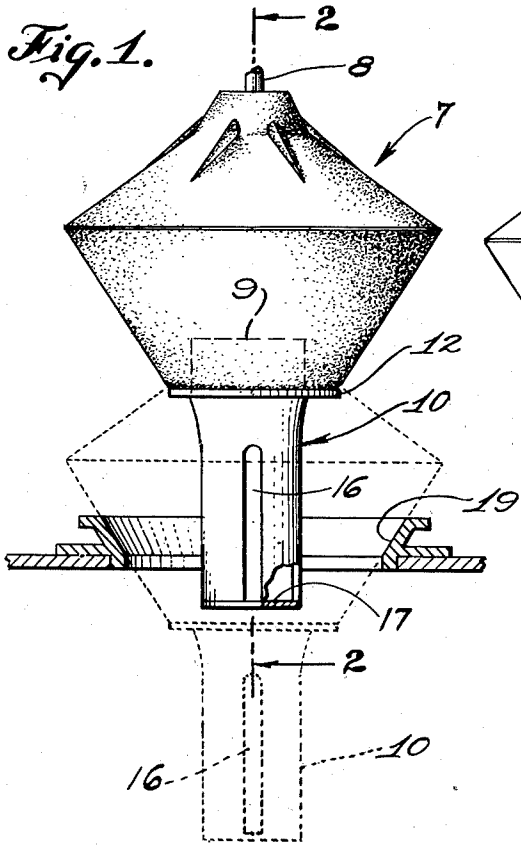
Dec. 18, 1951 J. J. REKAR 2,579,012

TOILET FLUSHING VALVE

Filed March 3, 1951

Fig. 1.



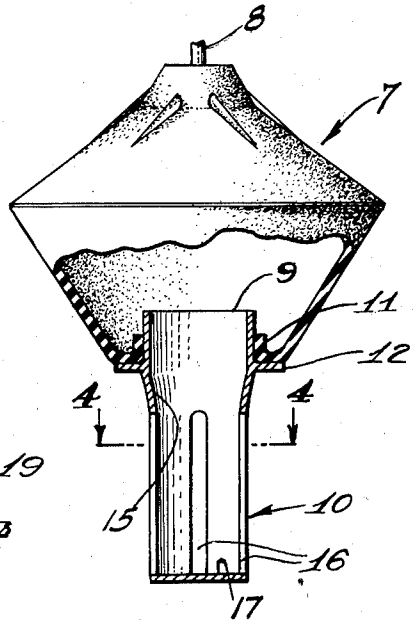


Fig. 2.

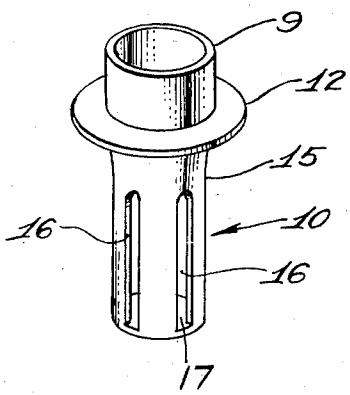


Fig. 3.

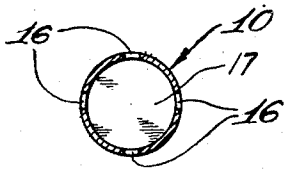


Fig. 4.

JAY J. REKAR,
INVENTOR.

BY

ATTORNEY

Patented Dec. 18, 1951

2,579,012

UNITED STATES PATENT OFFICE

2,579,012

TOILET FLUSHING VALVE

Jay J. Rekar, Bell, Calif.

Application March 3, 1951, Serial No. 213,761

1 Claim. (Cl. 4—56)

1

This invention relates to a toilet box outlet valve constructed in an improved manner so as to minimize danger of the valve not returning to its seat after each flushing operation.

In its broader aspect the present invention pertains to a toilet tank flushing valve the lower portion of which is constructed in such a manner as to receive a downward drag or pull by the outflowing water which will increase as the valve nears its closed position, with the result that the valve will close in a quick accurately seated manner even though it may not be suspended in accurate vertical alinement with the valve seat with which it cooperates.

The invention may be embodied in an integral valve structure, or it may pertain to a valve construction which comprises a conventional elastic toilet tank valve and a separately made attachment applied to the lower end portion of such a valve, said attachment functioning to cause the valve to operate in the above mentioned improved manner. In this latter aspect the invention relates to a separately salable new article of manufacture.

It is not broadly new in the art to which this invention pertains to modify a conventional buoyant, elastic toilet tank valve by constructing it with a downward extension to guide the valve to its seat; but an investigation of the prior art fails to disclose any valve structure of this kind which will afford an abutment efficiently to utilize the inertia of the outflowing water to produce a definite downward pull upon the valve to cause it to seat in a better manner.

Accordingly it is an object of the present invention to provide a toilet tank flushing valve with a downward extension which will present to the outflowing water an upwardly facing shoulder or abutment which the water will strike against in such a manner as to accelerate the seating of the valve, said extension at the same time aiding in guiding the valve accurately to its seat.

Considered as an article of manufacture it is an object of the invention to provide a generally cylindrical, elongated member having an upper end portion which can be inserted into the apertured lower end of a conventional buoyant elastic toilet tank valve, and which will safely remain in the inserted position, where it will function to make the valve operate in the improved manner herein already mentioned.

The lower end portion of the device may be considerably altered in shape without exceeding the scope of the claimed invention, provided that a part of said portion have an upwardly facing

2

surface portion against which the outflowing water exerts a downward pressure tending to seat the valve.

Other objects, advantages and features of invention will hereinafter appear.

Referring to the accompanying drawing, which illustrates a preferred, reduced to practice embodiment of the invention,

Fig. 1 is a side elevation of a toilet valve constructed according to the principles of the invention; shown associated with the outlet valve seat of the tank. In this view a part of the device is broken away to disclose an abutment carried thereby against which the outflowing water strikes to pull the valve toward its seat.

Fig. 2 is a view partly in side elevation, and partly in vertical midsection on line 2—2 of Fig. 1, the valve seat being omitted.

Fig. 3 is a perspective view separately showing the attachment for conventional buoyant toilet tank valves, in which the device is embodied when made as a new article of manufacture.

Fig. 4 is a transverse section looking downwardly from line 4—4 of Fig. 2.

Referring in detail to the drawing therein is shown a conventional elastic buoyant toilet valve body 7 of the doubly frusto-conical form wherein the larger ends of the frusto-conical portions abut each other at the greatest diameter of the valve body. This hollow valve body is operatively suspended by the axial rod 8 a fragment of which is shown in Fig. 1 projecting from the upper end of said body, the lower end of said body having through it a circular central aperture.

As shown in Fig. 2, into the aforesaid apertured lower end of the hollow valve body 7 is inserted the upper end portion 9 of a tubular member 10, the diameter of the inserted part 9 of said member being somewhat greater than the normal diameter of the opening in the lower end of said valve body, so that an inturned annular lip 11 in the elastic sheet material of the body 7 results when the member 10 is in its inserted position. Owing to the considerable extent to which the rubber has to be stretched to insert the tubular part 9, the latter will be safely held in its inserted position by the gripping action of the surrounding rubber. As shown in Fig. 2 the inserted member 10 carries a peripheral, horizontal flange 12 which abuts the lower end portion of the valve body 7 when said member 10 is inserted, as shown. This flange properly limits the extent to which said member 10 is inserted into the valve body 7.

Subjacent to said flange 12 the tubular member 10 has a downwardly tapered, imperforate

portion 15 below the lower end of which it has through it a plurality of longitudinal vertical slots 16, four of said slots being present in the illustrated embodiment of the invention. Within the lower end of said tubular member 10 is an abutment forming cross wall, the upper face of which is shown on substantially a level with the lower ends of said slots, the latter being arranged in a circumferentially spaced apart series.

Preferably the valve structure which has been described will be mounted within the tank in such a position that the lower end portion of the tubular member 10 will never be lifted out of the passage through the valve seat 19 shown in Fig. 1. A considerable portion of the stream of water which flows out through said valve seat (the internal diameter of which is much greater than the outer diameter of the slotted part of the member 10), will enter the aforesaid slots 16 and will strike against the upwardly facing shoulder or abutment formed by the upper face of the closure 17. In doing this the outflowing water will exert a downward pull or traction upon the valve body 7 which will assist gravity to draw it to its seat in an efficient manner. The taper 15 in the upper part of the member 10 tends to concentrate the outflowing stream and to augment the action thereof upon said abutment.

It is to be understood that the aforesaid peripheral flange 12 is of considerably less diameter than the internal diameter of the valve seat, so that said flange will readily pass downwardly through said valve seat, allowing the lower part of the valve body 7 to seat in the usual manner,

as indicated in broken lines in the lower portion of Fig. 1.

The non-elastic part of the structure may be made either of metal or of some suitable plastic material. The tubular part of the device may be incorporated into the valve body 7 at the time of manufacture as an integral portion thereof.

When said tubular part is used as an attachment it can be removed from a worn rubber valve and then attached to a new, unused one.

I claim:

As an article of manufacture, an elongated tubular member having an upper end portion crowdable into the open lower end portion of a conventional buoyant rubber toilet tank valve, said tubular member having an external peripheral flange limiting the extent of its insertion into said valve, and having a closure cross wall at its lower end and through its sides a plurality of vertical slots through which the outflowing water enters and exerts against said cross wall a downward pressure tending to close the valve.

JAY J. REKAR.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,528,098	Crane	Mar. 3, 1925
2,222,856	Robertson et al.	Nov. 26, 1940
2,251,357	Harroun	Aug. 5, 1941
2,511,545	Roselair	June 13, 1950