Oct. 9, 1923. 1,470,179

S. J. T. METZGER

FLUSH VALVE CONSTRUCTION

Filed Nov. 25, 1921

Fig. 1.

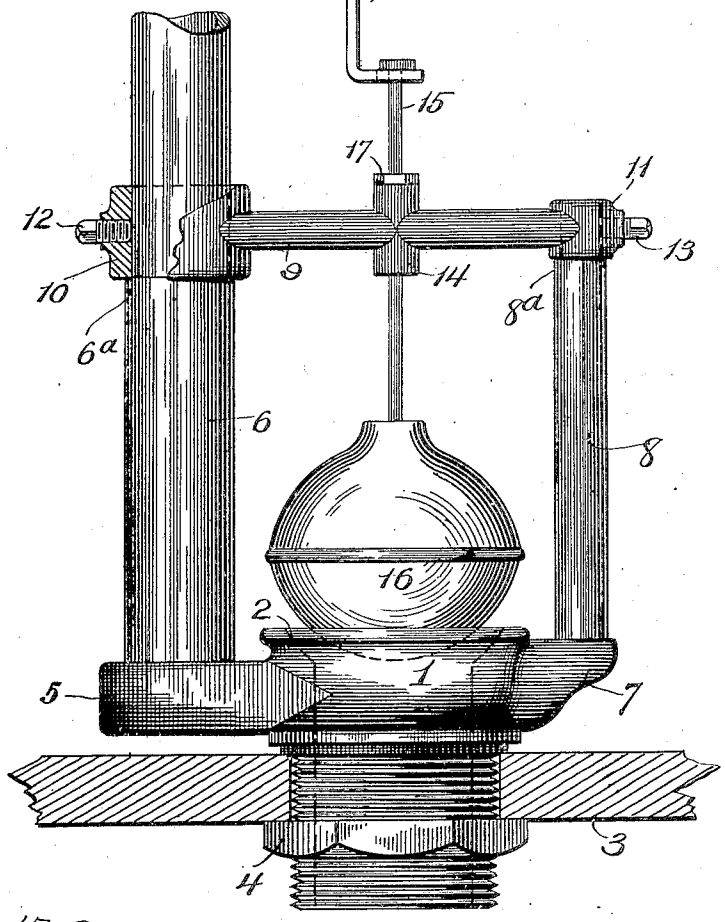


Fig. 2.

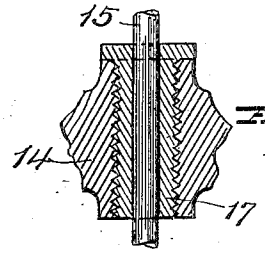
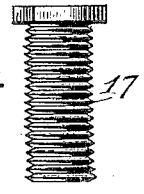


Fig. 3.



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UNITED STATES PATENT OFFICE.

SAMUEL J. T. METZGER, OF WILLIAMSPORT, PENNSYLVANIA.

FLUSH-VALVE CONSTRUCTION.

Application filed November 25, 1921. Serial No. 517,699.

To all whom it may concern:

Be it known that I, SAMUEL J. T. METZGER, a citizen of the United States, and a resident of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Flush-Valve Constructions; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in flush valve constructions,—one object of the invention being to so improve devices of this character as to reduce to a minimum, liability of the valve rod binding in its guiding and supporting means, thus insuring the positive and accurate operation of the valve.

A further object is to construct the devices in such manner that the guiding means for the valve rod may be readily secured in place, but so that said guiding means shall be positively held, normally, against possibility of such displacement as might result in binding of the valve rod.

A further object is to so construct the devices that the guiding means for the valve rod may be easily repaired without necessity for removing the guiding structure and replacing the same with a new one in the event of excessive wear of the member of said guiding structure through which the valve rod passes.

With these and other objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claim.

In the accompanying drawings; Figure 1 is a view in elevation showing an embodiment of my invention; Figure 2 is a sectional view of the guide tube, and Figure 3 is a detail view of the guide tube bushing.

In the drawing, 1 represents a hollow casting providing a valve seat at 2 and having a threaded coupling shank which passes through the bottom 3 of a flush tank,—a nut 4 being threaded on said shank to clamp the device to the tank bottom 3 and with said shank, an outlet pipe (not shown) may be coupled as is well understood in the art. The casting 1 is formed at one side with a hollow arm or extension 5, upon which is supported in a manner to communicate therewith, an overflow tube 6. At the opposite side of the casting, a lug 7 is provided to support a solid rod 8 which is so disposed as to be parallel with the overflow tube 6 but is appreciably shorter than the latter so that it will not interfere with the operation of the hollow metal float commonly employed in flush tanks to control the operation of the water inlet valve.

Between the overflow tube 6 and the vertical rod, a cross bar 9 is disposed,—said cross bar being provided at one end with an integral collar 10 to encircle the tube 6 and at its other end with a smaller collar 11 to encircle the rod 8 and set screws 12, 13 are provided for securing the collars to the tube and rod.

The intermediate portion of the cross bar 9 is formed with a vertically disposed, elongated guide member 14, made in the form of a tube through which the rod 15 of a ball valve 16 passes,—the latter being adapted normally to rest on the valve seat 2 as is well understood. The guide sleeve is maintained, by its connection with the tube 6 and rod 8, in a fixed vertical position so that the free movement of the valve rod through it will be insured and it provides an extended guide for said valve rod during the vertical movements of the latter.

Within the guide sleeve, a removable bushing 17 is placed to insure the free movement of the valve rod which passes through it. In the event of undue wear which might affect the accurate operation of the valve rod and valve, the bushing 17 may be easily and quickly replaced with a new bushing and thus the device may be repaired without necessity of discarding the entire guide structure and replacing the same with a new one.

In practice I prefer to so machine the exterior of the overflow tube 6 and the rod 8 as to provide shoulders 6^a and 8^a respectively, upon which the collars 10, 11 at respective ends of the cross bar 9 may rest and thus support the latter in a level position from which it cannot be accidentally displaced, and insure the retention of the guide member 14 in accurate alignment with the valve rod or wire 15.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

In a flush valve structure, the combination with a hollow member having a valve seat, of a vertical overflow tube communicat-

ing with said member at one side of said valve seat, a vertical rod carried by said hollow member at the opposite side of said valve seat, said tube and rod having shoulders, said rod being shorter than said tube, a single cross bar having collars at its respective ends secured to said tube and rod and adapted to seat on the shoulders of the same, said cross bar having an intermediate vertical elongated guide member, a bushing in said guide member, a valve, and a valve rod passing through said bushing and engaging the same from end to end thereof.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

SAMUEL J. T. METZGER.

Witnesses:

E. RAY ENDERS,

A. M. SMITH.