

Jan. 31, 1939.

S. E. HOPPER

2,145,601

FLUSH TANK

Filed July 11, 1938

2 Sheets-Sheet 1

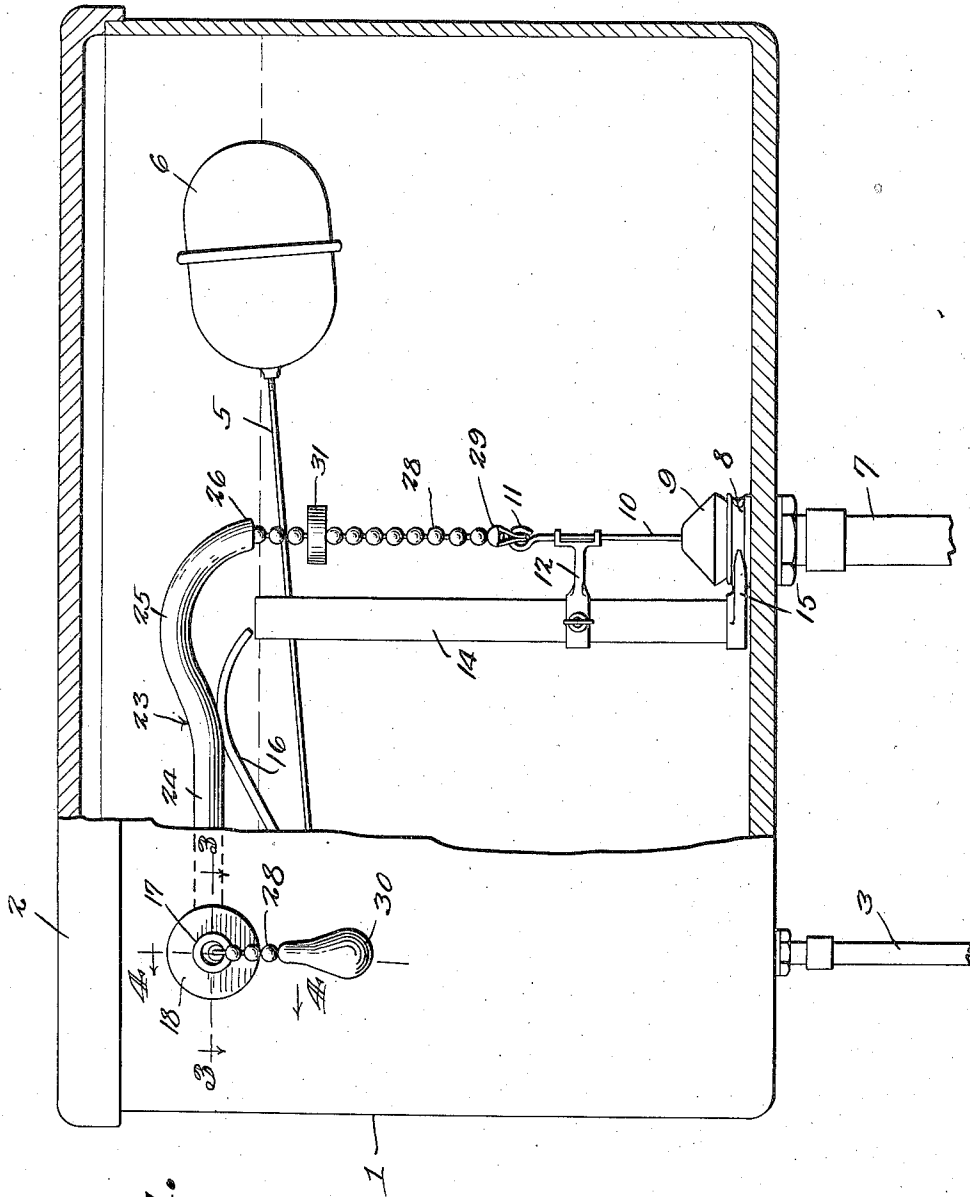


Fig. 1.

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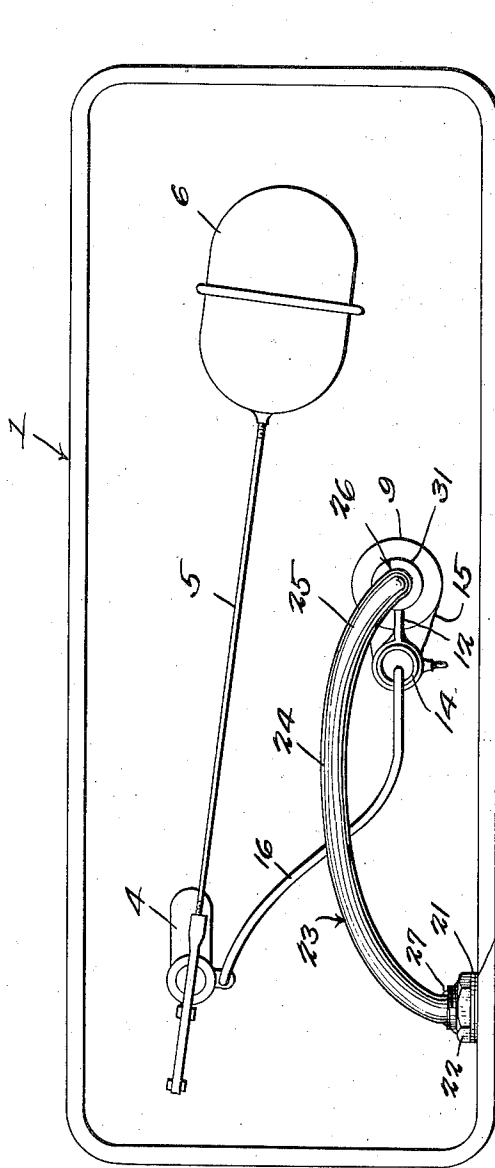


Fig. 2.

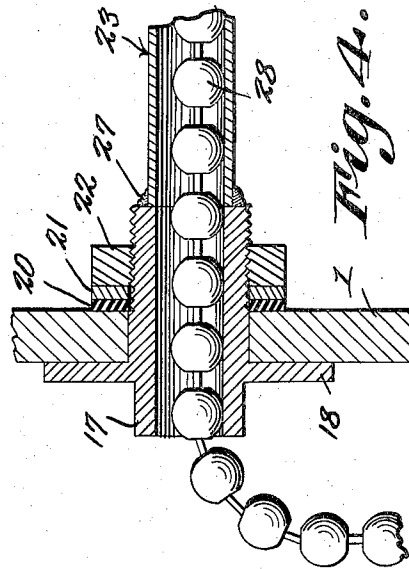


Fig. 4.

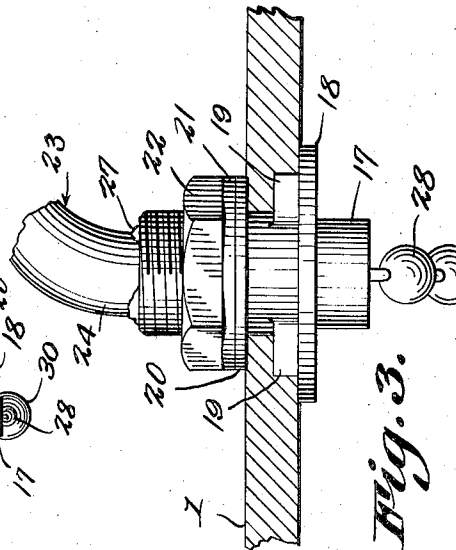


Fig. 3.

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2,145,601

FLUSH TANK

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Application July 11, 1938, Serial No. 218,701

2 Claims. (Cl. 4-67)

The bulbs or valves of flush tanks, especially water closet flush tanks, ordinarily are raised from their seats by a somewhat complicated system of links and levers, not only likely to get out of order and require much attention, but also likely to prevent a proper return of the tank bulb or valve to its seat.

This invention aims to remedy the difficulty above referred to, by lifting the tank bulb through the instrumentality of a simple flexible ball chain and proper means for guiding it with no objectionable friction.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Fig. 1 shows, in side elevation, a flush tank equipped with the device forming the subject matter of this application, parts being broken away;

Fig. 2 is a top plan wherein the lid has been removed;

Fig. 3 is a fragmental horizontal section taken approximately on the line 3-3 of Fig. 1, parts remaining in elevation; and

Fig. 4 is a vertical section taken approximately on the line 4-4 of Fig. 1, parts remaining in elevation.

The numeral 1 indicates a flush tank of the kind commonly used in connection with water closets, and elsewhere, the tank being surmounted by a lid 2. The water inlet pipe is designated by the numeral 3 and carries a ball cock 4 under the control of a lever 5 supplied with a common float 6. A flushing outlet pipe is marked by the numeral 7 and terminates in a base 8 receiving a tank bulb or valve 9, the stem 10 of which terminates at its upper end in an eye 11, the stem being vertical slidable in a horizontal guide 12 secured for horizontal and vertical adjustment to a vertical overflow pipe 14, the pipe 14 discharging at 15 into the seat 8, below the tank bulb 9. If the trap of the water closet happens to siphon out, it is charged by a refilling tube 16

leading from the ball cock 4 and discharging into the overflow pipe 14.

It is with such a structure, or with an analogous structure, that the device forming the subject matter of this application is adapted to be used.

Through the front wall of the flush tank 1 extends a nipple 17 having an abutment and finishing disk 18 which engages the outer surface of the front wall of the flush tank. Joined to the disk 18 and to the nipple 17 are oppositely disposed lugs 19, which are seated in the front wall of the flush tank 1, to prevent the nipple 17 from rotating. A gasket 20 surrounds the inner portion of the nipple 17 and bears against the inner surface of the flush tank 1. The gasket 20 is engaged by a washer 21, and a nut 22 is threaded on the inner portion of the nipple 17 and compresses the gasket 20, to make a tight joint, in a way which will be understood readily from Fig. 4 of the drawings.

There is provided a normally rigid but somewhat bendable tubular chain guide 23 which, specifically, may be a piece of commercial copper tubing. The chain guide 23 comprises a body 24 which, when viewed in top plan, as in Fig. 2, is convexed toward the rear wall of the flush tank 1. Viewed in front elevation, as in Fig. 1, the body 24 of the chain guide 23 is straight and horizontal, or nearly so, as indicated in Fig. 1. The body 24 of the chain guide 23 has an upwardly convexed extension 25, terminating in a depending end 26, located in the axis of the outlet pipe 7 and in the axis of the tank bulb 9.

As shown in Figs. 4 and 2, the forward end of the body 24 of the chain guide 23 is secured by solder 27, or otherwise, to the inner end of the nipple 17.

In the chain guide 23 and in the nipple 17, a flexible element, preferably a chain 28, is mounted to slide. The chain 28 is a well known commercial article, consisting of a plurality of metal spheres and connections joining the spheres. The depending end of the chain 28 is joined to the stem 10 of the tank bulb 9, by a connection 29, of any desired sort, assembled with the eye 11 at the upper end of the valve stem 10. The chain 28 depends from the nipple 17, outside the flush tank 1, and carries a pull handle 30. A stop disk 31 is secured to the chain 28, a short distance below the end 26 of the chain guide 23, and is adapted to engage the part 26 to limit the raising of the tank bulb 9.

The operation of the device is simple, since, by pulling on the handle 30, the bulb 9 will be

raised from the seat 8, the bulb closing in the usual way. The chain 28 will pass freely through the chain guide 23. The specific curvature of the chain guide hereinbefore described causes the chain 28 to lead fairly and without objectionable friction, through the chain guide. The chain guide 23 may be bent readily to accommodate the particular installation. It will be seen that the device does away with the complications that arise out of the use of levers, links and similar parts for operating the tank bulb 9.

What is claimed is:

1. The combination with a flush tank having an upright outer wall, and an outlet valve in the bottom of the flush tank; of a tubular guide ter-

minating at one end above the valve, a flexible element slidable in the guide, means for connecting one end of the flexible element to the valve, and means for connecting the flexible element to said wall of the tank, the last-specified means leading the flexible element outwardly through said wall of the tank.

2. A device of the class described constructed as set forth in claim 1 and wherein the guide curves backwardly from the last-specified means, in a substantially horizontal direction and curves upwardly, and thence extends downward to said one end of the guide.

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