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W. H. OSBORN

CLOSET VALVE

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Fig. 1.

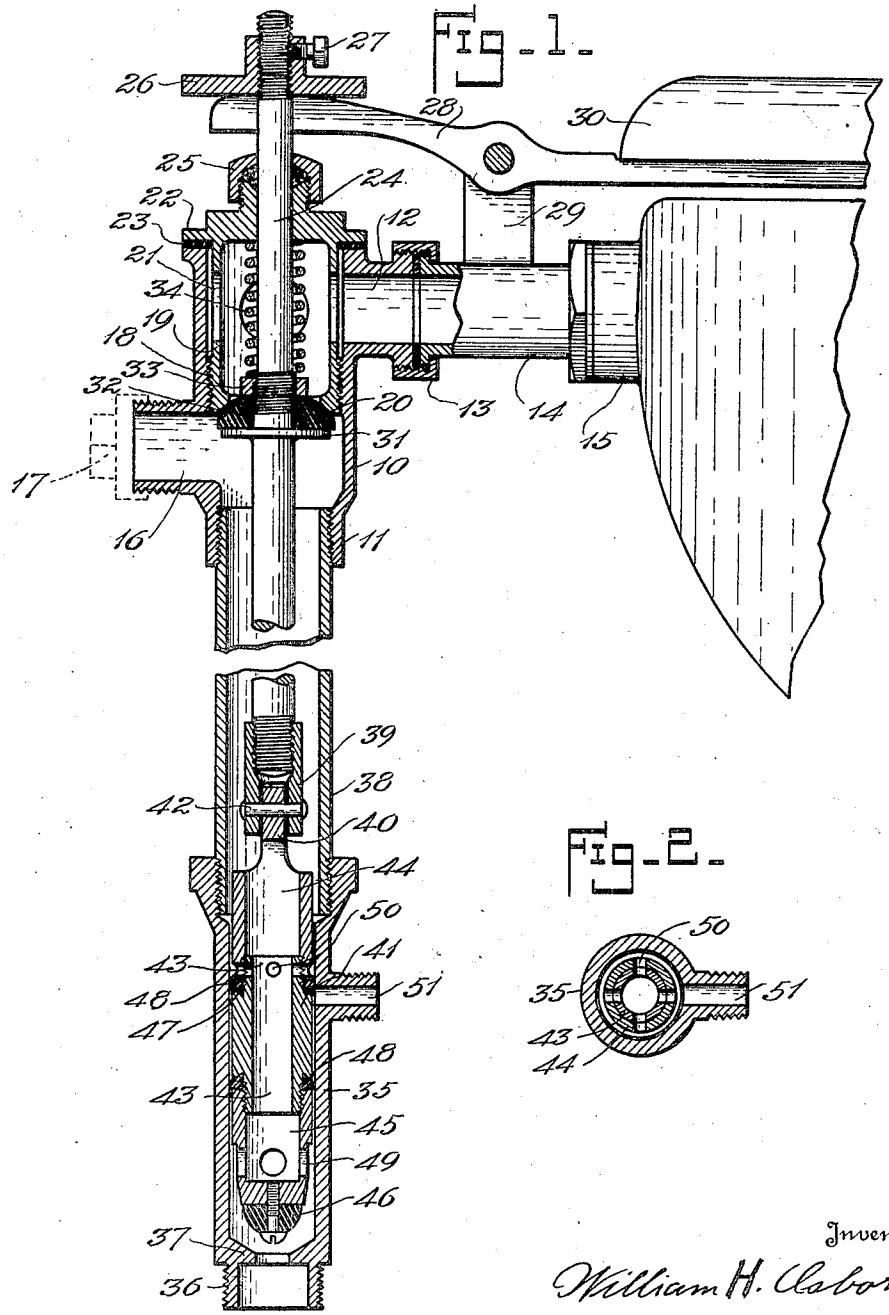


Fig. 2.

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CLOSET VALVE.

Application filed February 27, 1923. Serial No. 621,599.

To all whom it may concern:

Be it known that WILLIAM H. OSBORN, citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, has invented certain new and useful Improvements in Closet Valves, of which the following is a specification.

This invention relates to plumbing apparatus, and has special reference to a valve for out-door closets.

In devices of this character, it is common to place a lower valve beneath the frost line in the earth, and an upper valve about on the level with the closet. The consequence of this arrangement is that the lower valve is inaccessible without great labor in taking up the ground. Because of this any wear in the packing of the valve is difficult to correct and results in leaks and loss of water.

One important object of the invention is to provide an improved general construction of valve of this character wherein the valve packing will be of such nature as to be readily removed and replaced when desired but in which this valve packing will not be subject to as great wear as is ordinarily the case with cup packings and the like.

A second important object of the invention is to provide an improved construction of valve of this type so arranged that any misalinement of the upper part of the device will not affect the correct seating of the lower valve.

With the above and other objects in view as will be hereinafter apparent, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings and specifically claimed.

In the accompanying drawings like characters of reference indicate like parts in the several views, and:

Fig. 1 is a vertical section through a valve of the character described, the central parts being broken away, and the valve being shown as attached directly to a closet.

Fig. 2 is a transverse section through the bleeder and bleeder ports of the valve.

In the embodiment of the invention herein illustrated, it will be seen that there is provided an upper valve casing 10 having a lower inlet end 11, and an upper outlet 12, which may be connected by means of a union 13 to a nipple 14 leading to the closet connection 15. The casing 10 is also provided with a lower lateral outlet 16 adapted for connection, when desired, to a tank, but which may be closed, when a tank is not used, by a cap 17. The interior of the casing 10 between the outlets 12 and 16 is threaded as at 18, and extending downward through the open top of the casing 10 is a valve seat casing or bonnet 19 having a valve seat 20 at its lower end and provided with lateral ports 21. The upper end of this valve seat casing or bonnet is provided with a flange 22 between which and the upper end of the casing 10 is located a packing washer 23. Through the bonnet 19 extends a valve stem 24, the opening through which it passes being protected from leakage by the usual gland 25. On the upper end of this stem 24 is screwed a collar 26, which is prevented from accidental rotation by means of a set screw 27. Beneath this collar rests the rear end of the operating lever 28 which is pivoted to a bracket 29 carried by the nipple 14, the forward end of the lever 28 being connected to the seat or cover 30. Below the bonnet 19 the stem 24 is provided with a collar 31 which supports a valve 32 cooperating with the seat 20, and held in position by means of a nut 33 screwed on the stem 24. Between this nut 33 and the top of the bonnet 19 is a coil spring 34 which surrounds the valve stem 24 and urges the valve to open position.

The lower valve is provided with a valve casing 35 having a threaded lower end 36 for connection to the water supply, and immediately above this threaded lower end the lower casing is provided with a valve seat 37. The upper end of the lower casing and the lower end of the upper casing are connected by a pipe 38 down which the valve stem 24 passes, this stem being provided with a threaded lower end on which is screwed a fork member 39 between the arms of which extends a lug 40 formed on the upper end of the lower valve 41. A pivot pin 42 connects this lug and the yoke 39. By this means the valve 41 has free flexible movement relative to the stem 24 so that any misalinement of said stem will not cause cocking of the lower valve. This lower valve is formed in three parts, the main part or body 41 being provided with reduced ends 43 to the upper end of which is screwed a tubular member 44 carrying the lug 40. To

the lower extremity of this reduced end 43 is screwed a lower valve member 45 carrying at its lower end a removable and renewable valve proper 46 which, when the valve is closed, rests on the seat 37. These three members forming the lower valve have alined openings extending longitudinally therein, the openings of the upper two members extending entirely through said members, while the opening in the lower member is closed at its bottom as clearly shown. Between the reduced ends 43 and the body of the central member, shoulders are formed which are undercut, as clearly shown at 47, so that packing rings 48 of trapezoidal cross section may rest therein, and be securely held by the end members 44 and 45 respectively. In the lower member 45 are formed inlet ports 49, while smaller outlet ports or bleeder ports 50 are formed in the lower end of the upper end and in alinement therewith in the upper end of the central member. At 51 is a bleeder port extending from the valve casing 35, and this port is so positioned that, when the lower valve is open, it will lie between the two packing rings 48, while upon movement of the lower valve downward, it will be alined with the upper ports 50.

In operation, the lower valve is normally closed and the upper valve opened, these valves being held in this position by the action of the spring 34. However, when the seat 30 is depressed, the upper valve is closed and the lower valve opened. This will now allow water to flow up and pass into the tank through the port 16. Upon the seat 30 being again raised by the action of the spring, the lower valve will close, and the water will flow through the upper valve casing passing out of the port 12 until the level of the water is below the level of this port. There will now be left standing in the pipe 38 a considerable quantity of water which, during cold weather, would be apt to freeze in that pipe except for the provision made for draining, and it will be noted that when the lower valve is closed, the water from the pipe 38 can flow down and pass out through the openings 50 and the bleeder 51. It will also be noted that no water, by reason of the spaced arrangement of the packing rings 48, can flow out through this bleeder until such time as the lower valve is closed.

It will also be observed that the peculiar construction of connection between the lower valve and its stem gives a free flexible connection.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, therefore, desired to confine the invention to the exact form herein shown and described, but it is desired to include all such as properly come within the scope claimed.

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

1. In a device of the kind described, a piston valve having upper and lower piston valve portions and comprising a central body portion having reduced and shouldered ends, an upper portion screwed on the upper end, a lower portion screwed on the lower end, packing rings resting against the shoulders of the reduced end of the central portion and held in position by the upper and lower portion, said shouldered portions being undercut and the packing rings being trapezoidal in cross section, the central and upper portions being provided with centrally disposed openings extending longitudinally therethrough, the lower portion being provided with an opening closed at its bottom and communicating at its top with the opening in the central portion, the lower portion being provided with lateral ports communicating with its opening, the lower end of the upper portion and the upper end of the central portion being provided with alined ports above the upper packing ring.

2. In a device of the kind described, a piston valve comprising a center body portion, upper and lower portions screwed on the respective upper and lower ends of said body portion, packing rings held between said upper and lower portions and the body portion; the center upper portion being provided with centrally disposed openings extending longitudinally therethrough, and constituting a fluid passage opening at the top, the lower portion being provided with a corresponding opening closed at its bottom and communicating at its top with the opening in the center portion and having a reduced end, said lower portion being provided with lateral ports in its reduced portion, a housing surrounding the valve and provided intermediate its ends with a drain opening, the body portions being provided with ports adapted to communicate with said drain opening in one position of the valve.

In testimony whereof I affix my signature.

WILLIAM H. OSBORN.