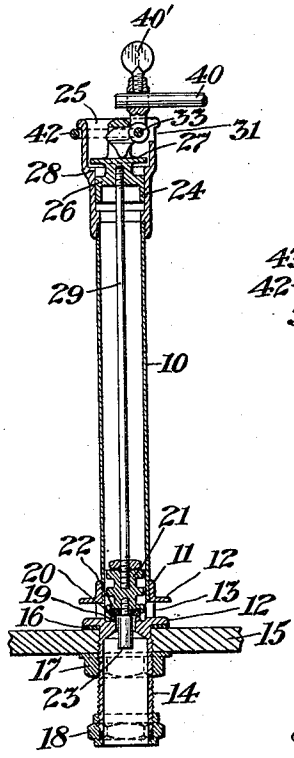


Fig. 3

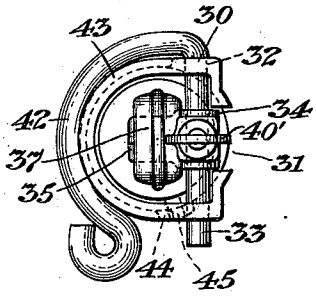
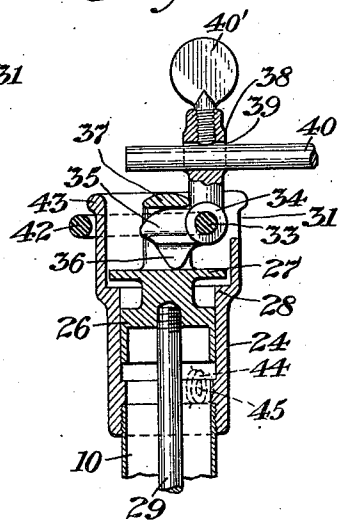


Fig. 4



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BALL-COCK.

1,295,789. Specification of Letters Patent. Patented Feb. 25, 1919.

Application filed January 18, 1918. Serial No. 212,414.

To all whom it may concern:

Be it known that I, ABRAM N. PASMAN, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented an Improvement in Ball-Cocks, of which the following is a specification.

This invention relates to a ball-cock and particularly to that type of such devices as are commonly employed in connection with flush tanks for closets and urinals and other similar places where a predetermined flow of water is required at given intervals, and more especially to that type of ball-cock in which there is employed an inlet or control valve for admitting water to the tank, as well as a piston for preventing the water flowing through the ball-cock apparatus at the extremity thereof.

Heretofore in ball-cocks of the type to which this invention relates, it has been customary to make the piston tight so that the water cannot flow or leak by the same. This of course required the necessary fit between the piston and the parts of the ball-cock associated therewith to accomplish this purpose, and one of the objects of the present invention is to provide a ball-cock in which the piston is not made water-tight but is provided with means whereby while the water may flow past the same, it cannot splash out of the tank, but overflows noiselessly into the tank. Also in the construction of ball-cocks of the type to which this invention relates, the parts have been so constructed and connected that it has been considerable work to disconnect and remove the parts so that the same may be replaced or otherwise repaired, and another object of the present invention is to so construct a ball cock that the parts are readily connected and disconnected, so as to be separated and removed for repairs or other purposes, and when assembled the construction is such that the parts are automatically locked together.

The ball-cock made in accordance with this invention is hereinafter more particularly described in conjunction with the accompanying drawings, in which:

Figure 1 is an elevation of my improved ball-cock showing the same associated with the flush tank, which latter is illustrated in dotted lines.

Fig. 2 is an enlarged central longitudinal cross section of the ball-cock.

Fig. 3 is a still further enlarged plan of the head member of the ball-cock, and

Fig. 4 is an enlarged central longitudinal cross section of the head member of the ball-cock, the piston located therein, and the other parts associated therewith.

Referring to the drawing, in constructing the ball-cock made in accordance with this invention, I employ a tubular body member 10. At one end of this tubular body member 10 is fitted a base 11 having spaced flanges 12 between which in the body of the base there are spaced inlet openings or ports 13. The base 11 is also provided with a screw threaded extension 14 adapted to pass through the bottom or other portion of a flush tank 15, so that the lower flange 12 with a gasket 16 intervening, rests upon the inner surface of the bottom of the tank and the ball-cock may be secured in position therein by means of the nut 17 being turned down on the screw threaded portion 14, against the outer surface of the bottom of the tank or otherwise. It will be understood that the extremity of the screw threaded extension 14 may be connected by the union 18 or otherwise to an inlet pipe by which water is supplied to the tank through the ball-cock.

The base 11 is provided with an internal flange 19 preferably extending toward the tubular body member 10 and terminating in a valve seat 20 which surrounds the central opening or port in the internal flange 19. Also in the base 11, I employ a piston 21. At the inner end of the piston 21 there is a valve 22 preferably secured thereto by a bolt 23, the reduced screw threaded portion of which passes through the valve and is turned down in a tapped opening provided therefor in the inner end of the piston, so as to secure the valve in position therein. The bolt 23 is preferably of slightly smaller diameter than the port in the internal flange and extends through the same as indicated in Fig. 2 of the drawing, so as to retard the flow of the water through this port and into the tank by way of the ports 13.

At the other or outer end of the tubular body member 10, the same is fitted with a head 24. This head 24 is connected at one end to the tubular body member by being turned down thereon or otherwise, and at its opposite end is provided with a cup or well 25 which is open at the top. Within the head 24 I employ an auxiliary piston 26;

this is fitted to move in the cylindrical portion of the head 24 and is provided with a flange 27 of slightly greater diameter than that of the auxiliary piston 26, but the diameter of this flange 27 is appreciably less than the diameter of the well or cup 25, and when the parts are in their normal inoperative positions as shown in Fig. 2, this flange 27 is spaced an appreciable distance from the shoulder 28 formed between the cylindrical portion of the head and the well or cup portion thereof. The piston 21 and the auxiliary piston 26 are connected by a rod 29 which extends through the tubular body member 10, as clearly indicated in the drawing.

Adjacent the outer portion of the head member 24 the same is fitted with oppositely disposed angular lugs indicated at 30, between which there is a cutaway or recessed portion in the wall of the head, as indicated at 31. In the lugs 30 there are bearings 32 for a pin 33 which passes through and is journaled in these bearings and extends between the lugs 30. On this pin there is mounted a lever 34. The short arm 35 of the lever is adapted to engage the inner surface of a yoke 37 extending upward from the flanged portion of the auxiliary piston, so that when the lever is turned in one direction, this short arm of the lever will raise the auxiliary piston and through the rod 29 correspondingly move the main piston. The short arm 35 of the lever is also provided with a lug 36 adapted to engage the surface of the flanged portion of the auxiliary piston so that when the lever is moved in the opposite direction, it will return the auxiliary piston to its normal position, and through the rod 29, also move the main piston to its initial position in which the valve is seated. The long arm 38 of this lever 34 is provided with a bore 39 to receive a stem 40 to which at the outer end there is secured a float 41. The stem 40 may be secured in position in the long arm of the lever by a set screw 40′ or otherwise.

The pin 33 is provided with an extension 42 which is so curved as to conform to the outer surface of the head member 24 with the radius of the curved portion being slightly less than that of the rounded periphery or rim 43 at the top of the well in the head member, so that after the pin 33 has been passed through the bearings in the lugs 30 and also through the bearing provided therefor in the lever 34, the curved portion of the pin may be snapped over the rim 43 of the well of the head member to secure the parts in position.

Although forming no part of the present invention, the head member 24 in a suitable position may be provided with a boss 44, in which there is a tapped opening 45 for connection with a suitable pipe leading to the bowl of a closet or other place so as to provide for a sufficient quantity of water for an afterflow to refill the bowl.

In the use of the ball-cock hereinbefore described, it will be apparent that the water passing the auxiliary piston may strike against the inner side of the flange 27 and will be thereby prevented from splashing out of the tank, and will be caused to flow into the well or cup member 25 from which it may quietly overflow through the opening 31 therein so as to trickle down the outer side of the ball-cock apparatus into the water in the tank. It will furthermore be apparent that the parts may be readily assembled for use or taken apart for repairs or other purposes by placing the pin in its proper position or removing the same, and when removed, the lever is free and the auxiliary piston and main piston are entirely removable from the body of the ball-cock. Also that when the parts are assembled and the curved portion of the pin snapped over the rim of the head member, the parts are automatically locked in position for all intents and purposes in the use of the apparatus.

I claim as my invention:

1. A ball cock comprising a valve, a piston connected thereo, a member in which the piston operates the said member terminating in an open well at the head of the piston, and a device carried by the piston and movable within and coöperating with the walls forming said well for preventing the splashing of water that passes by the piston.

2. A ball cock comprising a body member, a valve operative at one end thereof, a piston operative at the other end thereof, a head member in which the said piston moves and which head member terminates in an open well at the head of the piston, and a flange connected to the said piston movable within the said well and coacting with the walls thereof to prevent the splashing of water that passes by the piston.

3. A ball-cock comprising a body member, a base secured at one end thereof, a valve within said base, a head member secured to the other end of the body member and having an open-ended well therein, a piston within the head member, a rod connecting the valve and piston, a flange associated with the piston and lying within the well in the head member, the said flange being of greater diameter than the piston but of less diameter than the well in the head member, and means for simultaneously operating the said piston and valve.

4. A ball-cock comprising a body member, a base secured at one end thereof, a valve within said base, a head member secured to the other end of the body member and having an open-ended well therein, a piston within the head member, a rod connecting

the valve and piston, a flange associated with the piston and lying within the well in the head member, the said flange being of greater diameter than the piston but of less diameter than the well in the head member, a yoke connected to the piston, a lever connected to the said yoke for operating the piston and valve, and means for securing the lever in position and maintaining the piston and parts associated therewith in their operative positions in the ball-cock.

5. A ball-cock comprising a body member, a base secured at one end thereof, a valve within said base, a head member secured to the other end of the body member and having an open-ended well therein, a piston within the head member, a rod connecting the valve and piston, a flange associated with the piston and lying within the well in the said member, the flange being of greater diameter than the piston but of less diameter than the well in the head member, a yoke connected to the piston, a lever connected to said yoke for operating the piston and valve, and a pin passing through bearings provided therefor in the wall of the head member and through a bearing provided therefor in said lever, the said pin being provided with an extension adapted to snap over the rim of the head member to secure the lever and through the same the piston and parts associated therewith in their proper relationships within the body of the ball-cock.

Signed by me this 19th day of December, 1917.

ABRAM N. PASMAN.

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