Nov. 3, 1953 W. H. WALKER 2,657,395

TOILET FLUSH VALVE

Filed Aug. 9, 1951

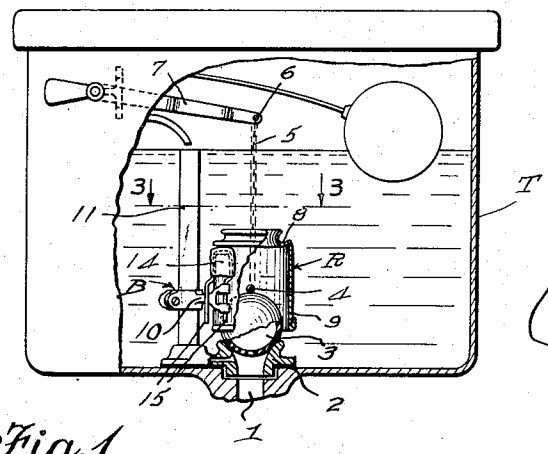


Fig. 1.

Fig. 3.

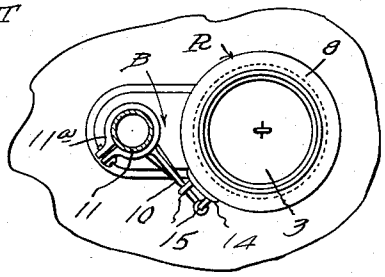


Fig. 2.

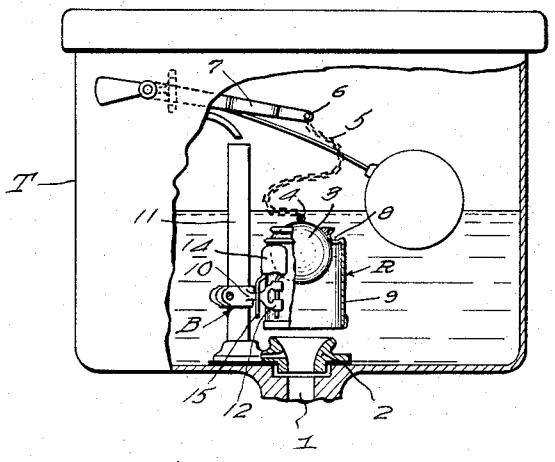
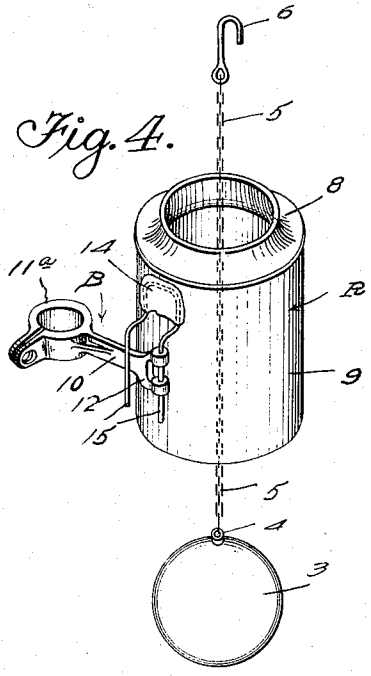


Fig. 4.



INVENTOR.
William H. Walker.
BY
Wilfred L. Lawson
ATTORNEY.

Patented Nov. 3, 1953

2,657,395

UNITED STATES PATENT OFFICE

2,657,395

TOILET FLUSH VALVE

William H. Walker, Hollywood, Calif.

Application August 9, 1951, Serial No. 241,062

1 Claim. (Cl. 4—57)

1

This invention relates to a toilet flush valve and has relation particularly to a valve of this kind of a free ball type and it is primarily an object of the invention to provide a valve of this kind which can be readily applied so that it may be especially used as a replacement for the type of flush valve now generally in use.

It is also an object of the invention to provide a valve of this kind where the ball or float is guided in its movements by a sleeve suitably supported in position above the outlet opening of the tank.

An additional object of the invention is to provide a valve of this kind with means to assure the ball or float dropping directly on the valve seat.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved toilet flush valve whereby certain advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view partly in side elevation and partly in section illustrating a flush valve constructed in accordance with an embodiment of the invention and in applied position with the ball or float in closed position on its seat;

Figure 2 is a view similar to Figure 1, with the ball or float in open or raised position;

Figure 3 is a fragmentary view partly in top plan and partly in section of the valve as illustrated in Figure 1, the line of section being substantially on the line 3—3 of Figure 1; and

Figure 4 is a view in perspective of the valve unapplied.

In the embodiment of the invention illustrated in the accompanying drawings, T denotes a conventional flush tank having a discharge outlet 1 with which is associated an inwardly facing valve seat 2 for the ball valve member 3. Suitably anchored as at 4, to the top portion of the valve member 3 is an extremity of a flexible member 5, the opposite extremity of which being secured, as at 6, to the free end portion of a conventional rocking trip lever 7. The inlet of water to the tank T is more or less conventional and as the same forms no part of the present invention, a detail description thereof is believed unnecessary.

Under normal conditions with the valve member 3 on its seat 2, the flexible member 5 is substantially taut as shown in Figure 1 but when the free extremity of the lever 7 is swung upwardly, the valve member 3 will be raised from its seat 2 to allow the water within the tank T

2

to discharge out through the opening 1 and throughout substantially this period of discharge, the buoyant pressure of the water within the tank will maintain the valve member 3 in its lifted position. It is to be noted that the valve member 3 and the flexible member 5 may be readily substituted for the type of valve member, stem and guide bracket now generally in use.

Associated with the valve member 3 is a receiver element R herein disclosed as a tubular member or sleeve of desired dimensions open at both ends and which serves as a guide for the valve member 3. The top extremity of the receiver R is provided with a flange 8 extending inwardly of the side wall 9 of the receiver R to provide a stop to prevent the valve member 3 when lifted from its seat from passing out through the top of the receiver.

The receiver R is maintained in desired working position by a bracket B comprising an arm 10 provided at one extremity with a split clamping collar 11a to surround the usual overflow pipe 11 and be clamped thereto. The opposite or outer extremity of the arm 10 is forked to provide the fingers 12 spaced apart and aligned in a plane substantially parallel to the axis of the collar 11a.

Soldered, as at 14, or otherwise secured to the outer face of the retainer R, are the adjacent extremities of the arms 15 spaced apart in a general direction circumferentially of the retainer R and having their free extremities disposed toward the end of the receptacle R remote from the flange 8 and which end is to be known as the bottom. The arms 15 are substantially in parallelism and the major portions thereof are outwardly offset with respect to the retainer R so that one of the said arm 15 may be readily inserted through the outer end portions of the fingers 12 of the bracket arm 10. When the arms 15 are applied to the bracket arm 10, the second arm 15 is carried to overlie the face of the bracket arm 10 remote from the receiver R and in contact therewith so that the receiver R is maintained snugly and firmly against such bracket arm.

In practice, in the initial placing of the valve, the collar 11a is loosely engaged with the overflow pipe 11 to allow the arm 10 to be readily swung to bring the receiver R directly over the discharge outlet 1 and also to permit the arm 10 to be adjusted lengthwise of the overflow pipe 11 to bring the bottom of the receiver R in desired proximity to the outlet opening 1.

As is clearly shown in the accompanying drawings, at all times at least a part of the valve member 3 is within the receiver and the internal di-

ameter of the receiver R closely approaches the diameter of the valve 3 with sufficient clearance, however, to allow the valve member 3 to rise or pull freely within the receiver R.

When the lever 7 is tripped to lift the valve member 3, said valve member 3 will rise to the top of the receiver R (Figure 2) and be held there until the water level within the tank T will permit the member 3 to return to its close position with respect to the discharge opening 1.

The receiver R serves to maintain the valve member 3 directly in alignment with its closing position.

From the foregoing description it is thought to be obvious that a toilet flush valve constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

I claim:

The combination with a flush tank having a discharge opening, a trip lever and an overflow pipe; of a flush valve comprising a valve member to close the discharge opening, a flexible member connecting the valve member to the trip lever, a tubular casing to receive said valve member when

it is lifted from the discharge opening by movement of the trip lever, a stop constituted in an inturned edge portion at the top of said casing to retain the valve member within the casing during its lifting movement, a bracket arm, means for mounting said bracket arm on the overflow pipe, spaced, downwardly angled, arms carried by the casing and outwardly offset therefrom, one of said second arms being insertable through an aperture in the outer portion of the bracket arm, and the second or said arms overlying and contacting the face of the bracket arm remote from the receiver to hold the casing firmly against the bracket arm.

WILLIAM H. WALKER.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,949,092	Van Dyke	Feb. 27, 1934
2,130,719	Heath	Sept. 20, 1938
2,135,231	David	Nov. 1, 1938
2,328,701	Woodrum	Sept. 7, 1943
2,572,982	Brown	Oct. 30, 1951