Sept. 29, 1959 C. KENASTON 2,905,950

TOILET FLUSH VALVE

Filed March 10, 1958

Fig.1

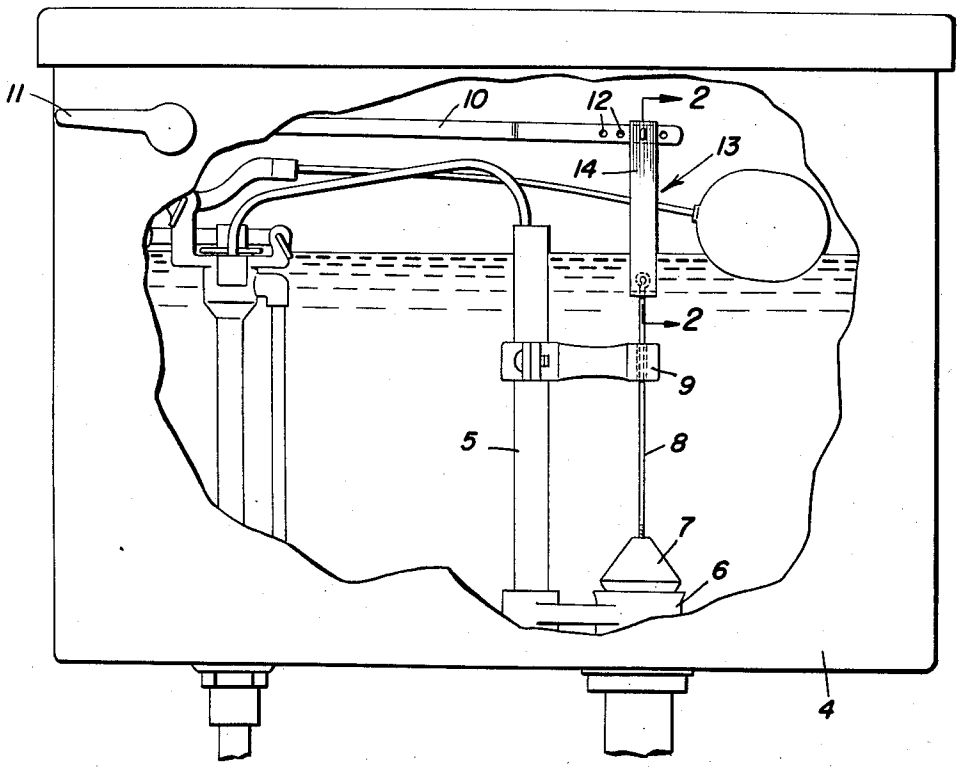


Fig.2

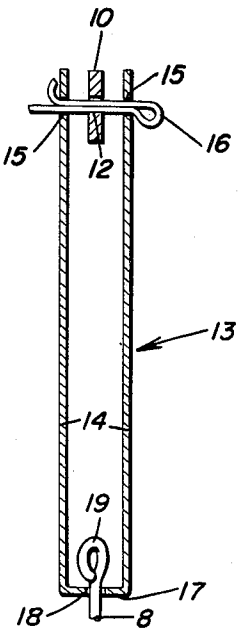
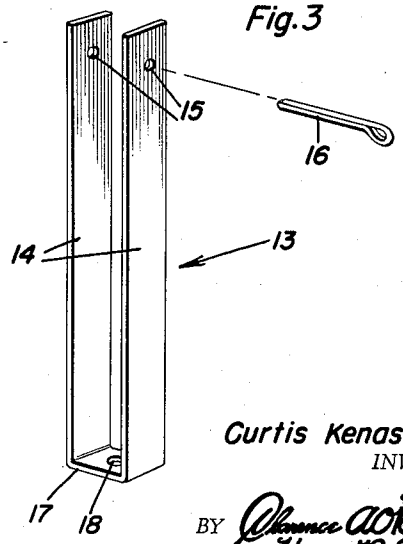


Fig.3



Curtis Kenaston
INVENTOR.

BY Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

United States Patent Office 2,905,950 Patented Sept. 29, 1959

2,905,950

TOILET FLUSH VALVE

Curtis Kenaston, Walla Walla, Wash.

Application March 10, 1958, Serial No. 720,407

1 Claim. (Cl. 4—57)

The present invention relates to new and useful improvements in toilet flush valves and has for its primary object to provide, in a manner as hereinafter set forth, a device of this character comprising novel operating means whereby sticking or binding will be prevented and proper seating or closing of the ball valve ensured at all times.

Another important object of the invention is to provide a device of the character described which may be expeditiously incorporated in a flushing mechanism with unskilled labor and without the necessity of material structural alterations.

Other objects of the invention are to provide a flush valve of the aforementioned character which will be comparatively simple in construction, strong, durable, compact and which may be manufactured and installed at low cost.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a view in side elevation of a flush valve mechanism embodying the present invention;

Figure 2 is an enlarged view in vertical section, taken substantially on the line 2—2 of Figure 1; and

Figure 3 is a perspective view, showing the cotter pin separated from the lifter.

Referring now to the drawing in detail, it will be seen that reference character 4 designates a conventional flush tank having mounted therein the usual overflow pipe 5. Mounted in the lower portion of the tank 4 on the overflow pipe 5 is an outlet 6. A ball valve 7 is adapted to seat in the outlet 6. The ball valve 7 is mounted on the lower end portion of a stem 8 which is slidable through a guide 9 which, as usual, is adjustably mounted on the overflow pipe 5.

A lift arm 10 is mounted for vertical swinging movement in the upper portion of the tank 4 and is actuated by the usual handle 11. The free end portion of the arm 10 is centered over the guide 9 and has formed therein a series of longitudinally spaced openings 12.

Straddling the free end portion of the arm 10 and pivotally suspended therefrom is a substantially U-shaped link 13 of suitable material, preferably aluminum. The free end portions of the legs 14 of the link 13 are provided with aligned openings 15 for the reception of a

cotter pin 16 which also is preferably of aluminum. The cotter pin 16 is engageable selectively in the openings 12 for detachably and adjustably connecting the link 13 to the arm 10. The bight portion 17 of the link 13 is provided with an opening 18 which, as illustrated to advantage in Figure 2 of the drawing, slidably accommodates the stem 8. At the upper end thereof the stem 8 is provided with a loop or eye 19 with which the bight portion 17 of the link 13 is engageable for operatively connecting said link to said stem.

It is thought that the operation of the invention will be readily apparent from a consideration of the foregoing. Briefly, with the arm 10 in lowered position, as shown, the ball valve 7 rests by gravity in the usual manner in the outlet 6. When it is desired to flush the toilet, the arm 10 is swung upwardly through the medium of the handle 11. When this occurs the link 13 lifts the ball valve 7 to open position through the medium of the stem 8 in an obvious manner. When the tank 4 is empty or substantially so the valve 7 seats by gravity in the outlet 6. As hereinbefore stated, the free end portion of the arm 10 is centered over the guide 9 and the stem 8 therein. The construction and arrangement is such that no binding or sticking can occur to prevent the proper closing of the valve 7.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

A toilet flush valve comprising: a ball valve engageable by gravity with a seat, a vertically swingable arm having an opening in one end portion, a generally U-shaped link of flat stock comprising a bight portion having an opening therein and further comprising straight, uniformly spaced legs straddling the arm in spaced relation thereto and having openings therein aligned with the first named opening, a cotter pin fixedly mounted in the third named openings and slidable and rotatable in the first named opening for swingingly and laterally adjustably suspending the link from the arm, an upstanding stem on the ball valve rotatably and slidably engaged in the second named opening, and a loop on the upper end of said stem operable between the legs and engageable with the bight portion of the link for anchoring the stem to the link for lifting the ball valve off the seat when the arm is swung upwardly.

References Cited in the file of this patent

UNITED STATES PATENTS

1,784,944	Nordlund	Dec. 16, 1930
2,561,337	Buford	July 24, 1951

FOREIGN PATENTS

2,134	Great Britain	Feb. 6, 1889