Jan. 20, 1953 J. HOCHBERGER 2,625,692

FLUSH TANK LEVER ATTACHMENT

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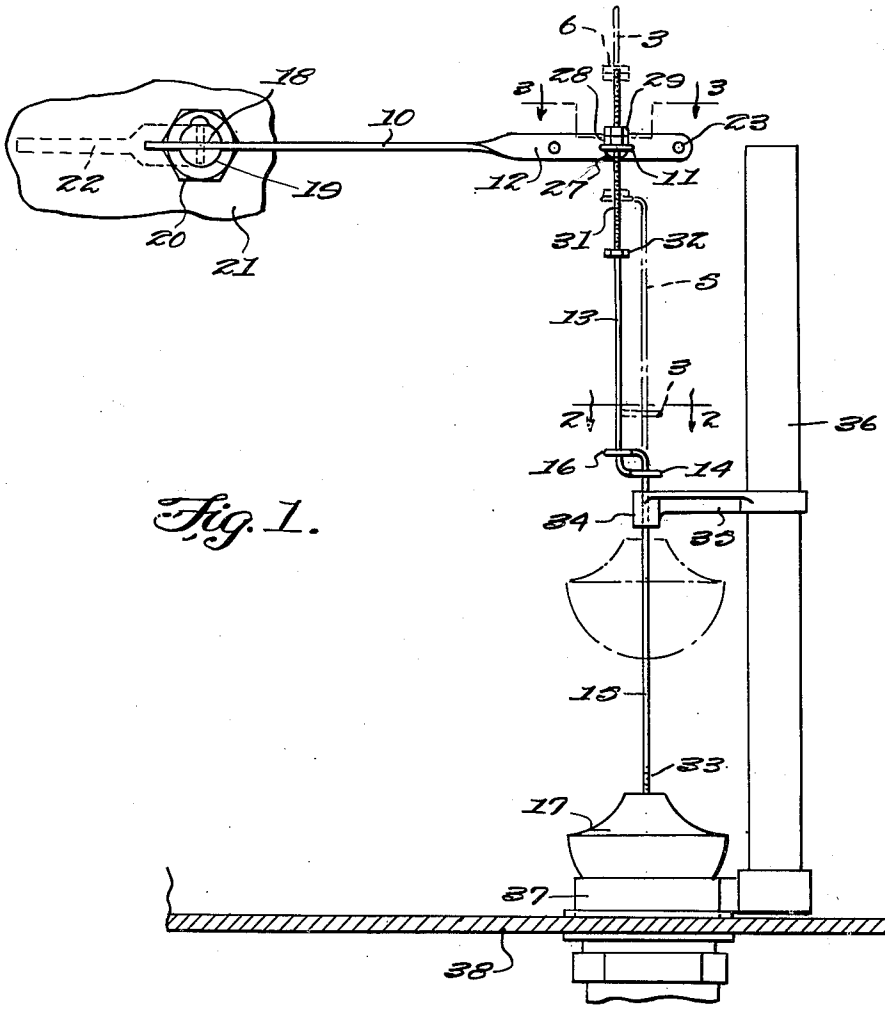


Fig. 1.

Fig. 2.

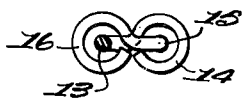
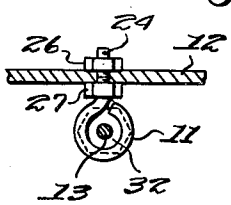


Fig. 3.



INVENTOR.
John Hochberger,
BY Victor J. Evans & Co.
ATTORNEYS

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FLUSH TANK LEVER ATTACHMENT

John Hochberger, Chicago, Ill.

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1 Claim. (Cl. 4—67)

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This invention relates to flush tanks of toilet bowls, and in particular the rubber ball lifting instrumentalities wherein the loop at the upper end of the vertical wire or rod is replaced by a nut threaded on the rod and extended through an opening in an eye positioned on the flushing lever.

The purpose of this invention is to provide an improved connection between the upper end of the ball lifting rod and actuating lever whereby the wires or rods are spaced to prevent engagement of one with the other and wherein means is provided for locking a flushing lever to the shaft of the handle positioned on the outside of the tank.

The connections in the flush tanks of toilet bowls present a troublesome problem that is annoying to all property owners because the loops in the upper ends of the vertically disposed wires that connect the wires to the flushing lever catch in the opening and also permit one wire to rub against another which prevents the ball dropping into the closing position and when the connection of the operating handle works loose it is substantially impossible to readjust the length of the ball carrying rod or wire to compensate therefor. With this thought in mind this invention contemplates a connection between the flushing lever and upper vertical rod or wire that extends from the ball wherein an adjusting nut is provided to take up excess movement when the handle mounting is loose and which also holds the parts separated to prevent frictional contact of one with the other.

The object of this invention, is therefore, to provide an improved connection between the flushing lever of a toilet bowl flush tank and the rod extended from the ball whereby the parts may be adjusted to operate continuously.

Another object of the invention is to provide an improved connection between the vertical rod extended from a ball of a flush tank and the flushing lever that may be installed in tanks now in use.

A further object of the invention is to provide an improved adjustable connection between the flushing lever of a toilet bowl flush tank and the rod on the lower end of which a ball is carried which is of a simple and economical construction.

With these and other objects and advantages in view the invention embodies a bar extended from the shaft of the flushing lever of a flush tank having an eye adjustably mounted on the inner end, a vertically positioned rod having a loop extended at right angles from the lower end

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and having a threaded upper end with an adjusting nut thereon, and a lower rod on the lower end of which the ball for closing the outlet is carried, and said lower rod also having a loop extended at right angles from the upper end.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings wherein:

Figure 1 is an elevational view of the attachment showing the attachment installed in a flush tank with parts of the tank shown in section and with parts broken away.

Figure 2 is a sectional plan on an enlarged scale taken on line 2—2 of Figure 1 illustrating the connection between the upper and lower ball lifting rods.

Figure 3 is a detail showing an eye positioned on the inner end of the bar of the flushing lever.

Referring now to the drawings wherein like reference characters denote corresponding parts the improved flush tank operating instrumentalities of this invention include a flushing lever 10 having an eye 11 adjustably mounted on a flat surface 12 on the inner end, an upper rod 13 having a loop 14 extended at a right angle from the lower end and a lower rod 15 having a loop 16 extended at right angles from the upper end, and on the lower end of which a ball or closure 17 is carried.

The lever 10 is mounted in a slot 18 in the inner end of a shaft 19 having a nut 20 thereon and the shaft extends through a wall 21 of a flush tank. The outer end of the shaft is provided with the usual operating lever 22 as indicated by the dotted lines in Figure 1.

The opposite end of the lever 10 is twisted to provide the flat portion 12 and the flat portion 12 is provided with openings 23 through which the shank 24 of the eye 11 extends, as shown in Figure 3. The eye bolt is secured in position by adjusting nuts 26 and 27; however, it will be understood that the eye may be provided on the end of the lever by any suitable means.

The upper rod 13 extends through the eye 11 and an elastic self-locking stop nut 28 is positioned on the rod 13 with the under surface resting on the eye 11 and the nut is secured in position by a lock nut 29 which is threaded on the upper threaded end 31 of the rod 13. The upper rod 13 is also provided with a stop nut 32 that is positioned above the loop 16 on the upper end of the rod 15. When the bulb 17 is released from the fitting 37 by the flushing lever through rods 13 and 15 whereby the rod 13 is moved upwardly to the position shown in dotted lines 3 in Figure

1 the nuts 28 and 29 are positioned above the eye 11 whereby a free vertical movement is obtained, the rods being aligned with the holding elements.

The eye or loop 14 on the lower end of the rod 13 extends at a right angle and is positioned to receive the rod 15 on the upper end of which the loop or eye 16 is positioned, and the eye 16 is positioned to receive the rod 13, as shown in Figure 1. The lower end of the rod 15 is provided with threads 33 by which the ball 17 is retained thereon.

The rod 15 is slidably mounted in a boss 34 on the outer end of an arm 35 that is mounted on the overflow tube 36.

The lever and rods are positioned whereby the ball 17 drops upon the upper end of the outlet connection 37 that is positioned in the bottom or lower surface 38 of the tank, when the water recedes.

By this means a positive and at the time adjustable connection is provided between the upper end of the upper rod 13 and the lever or bar 18 so that as the bar is actuated by the operating lever 22 the rods 13 and 15 with the ball carried by the lower end of the rod 15 are actuated vertically without one rod or wire contacting the other and without danger of the twisted loop at the upper end of the upper wire catching in an opening in the flushing lever or bar.

Upon operation of the flush tank by pressing downwardly upon the lever 22 the eye 11, moving upwardly raises the upper rod 13 with the eye 14 on the lower end thereof engaging the eye 16 of the lower rod 15. This movement raises the ball 17 above the outlet connection 37 and as soon as the ball is released the buoyancy thereof in the water moves the rod 15 upwardly with the eye 16 on the upper end, which is positioned below the stop nut 32 engaging the stop nut and moving the rod 13 upwardly to the position indicated by the dotted lines 3 at which time the lower rod 15 is in the position indicated by the dotted lines 5. In this position the elastic self locking stop nut 28 threaded on the upper end of the rod 13 is moved upwardly to the position indicated by the dotted line 6. In this movement the ball 17 raises the upper part of the lower rod which comes in contact with the lifting nut 32 and this

lifts the upper rod and stop nut clear of the tank lever so that the parts are free during operation. When the water lowers in the tank the rods 13 and 15 drop freely with the ball 17 dropping over the outlet 37.

It will be understood that modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

In an operating mechanism for a flush tank, a lever provided with a flat surface lying in a vertical plane, a first vertically disposed rod operatively connected to said lever and having a horizontally disposed loop on its lower end arranged at right angles with respect to the major portion of said rod, said rod being provided with a threaded upper portion, a second rod provided with a horizontally disposed loop on its upper end arranged above the loop on said first rod, a closure member mounted on the lower end of said second rod, a manually operable shaft provided with a slot in its inner end for receiving an end of said lever, a stop nut positioned on said first rod, a lock nut arranged in threaded engagement with the threaded portion of said first rod and engaging said stop nut, a body nut arranged on the threaded portion of said first rod and positioned below said stop nut, said rods being arranged in spaced parallel relation with respect to each other, the lower end of said second rod being arranged in threaded engagement with said closure member, a horizontally disposed arm adapted to be connected to an overflow tube, and a boss mounted on the free end of said arm for receiving said second rod, said boss being positioned below said loops.

JOHN HOCHBERGER.

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