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J. F. DUNCAN

1,767,519

VALVE ROD GUIDE FOR FLUSH TANKS

Filed Aug. 30, 1928

Fig. 1.

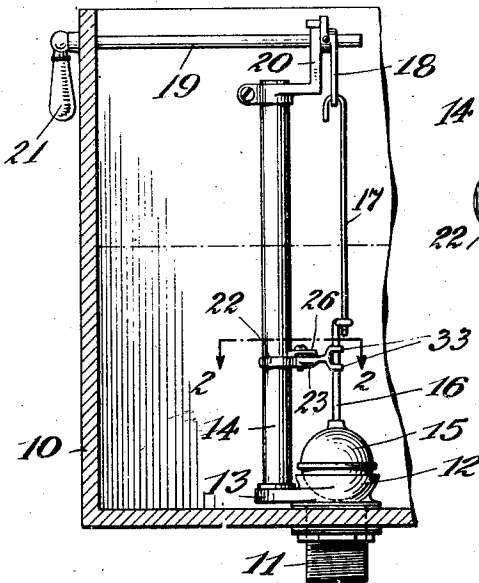


Fig. 5.

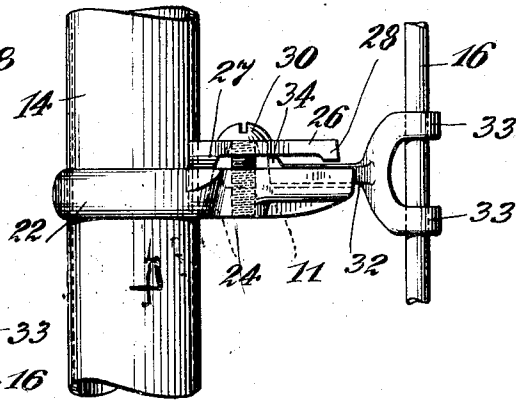


Fig. 2.

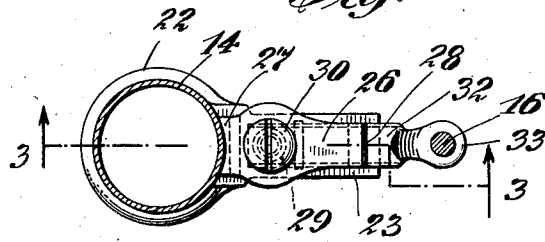


Fig. 3.

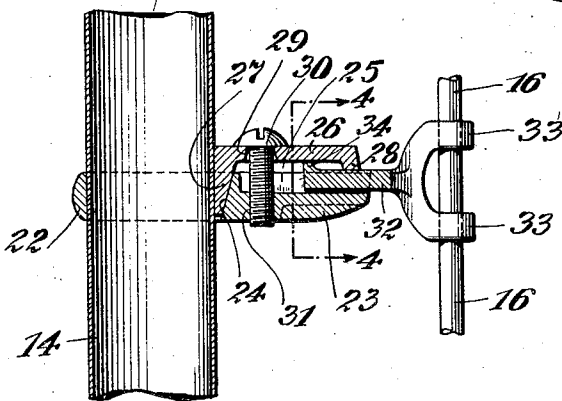
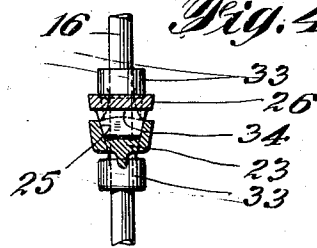


Fig. 4.



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VALVE-ROD GUIDE FOR FLUSH TANKS

Application filed August 30, 1928. Serial No. 302,935.

This invention relates to a device for guiding the valve rods of tanks employed for flushing closets, urinals, and similar fittings. In certain types of flush tanks it is customary to employ a discharge valve operated through a valve rod and a link and lever mechanism actuated from a suitable handle or otherwise exteriorly of the tank. It is necessary in this type of structure to employ a guide for maintaining the valve in alignment with its seat. Heretofore so far as I am aware it has been necessary to so construct the devices employed for actuating the valve that the distance between the center of the valve rod and the valve and its seat and the support for the valverod guide is fixed. This obviously necessitates the manufacture of a plurality of valve rod guides to be used in different types of apparatus in which this distance is not the same. It is customary, furthermore, to support the valve rod guide from the overflow tube or pipe, and the object of my present invention is the provision of a valve rod guide so constructed as to be mounted on an overflow pipe in a flush tank, or to be mounted on any other suitable support, and to be clamped in a desired position thereon, and furthermore, to be fitted with a member adjustable to position whereby the same type of valve rod guide may be employed within the limits of its adjustability and which is, therefore, adapted for use in any flush tank apparatus in which the distance between the overflow pipe, or the support, and the center of the valve rod is within these limits. The structure, furthermore, as will be hereinafter more particularly described, is such that in adjusting the parts to position the same are first cramped to the overflow pipe or support and then by further tightening the clamp the adjustable member after being set may be secured in position.

In the drawing Figure 1 is a sectional elevation illustrating the use of the valve rod clamp made in accordance with this invention,

Fig. 2 is an enlarged plan on line 2—2, Fig. 1,

Fig. 3 is a section on line 3—3, Fig. 2,

Fig. 4 is a section on line 4—4, Fig. 3, and

Fig. 5 is a side elevation showing the parts of the valve rod guide in position before the same are clamped together.

In the drawing I have illustrated a portion of a flush tank at 10. As is customary a discharge pipe connection 11 passes through the lower wall of the tank 10. Within the tank 10 a valve seat member 12 is connected to the discharge pipe 11. Forming part of the valve seat member 12 there is an extension 13 to which in a customary manner an overflow pipe or tube 14 is connected. Co-operating with the valve seat member 12 is a discharge valve 15. This is operated through a valve rod 16, a link 17 connected thereto, a lever 18 to which the link 17 is connected, and a rod 19 mounted in a bracket 20 and operated exteriorly of the tank by means of a handle 21 or otherwise. These parts of the apparatus are old and well known in the art and form no part of the present invention.

The device to which the present invention more particularly relates is the valve rod guide. As illustrated this device is constructed to include a collar 22 adapted to surround the overflow pipe 14. The collar 22 is formed with an arm 23 extending therefrom.

At its inner end this arm 23 is transversely recessed, as indicated at 24, and the outer face of the recess is tapered or beveled, as clearly indicated in Fig. 3 of the drawing. The upper surface of this arm 23 is longitudinally grooved as designated at 25.

Associated with the arm 23 I employ a clamp 26. At one end this clamp 26 is provided with a wedge projection 27 having a face tapered at the same angle as the outer face of the recess 24 while this end of the clamp 26 is made concave to conform to the curvature of the overflow pipe 14 so as to bear and fit against the same in securing the parts in position. At the opposite or outer end of the clamp 26 there is a boss 28 depending appreciably therefrom. In a suitable position the clamp 26 is provided with a screw or bolt hole 29 through which there passes

a screw 30 adapted to be turned down into a tapped opening 31 provided therefor in the arm 23.

The device also includes a guide arm adjustable to position relatively to the arm 23 and its clamp member 26. This guide arm is designated at 32. It is adapted to fit and slide within the groove 25 in the upper face of the arm 23 and at its outer end this guide arm is bifurcated, as designated at 33, the bifurcated end portions being provided with holes of substantially the same diameter as that of the valve rod 16 adapted to pass through and slide therein for guiding the valve rod in the operation thereof. At its opposite or inner end the guide arm 32 is provided with a boss 34 adapted to contact with the inner or under surface of the clamp 26 and to cooperate with the boss 28 in determining the extent of the outward adjustment of the guide arm.

In the use of this apparatus the collar is placed on the overflow pipe 14 and moved to the desired position thereon. The clamp member 26 is then set on the arm 23 of the collar and the screw 30 turned sufficiently to cause the wedge member 27 to engage in the recess 24 whereby it will be understood the collar and its arm are set and fixed on the overflow pipe. The guide arm 32 is then placed in the groove 25 and adjusted to the position in which the valve rod is in alignment with the valve and the valve seat, whereupon by tightening the screw the wedge 27 engages the overflow pipe with a tighter grip and the guide arm 32 is engaged between the arm 23 and the clamp 26 in such a manner as to secure the same in its adjusted position, it being obvious that the boss 28 on the clamp bears against the upper surface of the guide arm while the boss 24 bears against the inner surface of the clamp 26. Of course, it will be understood that the length of the arms 23 and 32 may be such as to provide for a valve rod clamp that may be used in connection with any flush tank apparatus of such dimensions as are commonly employed irrespective of the distance between the center of the overflow pipe or other support and the center of the valve rod, that is, the axis thereof and that of the valve and its seat. Obviously also, instead of placing the parts in the relative positions as herein shown and described they may be reversed and other similar and equivalent changes made without departing from the nature and spirit of the invention.

I claim as my invention:—

1. In a valve rod guide for flush tanks, an arm, a supporter therefor, an extension member adjustable to position relatively to the said arm, and means for simultaneously securing the arm to its support and maintaining the extension member in position relatively to the said arm.

2. In a valve rod guide for flush tanks, an

arm, a support therefor, an extension member adjustable to position in said arm, a clamp, and means whereby the clamp simultaneously secures the arm to its support and the extension member in an adjusted position relatively to the said arm.

3. In a valve rod guide for flush tanks, a collar adapted to surround the overflow pipe in the flush tank, an arm integral with and extending from the said collar, a valve rod guide, and means for securing the collar in position on the overflow tank and simultaneously connecting the said valve rod guide to the said arm.

4. In a valve rod guide for flush tanks, a collar adapted to span the overflow pipe of the flush tank, an arm extending from the said collar, a valve rod guide member, a clamp member, and means for causing the clamp member to engage the arm and the overflow pipe to secure the collar and arm in position thereon and also to engage the valve rod guide member to fix the same in an adjusted position relatively to the said arm.

5. In a valve rod guide for flush tanks, a collar adapted to surround the overflow pipe of the flush tank, an arm extending therefrom and having a recess with a tapered wall in that portion of the arm adjacent its connection with the collar, a valve rod guide member, and a clamp having a wedge shaped end adapted to lie in the recess in the arm and to engage the overflow pipe and the inclined wall of the arm for securing the collar and arm in position on the overflow pipe and also to simultaneously engage the said valve rod guide member to secure the same in an adjusted position on the said arm.

6. In a valve rod guide for flush tanks, a collar adapted to fit around the overflow pipe of the flush tank, an arm extending from the said collar, there being a recess at the inner end of the said arm defined in part by an inclined wall spaced from the said overflow pipe, the arm also having a groove in the upper face thereof, a valve rod guide member movable to position in the groove in the face of the said arm, and a clamp having one end thereof adapted to enter the said recess in the arm and to engage the overflow pipe and the inclined wall of the arm and also to simultaneously engage the said valve rod guide member to secure the same in an adjusted position in the said arm.

7. In a valve rod guide for flush tanks, a collar adapted to fit around the overflow pipe of the flush tank, an arm extending from the said collar, there being a recess at the inner end of the said arm defined in part by an inclined wall spaced from the said overflow pipe, the arm also having a groove in the upper face thereof, a valve rod guide member movable to position in the groove in the face of the said arm, and a screw passing through the said guide member and engaging

with the said arm whereby in the initial tightening of the screw the said wedge is adapted to secure the collar and arm in place on the overflow pipe and in the final tightening of the screw the said clamp member is adapted to engage the valve rod guide member to secure the same in an adjusted position in the said arm.

Signed by me this 31st day of July, 1928.

JAMES F. DUNCAN.