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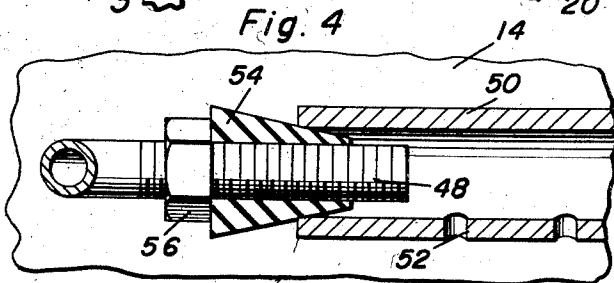
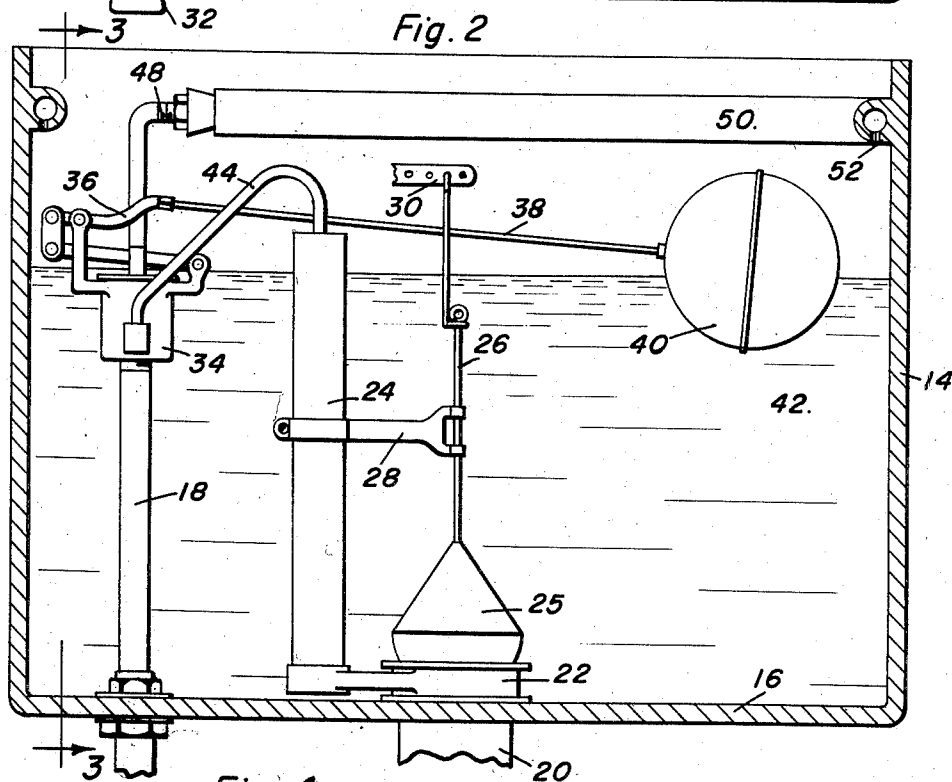
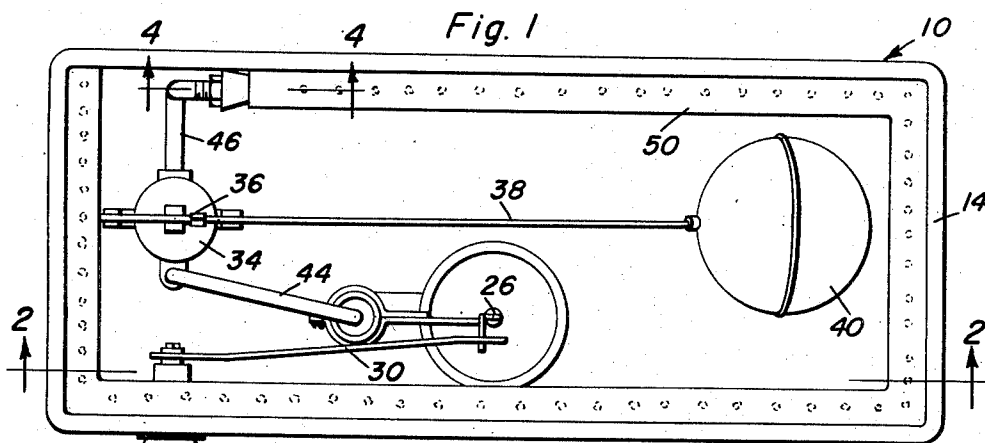
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2,863,155

VALVE AND FILLER RIM FOR TOILET TANKS

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2 Sheets-Sheet 1



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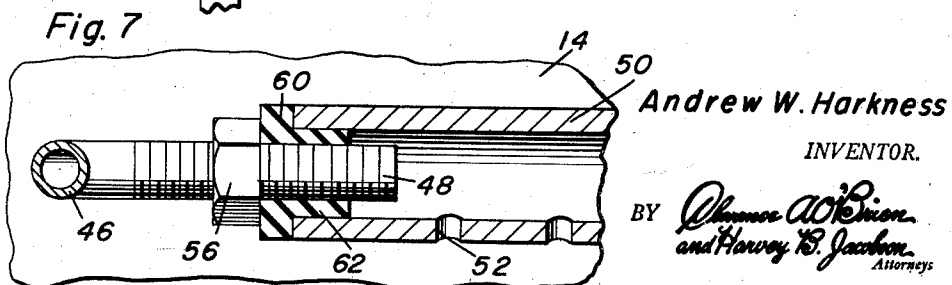
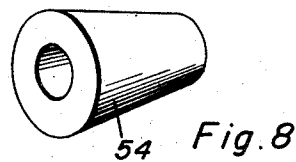
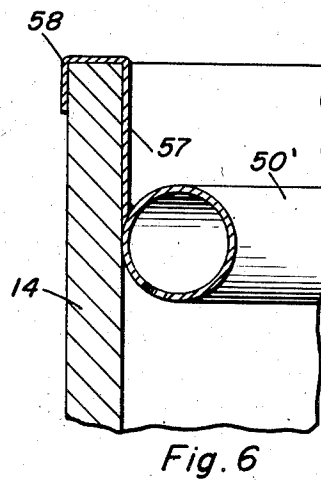
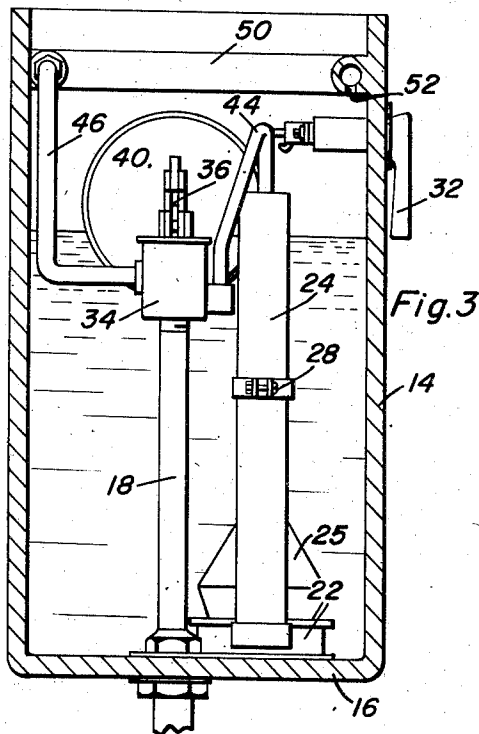
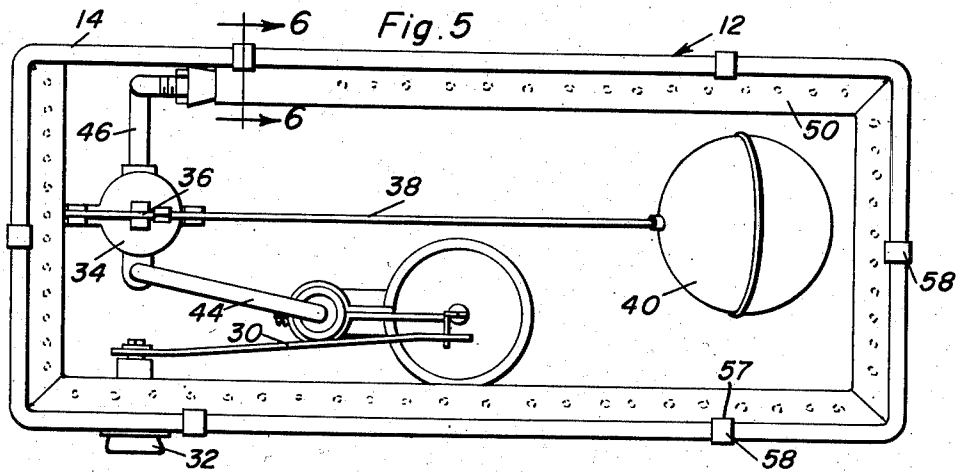
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VALVE AND FILLER RIM FOR TOILET TANKS

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2 Sheets-Sheet 2



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VALVE AND FILLER RIM FOR TOILET TANKS

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3 Claims. (Cl. 4—68)

This invention relates to a valve and filler rim for toilet tanks, and more specifically provides an improved construction of the water supply valve and the means for discharging the water into the flush tank.

An object of this invention is to replace the conventional supply or hush tube which terminates adjacent the bottom of a flush tank with a peripheral rim having a plurality of apertures around the inner periphery of the flush tank adjacent the upper end thereof and spaced above the upper water level, thereby preventing any possibility of the flush tank water from being siphoned back into the water supply line.

Another object of this invention is to provide an improved valve and filler rim for toilet tanks wherein back-siphonage of the flush tank water is prevented and the water supply to the tank will be very quiet.

Yet another object of this invention is to provide a valve and filler rim wherein the water is discharged through a plurality of small openings around the sides of the tank, thereby eliminating the condensation on the outer surface of the toilet tank by the utilization of many small streams of water engaging the entire surface of the tank, thereby easily and quickly tempering the incoming water with the existing room temperatures.

Still another important object of this invention is to provide an improved valve and filler rim structure for toilet tanks which may be integrally formed with the toilet tank or may be constructed in the form of an attachment for positioning on existing or conventional type toilet flush tanks.

A still further object of this invention is to provide a valve and filler rim for toilet tanks which is simple in construction, easy to install, efficient in operation, well adapted for its intended purposes and relatively inexpensive to manufacture.

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 drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a top plan view of the valve and filler rim integrally formed with a toilet tank;

Figure 2 is a vertical section taken substantially along section line 2—2 of Figure 1 showing the details of construction of the valve and filler rim;

Figure 3 is a transverse, vertical section taken substantially along section line 3—3 of Figure 2 showing the details of construction and the relationship of the various elements of the present invention;

Figure 4 is a detail section taken substantially along section line 4—4 of Figure 1 showing the means for attaching the water supply discharge line to the open end of the filler rim;

Figure 5 is a top plan view showing a modified form of the present invention;

Figure 6 is a detail section taken substantially along section line 6—6 of Figure 5 showing the manner of se-

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curing the detachable rim to the upper edges of the toilet tank;

Figure 7 is a detailed section similar to Figure 4 showing a modified form of securing the water discharge line to the open end of the rim; and

Figure 8 is a perspective view showing the sealing gasket utilized for securing the discharge water supply line to the open end of the filler rim in water-tight relation.

Referring now specifically to the drawings, it will be seen that the numeral 10 generally designates the valve and filler rim for toilet tanks as specifically illustrated in Figures 1—4, and the numeral 12 generally indicates the modified form of the invention as illustrated in Figures 5—7.

Referring now specifically to Figures 1—4, it will be seen that the numeral 14 indicates the side walls of a toilet flush tank, and the numeral 16 indicates the bottom wall of the flush tank. A water supply line or pipe 18 extends through the bottom 16 of the toilet tank, and a discharge pipe 20 is connected to a discharge opening 22 in the bottom 16. An overflow pipe 24 is secured to the outlet fitting 22 and is in communication with the outlet. A valve ball 25 is positioned on the outlet for controlling the flow of the water through the outlet 22 and lifting means 26 is provided for moving the valve 25 and a guide means 28 is provided for guiding the movement of the lift means 26. A suitable lift arm 30 is provided and connected to the usual operating handle 32 positioned exteriorly of the toilet flush tank adjacent the upper end thereof.

The water supply pipe 18 is provided with a control valve 34 having a linkage 36 associated therewith and a rod 38 carrying a hollow float 40 for floating in the water 42 thereby determining the flow of water from the inlet pipe 18 through the valve 34. When the water level 42 recedes, the valve 34 is opened when the float 40 drops towards the bottom of the tank. As the float 40 is raised by the water 42 flowing into the tank, the valve 34 is closed at a predetermined level. A refill tube 44 interconnects the valve 34 and the overflow pipe 24 for refilling the closet bowl (not shown). The valve 34 is also provided with a discharge supply line 46 which extends outwardly and upwardly in contrast to the usual downwardly extending discharge pipe or hush tube.

The discharge supply line 46 terminates in a horizontal threaded portion 48 which projects into the open end of a rim 50 which extends substantially throughout the periphery of the side walls 14 of the flush tank. The rim 50 is provided with a plurality of longitudinally spaced apertures 52 throughout its length. It will be seen that the open end of the rim 50 is adjacent one corner of the tank, and the rim 50 extends completely around the tank and is closed by its junction with the corner adjacent the open end of the rim 50. A conical gasket 54 of suitable resilient material is positioned over the threaded end 48 of the pipe 46 with the small end entering the open end of the rim 50. A nut 56 is threaded onto the screw threaded portion 48 and engages the large end of the conical gasket 54 for urging the gasket 54 into tight engagement with the open end of the rim, thereby sealing the pipe 46 to the rim 50 in water-tight relation. It will be seen that a great number of small openings 52 are provided and the rim 50 is positioned vertically above the upper limit of the water level 42 and above the upper limit of movement of the float 40, thereby assuring that the water discharged through the apertures 52 into the interior of the tank cannot possibly be drawn back through the valve 34 and into the water supply line 18, thereby contaminating the household water supply.

As specifically shown in Figures 1-4, the rim 50 is provided as an integral element of the flush tank and is formed therewith by standard manufacturing procedures. Inasmuch as the apertures 52 may be tilted towards the side walls 14, if desired, the water will stream down the side walls 14, thereby providing a very quiet refilling of the flush tank, and inasmuch as the numerous streams of water proceed down the greater length of the side walls 14 of the flush tank, the water will be tempered quickly by the room temperature, thereby eliminating the usual condensation on the outer surface of the toilet tank.

As specifically illustrated in Figures 5-7, it will be seen that the rim 50' is formed as a separate element and includes clip members 57 having a return bent portion 58 at their upper ends for engaging the upper edges of the side walls 14 of the toilet flush tank. As specifically shown in Figure 7, a gasket 60 having a reduced portion 62 extending into the open end of the rim 50' effectively seals the pipe 46 to the rim 50' by manipulation of the nut 56 in an obvious manner. It will be understood that the device of the modified form of the invention may be attached to any existing and conventional toilet flush tank, with the only change being the elimination of the usual vertical tube or hush tube for supplying the water adjacent the bottom of the tank and replacing this tube with the horizontal and upwardly extending discharge supply line 46 which will be positioned in the open end of the peripheral rim 50'.

The operation of the devices will be readily understood. The operation of the inlet valve 34 is dependent upon the water level 42 and the buoyancy of the float 40 positioned therein. As the water 42 is discharged through the outlet 22 into the closet bowl, the float 40 will drop, thereby opening the valve 34, thereby permitting water to be discharged through the supply line 46 and into the filler rim 50. The water then is discharged through the apertures 52 downwardly along the side walls 14 of the flush tank, until such time as the water level is raised to a level for the float 40 to close the supply valve 34. During the time the water 42 is being discharged into the tank after the outlet 22 has been closed, the refill tube 44 discharges water into the overflow pipe 24 and then through the outlet 22 thereby refilling the closet bowl in the conventional manner. Due to the numerous outlets 52 in the filler rim 50 and due to the small streams running down the side walls 14, the filling of the tank 14 will be carried out in a very quiet manner, and due to the water engaging a substantial area of the tank, it will readily and quickly absorb the room heat, thereby tempering this water and eliminating the usual condensation of the outer surface of the flush tank. An important feature of this invention includes the vertical position of the rim 50 wherein the rim 50 is at all times disposed above the water level 42, thereby absolutely preventing any back-siphonage of the flush tank water into the water supply pipe 18. This eliminates the usual expensive and complicated anti-

back-siphonage valves now employed in the industry. Obviously, the various elements of this invention may be constructed of conventional materials finding acceptance in the industry.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, 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 shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A device for filling a receptacle with liquid having a bottom and side walls, an overflow tube communicating with the interior of the receptacle above the bottom, a discharge outlet in the bottom, a liquid supply line extending into the tank, and a float controlled valve in the supply line, said device comprising a horizontally disposed hollow passage on the side walls and projecting inwardly therefrom with a plurality of mutually spaced apertures in the bottom portion for discharging liquid downwardly alongside the side walls, said passage being disposed above the overflow tube for preventing back siphonage of liquid from the receptacle, one end of said passage being closed, and means connecting the other end of the passage to the supply control valve for conducting liquid into the passage, said means including a rigid pipe freely telescopically extending into the open end of the passage, a seal gasket having a generally circular cross-section longitudinally movable on said pipe and including a portion disposed between the open end of the passage and the pipe for sealing the juncture between the pipe and passage, and a clamp nut threaded on said pipe for clampingly urging the gasket into the open end of the passage and retaining the gasket in sealing position.

2. The combination of claim 1 wherein said passage is in the form of a rim formed as a one piece construction with the side walls of the receptacle.

3. The combination of claim 1 wherein said passage is in the form of a tubular pipe, and a plurality of support hooks integral therewith for engagement over the upper edges of the side walls.

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