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GUIDE FOR VALVES FOR FLUSH TANKS

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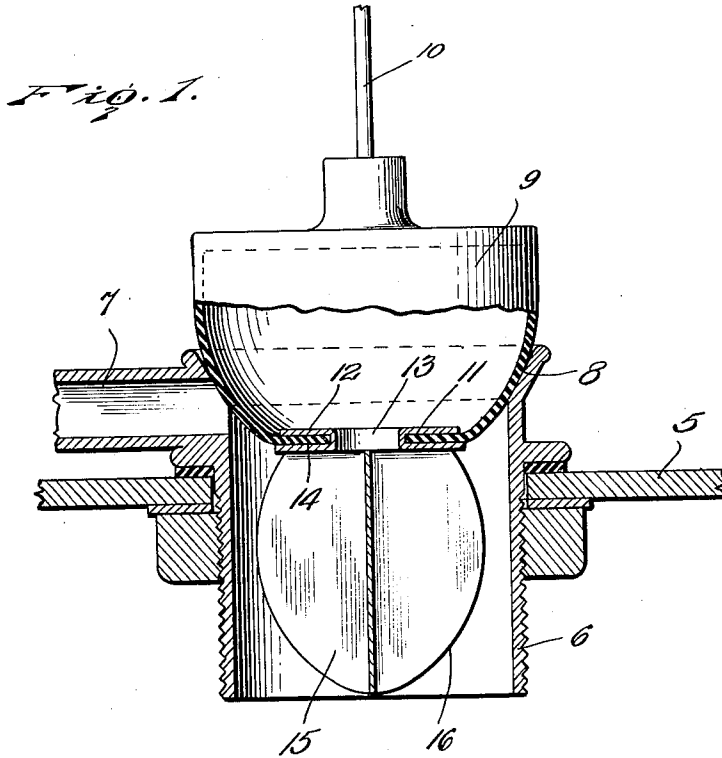
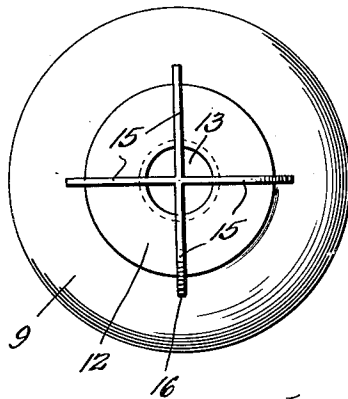


Fig. 2.



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GUIDE FOR VALVES FOR FLUSH TANKS

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6 Claims. (Cl. 4-56)

This invention relates to valves for flush tanks and has for its object to provide a comparatively simple and inexpensive valve of this character which will be automatically guided to its seat and accurately centered therein after each flushing of the closet bowl.

A further object of the invention is to provide a ball valve, the usual opening in the bottom of which may be utilized to permit the attachment of a depending guide member of sufficient weight to keep the ball on an even keel when it floats toward the flush opening and thus insure proper and accurate seating of the valve.

A further object is to provide a valve having a depending guide member formed of intersecting fins or blades so constructed as to impart a rotary or swirling movement to the valve during the flushing operation, thereby cleaning the valve seat and permitting the valve to properly function under all conditions of service.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

In the accompanying drawing forming a part of this specification and in which similar numerals of reference indicate corresponding parts in all the figures of the drawing:

Figure 1 is a vertical sectional view of a portion of a flush tank provided with a ball valve constructed in accordance with the present invention, and

Figure 2 is a bottom plan view of the ball valve detached.

The improved valve forming the subject-matter of the present invention is principally designed for use in connection with the flush tanks of water closets and the like, and by way of illustration is shown applied to a flush tank of standard construction, in which 5 designates the tank, 6 the discharge or flush pipe and 7 the overflow pipe. The upper portion of the flush pipe 6 projects within the tank 5 and is provided with an inclined valve seat 8 adapted to receive a hollow ball valve 9, the latter being provided with an upstanding stem 10 which fits loosely in a standard guiding eye (not shown). The bottom of the ball valve 9 is provided with the usual opening 11, and this opening 11 is utilized to permit the attachment of my improved guide member. The guide member may be die cast or otherwise formed from hard rubber, aluminum or other suitable material and comprises upper and lower substantially circular clamping disks 12 connected at their inner ends to form an opening 13 and having their outer ends spaced

apart to form an annular recess 14 for the reception of the adjacent edge of the rubber constituting the body of the ball valve. Depending from the ball valve and preferably formed integral with the lower clamping disk 12 are intersecting blades or fins 15 having their outer edges curved, at 16, and which fins or blades tend to impart a rotary or swirling motion to the valve during the flushing operation, thereby cleaning the valve seat and causing the valve to properly and accurately engage the seat after each flushing operation. The lower portions of the edges of the fins or blades 15 taper downwardly while the upper ends thereof intersect at the opening 13 in the ball valve, as best shown in Figure 2 of the drawing.

In operation, when the ball valve 9 is lifted off its seat, the water discharged from the tank through the flush pipe 6 will contact with the fins or blades 15 and impart a swirling or rotary movement thereto so as to cause the valve to automatically clean its seat. The weight of said fins will also keep the valve on an even keel when it floats toward the flush opening and thus insure proper and accurate seating of the valve under all conditions of service. The construction of the guide member is such that it may be quickly and conveniently attached to any form of hollow flush valve by merely positioning the guide member on the bottom of the valve and introducing the adjacent edge of the rubber between the clamping disks and vulcanizing the parts or clamping the disks firmly together so as to prevent accidental separation thereof.

While the guide member is particularly adapted for attachment to the valves of water closet flush tanks, it will, of course, be understood that said guide member may be attached to valves used elsewhere without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new is:

1. A device of the class described comprising a ball valve, and a guide member secured to and depending from the bottom of the valve and formed of fiat vertically disposed intersecting plates constituting guide fins.

2. A device of the class described comprising a ball valve having an opening in the bottom thereof, and a guide member provided with clamping disks engaging the material of which the valve is formed at the opening therein, said member being provided with depending vertically disposed plates having their inner ends intersecting at said opening and constituting guide fins.

3. A device of the class described comprising a hollow ball valve having an opening in the bottom thereof, and a guide member having means for attachment to the ball valve at said opening and provided with depending vertically disposed flat plates intersecting at said opening and constituting guide fins.

4. A device of the class described comprising a hollow ball valve having an opening in the bottom thereof, a guide member depending from the bottom of the valve and provided with coaxing clamping disks defining an intermediate recess adapted to receive the material of the ball around the opening therein, and intersecting vertically disposed plates secured to and depending from one of said clamping disks.

5. A device of the class described comprising a

hollow ball valve having an opening in the bottom thereof, and a guide member having means for attachment to the bottom of the valve at said opening and provided with intersecting vertically disposed plates having their inner edges intersecting at said opening and their outer edges tapered downwardly.

6. A guide member for attachment to the ball valve of a flush tank comprising coaxing clamping disks having a central opening therein and spaced apart to form an intermediate recess, and angularly disposed plates secured to and depending from one of the clamping disks and having their upper edges extending across and intersecting at said opening.

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