Feb. 12, 1952 B. D. STUVEL 2,585,513

FLUSH BALL CONTROL TANK

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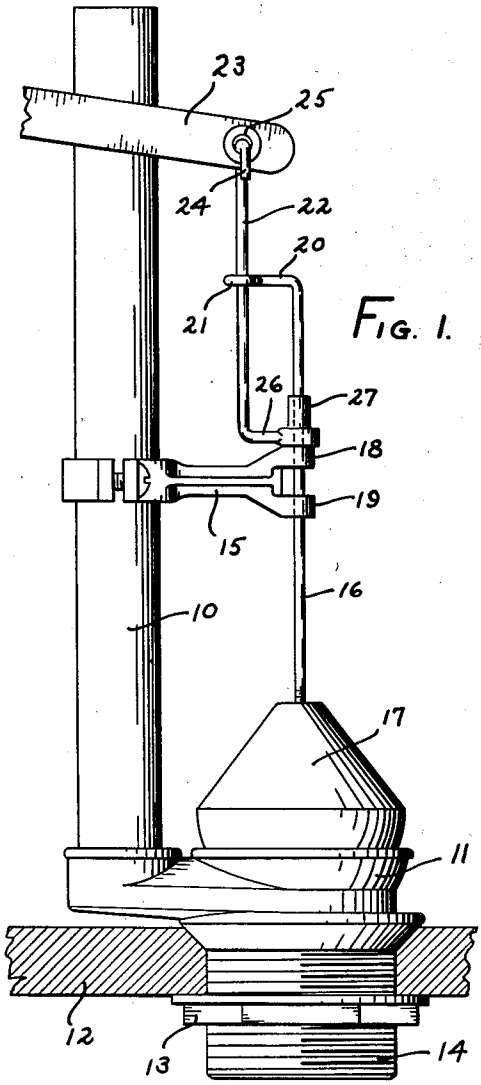


FIG. 1.

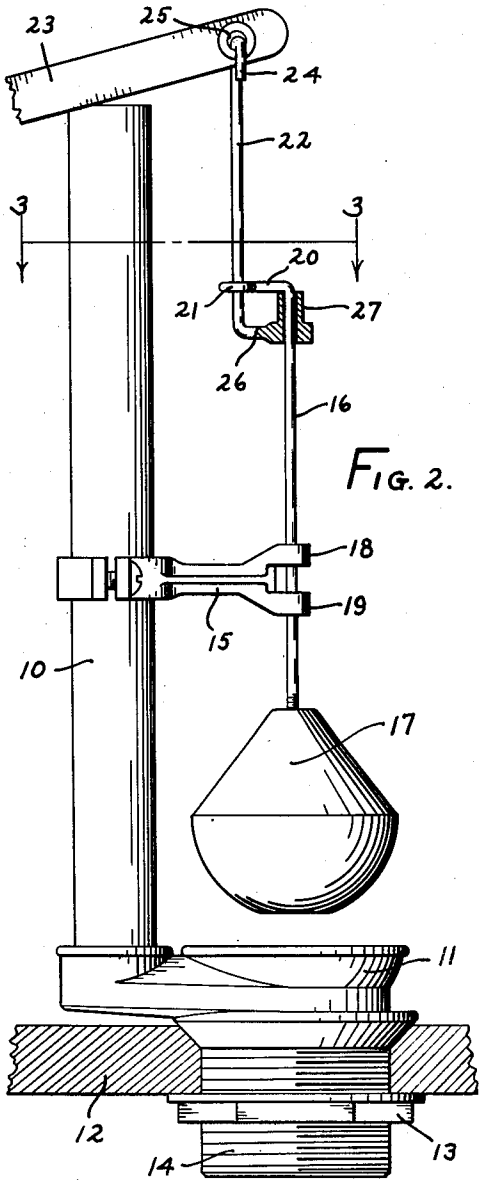


FIG. 2.

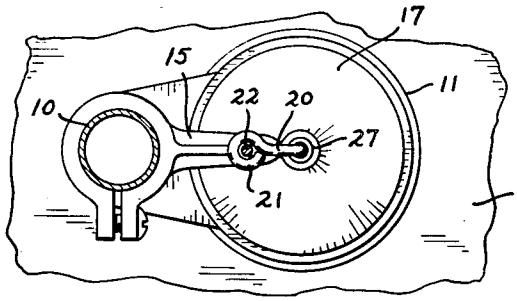


FIG. 3.

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FLUSH BALL CONTROL TANK

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1 Claim. (Cl. 4—57)

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This invention relates to a flush tank ball control, and particularly to means for lifting the ball. In the structures heretofore used, there has been a single fixed guide through which the stem of the ball will travel vertically. As long as that guide remains in its initial rather close fitting condition, no difficulty is encountered. However, when that guide becomes worn to such an extent that the stem of the ball may rock to one side from the vertical, then the difficulty is encountered in that the stem will stick in certain positions and the ball will not drop with the lowering level of the water in the tank.

The particular advantage of the present invention resides in the fact that an additional guide is provided without changing the stem in any particular manner other than bending over the upper end thereof. Therefore an important advantage of the invention resides in the fact that by the addition of the structure constituting the present invention, regardless of how the original guide becomes worn, no difficulty is encountered with the falling of the stem after the ball has been lifted.

An additional advantage of the invention resides in the fact that the standard parts may be employed plus the addition of one single new element all without disturbing the alignment of the stem from its original position.

A still further important advantage of the invention resides in the fact that the cost of manufacturing the structure entering in the invention is exceedingly low and in fact may constitute a replacement element.

These and other important advantages and objects of the invention will become apparent to those versed in the art in the following description of one particular form of the invention as illustrated in the accompanying drawing, in which

Fig. 1 is a view in side elevation of a structure embodying the invention;

Fig. 2 is a similar view in side elevation and partial section of the same structure but with the ball lifted; and

Fig. 3 a view in transverse section on the line 3—3 in Fig. 2.

Referring to the drawing in which like characters of reference indicate like parts throughout the several views, there is shown the standard overflow pipe 10 carried by the valve seat fitting 11 which in turn is anchored in the floor 12 of the tank by means of the nut 13 screw-threadedly engaging the protruding nipple 14. In the usual manner, a guide member 15 is secured to the

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stand pipe 10 to receive therethrough the stem 16 which extends upwardly from the ball 17. The stem 16 is provided in the usual manner with a sliding fit through the two spaced apart arms 18 and 19 of this member 15. Normally the ball 17 is in the lower position as indicated in Fig. 1, and that position is the shut off position. In this position, the stem 16 extends normally a distance above the upper arm 18.

In the present invention, the upper end of this stem 16 is bent substantially at right angles to have a leg 20 carried therefrom and to terminate in an eye 21.

Then a link 22 has its upper end engaged with the standard operating lever 23 by means of an over-turned end 24 passed through an eye 25 in that lever 23. In other words the upper end of the link 22 is formed in the nature of a hook to engage through the eye 25.

This link 22 extends normally vertically downwardly through the eye 21 with a sliding fit and is provided with a lower foot 26 which is turned at right angles to the main portion of the link 22. This foot 26 is provided with a tubular member 27 extending vertically therefrom and bored out to receive the stem 16 slidingly therethrough.

Now in operation, when the lever 23 is rocked to carry the link 22 upwardly as indicated in Fig. 2, the sleeve 27 slides vertically and upwardly along the stem 16 until its upper end strikes the over-turned arm 20 so that the stem 16 is thereby lifted, and consequently the ball 17 is carried upwardly from its seat 11. The sleeve 27 is given sufficient length to prevent any appreciable rocking thereof from the position whereby the axis of the bore through the tube 27 coincides with the axis of the stem 16.

Following the lifting action by the lever 23, that lever will normally be dropped downwardly to permit the link 22 in turn to slide downwardly along the stem 16 to return the sleeve 27 to a lowermost position normally resting in most instances upon the top arm 18. Then as the water level drops within the tank, the ball 17 will travel downwardly therewith until it finally seats on the seat 11. In so travelling, the eye 21 is guided downwardly along the link 22 while the stem 16 slides not only through the sleeve 27 but also through the guiding arms 18 and 19. Thus in this travelling operation, regardless of how the bores through the arms 18 and 19 may have become worn, the stem 16 is still guided through the sleeve 27 and by means of the link 22 extending through the eye 21.

While I have herein shown and described my invention in the one particular form, it is obvious that structural variations may be employed without departing from the spirit of the invention, and I therefore do not desire to be limited to that precise form beyond the limitations which may be imposed by the following claim.

I claim:

In a flush tank having an outlet opening controlled by a ball, a stem rising from the ball; a lift wire engaging the stem in a lost motion manner, and a guide through which the stem is initially slidingly guided in a stem axial direction, said guide being subject to wear by said stem over a period of usage to allow said stem to wobble laterally in travel through the guide, mechanism for overcoming said wobble travel comprising a foot extending laterally from said wire; an elongated sleeve bearing carried by said foot through which said stem may slidably travel and be maintained against relative wobble travel therethrough, the stem being maintained in substantial parallelism with said wire; and a

laterally turned upper end on said stem, said upper end having a passageway therethrough, the axis of which passageway is parallel to the axis of said wire and the axis of said sleeve bearing; said sleeve bearing being located above said guide; whereby upon wear of said guide, direction of axial travel of said stem is maintained by said sleeve bearing and wire through said upper stem end passageway, to be confined approximately to longitudinal movement on the vertical axis of said outlet opening.

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