Aug. 8, 1939 F. O'NEILL ET AL 2,168,742

ADJUSTABLE FLUSH REGULATOR

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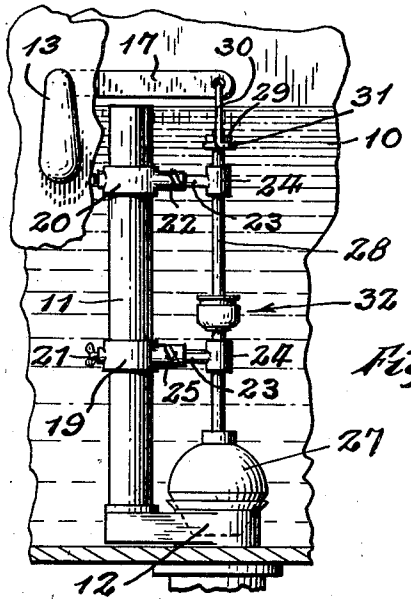


Fig. 1.

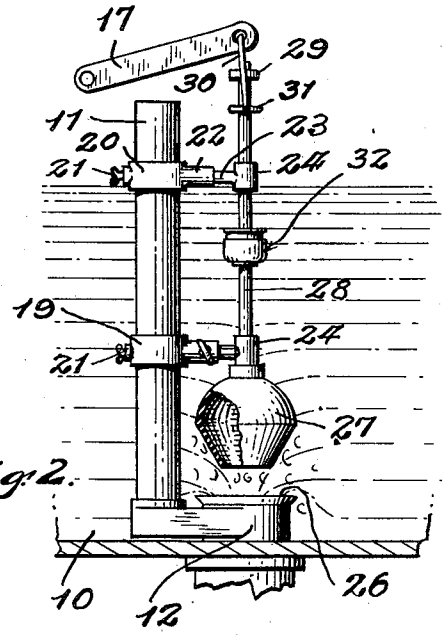


Fig. 2.

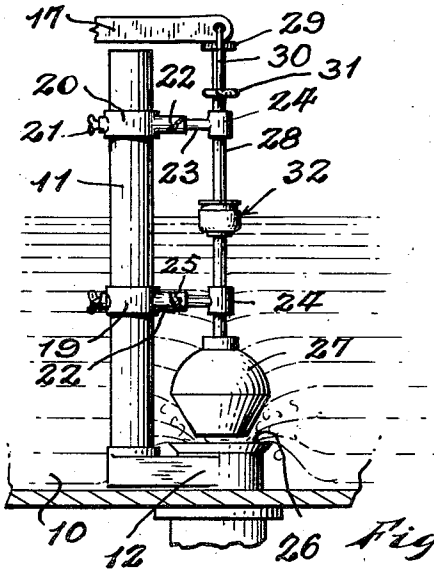


Fig. 3.

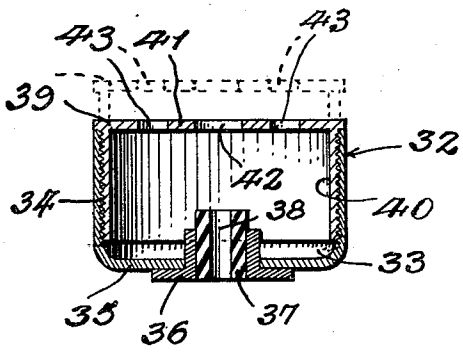


Fig. 4.

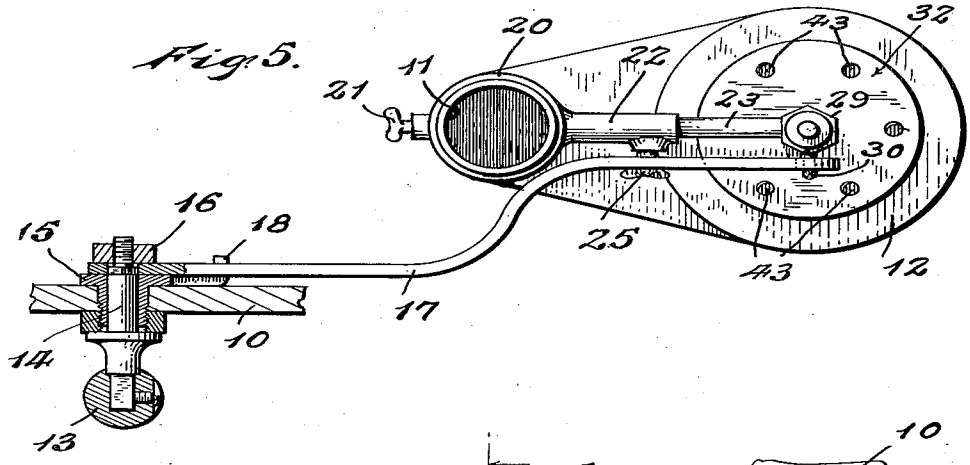
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Fig. 5.



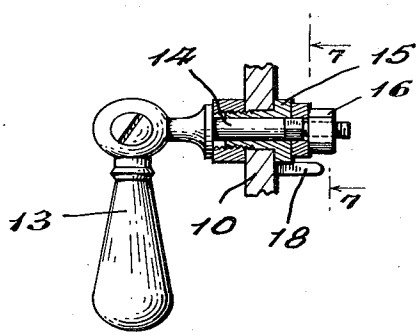


Fig. 6.

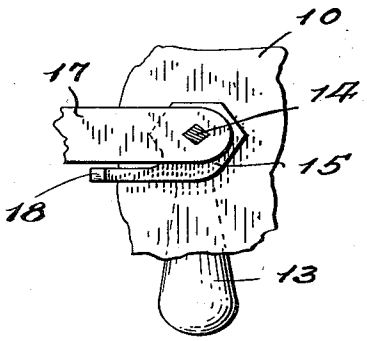


Fig. 7.

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ADJUSTABLE FLUSH REGULATOR

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Application August 5, 1938, Serial No. 223,313

6 Claims. (Cl. 4—57)

This invention relates to an adjustable flush regulator and more particularly to means for regulating the flush of water from a storage tank, and it consists in the constructions, arrangements and combinations herein described and claimed.

It is the cardinal purpose of the invention to provide means for releasing only the requisite amount of water from a storage tank to effect the flushing operation of a closet, and in which the regulating means is adjustable to meet varying situations.

It is also an object of the invention to provide a means of the character stated which may be installed in conventional or special construction of water supply tanks.

A still further object of the invention is to provide a device which may be produced and sold at a low cost and be highly effective in conserving water, yet meeting full requirements of complete sanitation.

Additional objects, advantages and features of invention will be apparent from the following description and accompanying drawings, wherein

Figure 1 is a fragmentary view of a closet tank having our invention installed.

Figure 2 is a similar view illustrating the ball valve in flushing position.

Figure 3 is a similar view illustrating the valve just prior to seating engagement.

Figure 4 is a vertical sectional view of the adjuster.

Figure 5 is an enlarged top plan view illustrating the adjuster, ball valve and means for operating the same.

Figure 6 is a sectional view of the operating lever and associated parts.

Figure 7 is a cross section on the line 7—7 of Figure 6.

There is illustrated a portion of tank 10 of conventional construction or otherwise, embodying the usual overflow pipe 11 communicating with the flush outlet 12, as is customary.

The tank also includes an operating handle 13 having a spindle shank 14 journalled in a bushing 15 fixed in the front wall of the tank. The spindle 14 is threaded to receive a nut 16 for securing a valve lifting lever 17, as is customary. The bushing 15 includes a lug 18 disposed beneath the lever 17 for effective operation of the ball valve as is well understood.

The overflow pipe 11 is of a length stopping short slightly below the spindle 14 of the operating lever 13, permitting a full capacity of water in the tank, thereby insuring an intensified discharge through the flush outlet upon raising of the valve, as will be described hereinafter.

A pair of guide brackets 19 and 20 are secured in vertically spaced relation upon the overflow pipe 11 by means of wing nuts 21, or otherwise. The brackets 19—20 each comprise a collar 22 into which a stem 23 of a guide sleeve 24 is inserted. The guide sleeves 24 are adjustable in a lateral direction by loosening set screws 25, permitting proper alignment of a valve stem, presently to be described.

The flush outlet 12 includes a valve seat 26 complemental to a ball valve 27 reciprocably supported by a valve stem 28, the latter being guided through respective guide sleeves 24.

The upper end of the stem 28 has fixed thereon a nut 29 and the free end of the lever 17 has secured loosely therein a link 30, the latter having an eyelet 31, encircling the stem 28, beneath the nut 29.

From the description thus far it will be apparent that upon actuation of the handle 13, the valve stem 28 will be raised with consequent unseating of the valve 27, permitting exhaust of water through the flush outlet 12. Obviously, the ball valve 27 will be maintained in its uppermost raised position until the water level in the tank has been lowered to such point that the valve may seat by action of gravity, and this delayed seating of the valve permits an excessive flow and waste of water. In order to overcome such loss of water, we provide a flush regulator, generally indicated at 32, and in order that the construction may be understood, attention is directed particularly to Figure 4.

The regulator 32 comprises a cup-like shell 33, the vertical wall of which is interiorly threaded as at 34, and the bottom wall 35 is provided with an axial aperture in which there is rigidly secured a bushing 36. The bushing 36 is lined with a rubber sleeve 37 having a bore 38 of a diameter slightly less than the diameter of the valve stem 28 which is inserted therethrough, thus effecting a slight frictional binding action upon the stem. The shell 33 is adjustable vertically upon the rod for regulating the reserve supply of water in the tank.

A shell 39 cooperative with the shell 33 is provided and in the present instance comprises an externally threaded annular wall 40 complemental to the threaded wall 34. The shells 33 and 39 thus may be adjusted to vary the capacity of the regulator, as will appear as the description proceeds.

The top wall 41 is axially apertured as at 42,