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FLUSH VALVE WITH FLOW CONTROL MEANS

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2 Claims. (Cl. 4-67)

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This invention relates to a flush valve, and more particularly to a flush valve with flow control means for reseating said valve in the event that the bowl is about to overflow.

It is accordingly an object of this invention to provide an improved flush valve having means to terminate the flow of water from the tank prior to emptying of the tank.

It is a further object of this invention to provide an improved flush valve having means operated by the handle on reverse movement thereof for reseating said valve to terminate the flow from said tank.

It is an additional object of this invention to provide an improved flush valve having means for reseating said valve, said valve being simple to manufacture and being easily substituted for existing valves or added thereto, and wherein a single handle serves to both lift and seat the valve as desired.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a cross sectional view of a flush tank showing my improved flush valve therein.

Figure 2 is a cross sectional view taken on the line 2-2 of Figure 1.

Figure 3 is a perspective view of a flush tank embodying my improved valve, a portion of the tank being broken away to expose the valve structure.

Referring now to the drawings, 11 denotes a conventional flush tank having an outlet 12 and an overflow pipe 13. A buoyant valve 14 has connected thereto a stem 15 terminating at its upper end in an abutment or ring 16. The stem 15 moves freely in the guide 17 supported on the overflow pipe 13, as is conventional in prior art devices of the character described.

A substantially U-shaped lever member, designated generally at 18, comprises a lever arm 19 and forming one leg extending generally parallel to the front wall of the tank and having at one end the perpendicular offset portion 21 extending forwardly through a circular opening in the front wall of the tank. The offset portion 21 is pivotally supported in the aforesaid opening in the front wall of the tank and has fixedly secured to the end thereof extending outwardly of the tank, the handle 22. The U-shaped member 18 further comprises the lever arm 23 extending parallel to the lever arm 19 and forming the other leg of the U, the two legs being interconnected by the

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bight or transverse member 24, which is preferably integral with arms 19 and 23.

Spaced from the transverse member 24 and extending between the arms 19 and 23 is the second horizontal axis or pivot 25, said pivot being retained in position by any suitable means, such as nut 26. Pivoted on the reduced end 27 of the pivot 25 is the second lever 28, said lever being biased downwardly into engagement with transverse member 24 by a torsion spring 29 surrounding pivot 27 and having one end affixed adjacent the lever arm 23 and the other end 31 thereof engaging over the lever 28.

A lift rod 32 has at its lower end a loop 33 slidably receiving stem 15 and engageable with ring 16, the upper end of the lift rod being hooked in a selected one of said holes 34 in the enlarged end 35 of lever 28.

A bracket 36, clamped or otherwise supported on the overflow pipe 13, carries a horizontal axis or pivot 37 which may be selectively engaged with one of a plurality of holes 38 intermediate the ends of the first lever 39 to pivotally support same. Lever 39 has in one end thereof a plurality of holes 41, in one of which is selectively hooked the upper end of push rod 42. The lower end of push rod 42 is formed with a loop 43 slidably receiving the stem 15 beneath the guide 17.

The other end of the lever 39 is provided with a plurality of holes 44, in a selected one of which is engaged the lower hooked end of tension rod 45. The upper end of the tension rod 45 passes freely through an opening in a bracket 46 secured to the free end of the lever arm 23, and has a wing nut 47 adjustably threaded thereon, whereby the rod 45 acts as a lost motion connection between lever arm 23 and lever 39.

In operation, on counterclockwise rotation of the handle 22, the U-shaped lever member 18 and the lever 28 act as a unitary lever to raise the pull rod 32 and thus the buoyant valve 14, whereupon water flows from the tank into the bowl, as is conventional in flush tanks of the prior art. Having once been lifted, valve 14 will float until the tank is substantially empty, and thereupon reseal. However, should the bowl be clogged and in danger of overflowing, the handle may be rotated clockwise into the dotted line position of Figure 1, whereupon the bracket 46 will engage tension rod 45 and lift the lever 39 into the position shown in dot-dashed lines in Figure 1, moving push rod 42 downwardly into engagement with the valve 14, thus urging the valve 14 into seating engagement with the seat 12 and terminating the flow of water from the

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tank. Upon engagement of the rod end 33 with bracket 17, lever 28 will yield and permit continued clockwise movement of lever 18.

It will thus be seen that by virtue of my invention, a single handle may be employed both to flush the tank and to terminate flow of water from the tank at any time prior to complete emptying thereof.

While a specific embodiment of an improved flush tank valve has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. In a flush tank having an upstanding outlet in the bottom thereof, an upstanding overflow pipe within the tank and spaced from said outlet and having the lower end in communication with said outlet, a buoyant valve movable into and out of closing relation with respect to said outlet, an upstanding stem having the lower end secured to said valve and having an abutment on the upper end, a first lever connected intermediate its ends to said overflow pipe for pivotal movement about a horizontal axis, an upstanding push rod having the upper end connected to one end of said lever and having the other end slidably engaging said stem adjacent said valve, a U-shaped lever member, a second lever having one end connected to the legs of said lever member for pivotal movement about a second horizontal axis, an upstanding lift rod having the upper end connected to the other end of said second lever and having the lower end slidably engaging said stem below the abutment of said stem, an upstanding tension rod having the lower end connected to the other end of said first lever and having the upper end connected to one of the legs of said lever member, and a handle

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exteriorly of said tank and operatively connected to the other leg of said lower member.

2. In a flush tank having an upstanding outlet in the bottom thereof, an upstanding overflow pipe within the tank and spaced from said outlet and having the lower end in communication with said outlet, a buoyant valve movable into and out of closing relation with respect to said outlet, an upstanding stem having the lower end secured to said valve and having an abutment on the upper end, a first lever connected intermediate its ends to said overflow pipe for pivotal movement about a horizontal axis, an upstanding push rod having the upper end connected to one end of said lever and having the other end slidably engaging said stem adjacent said valve, a U-shaped lever member, a second lever having one end connected to the legs of said lever member for pivotal movement about a second horizontal axis, an upstanding lift rod having the upper end connected to the other end of said second lever and having the lower end slidably engaging said stem below the abutment of said stem, an upstanding tension rod having the lower end connected to the other end of said first lever and having the upper end connected to one of the legs of said lever member, a handle exteriorly of said tank and operatively connected to the other leg of said lever member, and spring means operatively connected to said second horizontal axis and to said second lever for biasing said second lever downwardly into engagement with the bight of said lever member.

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