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FLUSH TANK VALVE

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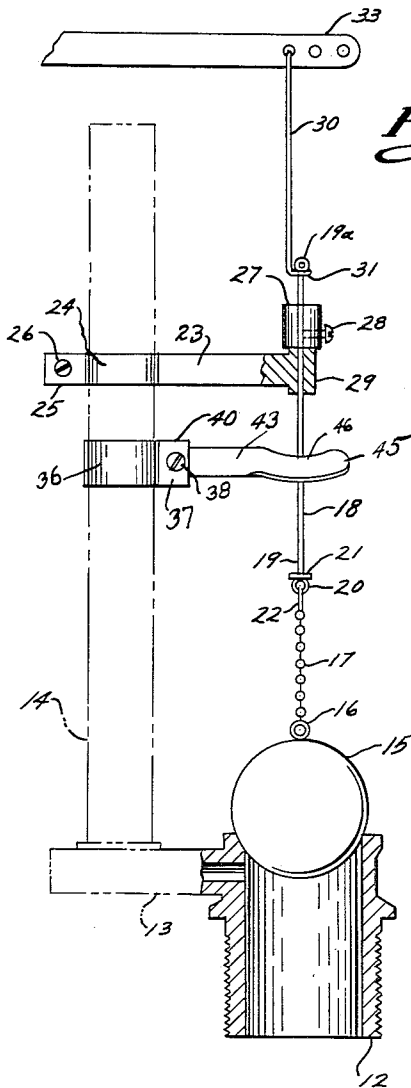


Fig. 1

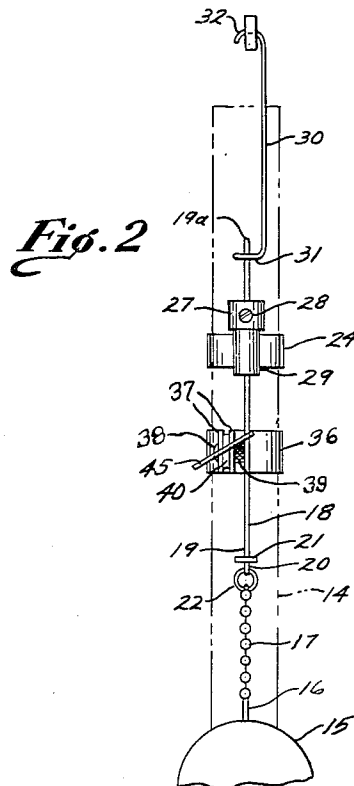


Fig. 2

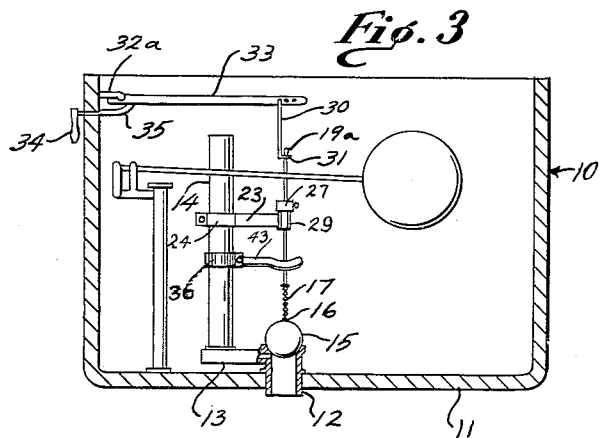


Fig. 3

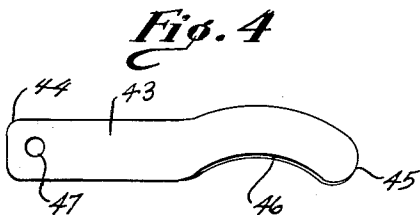


Fig. 4

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FLUSH TANK VALVE

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3 Claims. (Cl. 4—57)

This invention relates to water closets and more particularly to a float-operated flush tank valve which has a universally adjustable deflector plate mounted upon the overflow pipe to prevent the rubber outlet ball valve from wedging between the overflow pipe and the wall of the tank.

A further object of the present invention is to provide a device of the above nature which will be simple in construction, inexpensive to manufacture, easy to install and manipulate, compact, and very efficient and durable in use.

With these and other objects in view, there has been illustrated on the accompanying drawing, one form in which the invention may conveniently be embodied in practice.

In the drawing,

Fig. 1 represents a side view, partly in section, of the overflow pipe, and the ball outlet valve of a water flush tank closet showing the deflector plate and ball rod guide in operating position.

Fig. 2 is an end view of the same.

Fig. 3 is a side view, on a smaller scale, of a flush tank with the flush valve and operating mechanism shown assembled with the deflector plate and outlet ball valve in operating position, said tank being shown in section.

Fig. 4 is a detail view of the deflector plate shown by itself.

Referring now to the drawing in which like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates a rectangular flush tank having a bottom 11 and an outlet valve 12 mounted therein. The outlet valve 12 is provided with a lateral duct 13 connected with an upstanding overflow or stand pipe 14 as is usual in water closet tanks.

Provision is made of an outlet closure ball 15, preferably made of soft rubber, and having an eye 16 connected to a bead chain 17 which in turn is connected to a top eye 20 having a tapped head 21 screwed to the threaded lower end 19 of a vertical guide rod 18. The guide rod 18 has a top eye 19a at its upper end (Fig. 1).

On the upper end of the bead chain 17, provision is made of a short connecting link 22 for flexibly joining the eye 20 with the bead chain 17 so as to prevent it from winding up and becoming tangled.

The rod 18 is adapted to be guided in a vertical direction by means of a rigid cast metal guide arm 23 which is provided at its rear end with a split circular section 24, having a pair of yieldable spaced flat ends 25 which are adapted to be connected by a headed screw 26 for adjustably clamping said circular section 24 upon the overflow pipe 14.

The arm 23 also has an enlarged inner end 29 for supporting a cylindrical collar 27 which is secured to the rod 18 in any desired adjusted position by a set screw 28.

Above the top of the rod 18 provision is made of a wire link 30 having a horizontal bottom eye 31 and an open top hook 32 for engagement with an aperture in an operating lever 33, the rear end of which is pivotally connected to a bracket member 32a, secured to the side

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wall of the tank 10. In order to operate the flush valve, provision is made of a handle 34 located outside of the tank 10 and having an upturned end 35 for engaging the operating lever 33 at a point inside said tank (Fig. 3).

Provision is also made of a sheet metal collar 36 also embracing the overflow pipe 14 and having a pair of spaced resilient flat ends 37 connected together by means of a headed screw 38 and a nut 39 which is knurled for convenience in operation. The flat ends 37 constitute an ear 40 which is connected to a deflector plate 43 having rounded ends 44, 45 the shape of which is best shown in Fig. 4.

On one side of the deflector plate 43, provision is made of a concave recess 46 which is adapted to engage the rod 18 and prevent said rod from becoming dislocated during the operation of the flush tank valve.

The plate 43 is provided at one end with an aperture 47 by means of which it may be connected to the ear 40 by said screw 38.

Operation

In operation, the deflector plate 43 will be adjusted universally by means of the screw 38, permitting said plate 43 to be located at the proper elevation and angular position with respect to the overflow pipe 14. The top eye 19a permits the swivelling of the rod 18 with respect to link 30. Also the collar 27 which rests upon the bracket 23 permits the adjustment of the valve ball 15 to the proper position with respect to the overflow pipe and the outlet valve.

One advantage of the present invention is that the curved ends of the deflector plate will prevent the possibility of scratching the rod 18 and injuring the latter.

While there has been disclosed in the specification one form in which the invention may be embodied, it is to be understood that this form is shown for the purpose of illustration only and that the invention is not to be limited to the specific disclosure but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus described the invention, what is claimed as new, and for which it is desired to secure Letters Patent, is:

1. In a flush tank apparatus having a vertical overflow pipe and a bottom outlet, a ball valve for seating upon said outlet, an upwardly extending guide rod secured to said ball valve, means secured to said overflow pipe for holding said guide rod in vertical position, a separate laterally inclined flat deflector plate located below said guide rod holding means and also secured to said overflow pipe for adjustably engaging one side of said guide rod to prevent said ball from getting out of proper position.

2. The invention as defined in claim 1, in which said flat deflector plate is provided with a concave recess in one edge for engaging said guide rod.

3. The invention as defined in claim 1, in which said deflector plate is clamped at its rear end between a pair of vertical resilient ears on a cylindrical collar adjustably secured to said overflow pipe.

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