Nov. 16, 1926. 1,607,520

W. FRANKENBERGER

VALVE

Filed March 19, 1925

FIG.1.

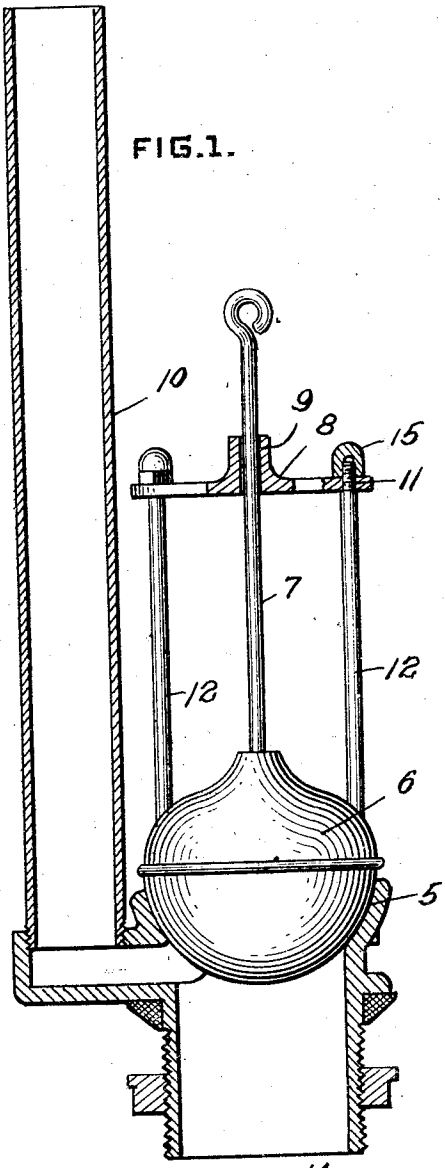


FIG.2.

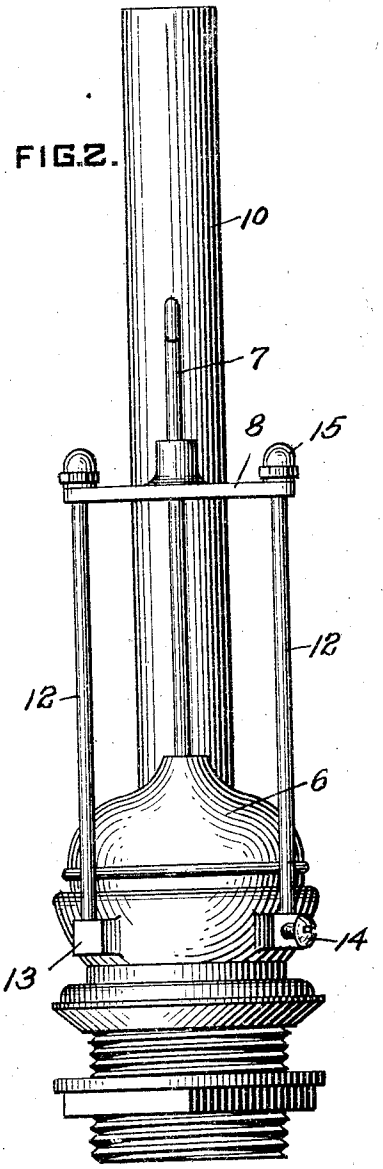
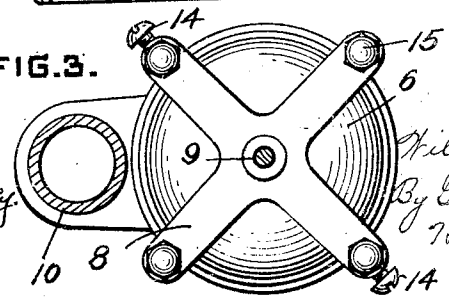


FIG.3.



INVENTOR

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WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM FRANKENBERGER, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO STANDARD SANITARY MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

VALVE.

Application filed March 19, 1925. Serial No. 16,645.

This invention relates to valves and more particularly to outlet valves for flushing tanks, commonly known as flush valves.

Valves of this type generally consist of a valve ball which is usually made of rubber and which cooperates with a suitable valve seat. A lift rod is secured to the ball and a lift rod guide is supported from the usual overflow tube. Continual use of such a structure results in a misalignment of the ball and valve seat causing the ball to seat on the valve in such a way as to permit water in the tank to leak through the valve with the accompanying objectionable noise and waste.

An object of this invention is to provide a flush valve of such construction that misalignment of the valve ball and the valve seat is positively prevented, and a positive closing of the valve opening by the ball is assured even after long continued use.

A further object is to provide a device of the type set forth which will be simple and rugged in construction, cheap to manufacture and positive in operation.

These and other objects which will be obvious to those skilled in this particular art are accomplished by means of this invention, one embodiment of which is shown for the purposes of illustration in the accompanying drawing, in which Figure 1 is a vertical sectional view through a flush valve embodying one form of this invention. Fig. 2 is a side elevation thereof and Fig. 3 is a top plan view showing the lift rod in section.

The particular embodiment of this invention which has been chosen for illustration is shown applied to a flush valve having a valve seat 5 and the usual valve ball 6 which is adapted to be operated so as to open and close the valve. A lift rod 7 extends upwardly from the valve ball and provides a means for raising the latter from the valve seat to permit water to flow from the flushing tank, as is well known in this particular art.

A guide frame 8 is provided, as usual, for the purpose of guiding the movements of the rod 7 which extends through an elongated bore 9 formed in the hub of the guide frame. It has heretofore been customary to support at least one side of the guide frame on the overflow tube 10 which is associated with all flush valves. In order to overcome the hereinbefore mentioned defects the guide frame 8 is supported upon shoulders 11 formed near the upper end of vertical supporting and ball guiding rods 12 which are mounted in lugs 13 formed in spaced relation around the outside of the valve seat 5. Set screws 14 are provided on certain of the lugs for securing the assembled structure in proper position and nuts 15 are threaded to the upper ends of the rods 12 for securing the guide frame thereto.

The vertical, guide frame supporting rods 12 form guides for centering the valve ball upon the valve seat and provide a structure which positively insures the proper seating of the ball upon the seat even after long continued use. The entire device is independent of the overflow tube so that any springing or warping of the latter has no effect thereon, and any wear of the bore 9 in the guiding frame will not result in the valve ball being misaligned with the valve seat as the guide rods 12 maintain the ball in axial alignment therewith at all times.

What I claim as new and desire to secure by Letters Patent is:

In a flush valve, the combination with a valve body of a seat formed thereon, a ball cooperating with said seat, a stem centrally secured to said ball and extending vertically therefrom, lugs formed on said valve body in spaced relation around said seat, guide rods secured within said lugs and extending vertically therefrom to form guides for said ball, a guide plate having an elongated guide member secured to the upper ends of said guide rods, said guide rods being shouldered to form abutments for said guide plate.

In testimony whereof, I have hereunto subscribed my name this 13th day of March, 1925.

WILLIAM FRANKENBERGER.