

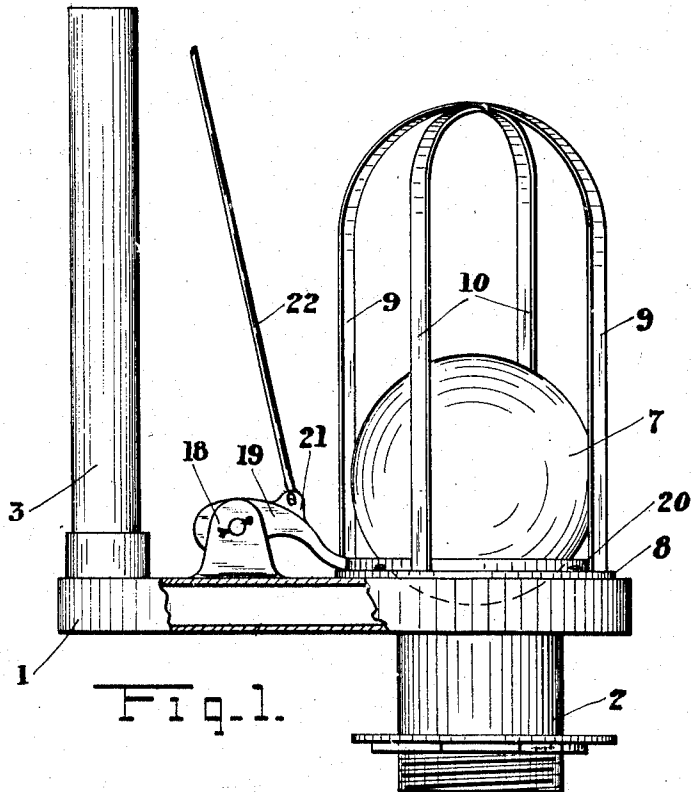
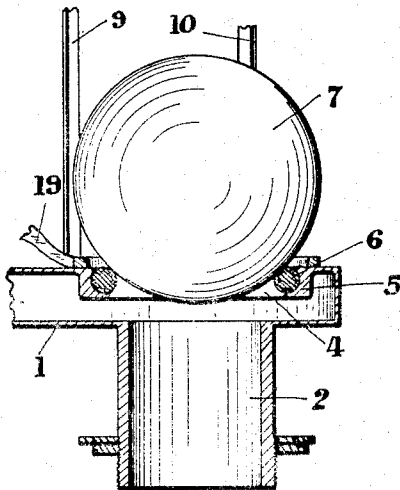
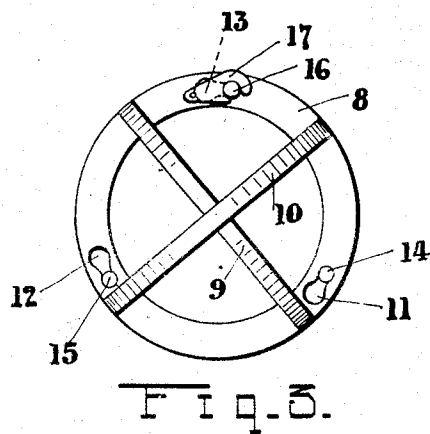
May 19, 1925.

G. E. RICHARDSON

1,538,656

FLUSH VALVE

Filed Aug. 3, 1922



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UNITED STATES PATENT OFFICE.

GEORGE E. RICHARDSON, OF COLEBROOK, NEW HAMPSHIRE.

FLUSH VALVE.

Application filed August 3, 1922. Serial No. 579,514.

To all whom it may concern:

Be it known that I, GEORGE E. RICHARDSON, residing at Colebrook, county of Coos, and State of New Hampshire, a citizen of the United States, have invented certain new and useful Improvements in Flush Valves, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to flush valves for tanks such as are used for water closets and has for its object to provide a flush valve of this type which will be simple and inexpensive in construction, effective in operation not liable to get out of order and in which the valve and valve seat may be readily gotten at to permit of repair or renewal of worn or defective parts and will permit the use of a spherical valve.

With the above indicated objects and other objects hereinafter explained in view my invention consists in the construction and combination of elements hereinafter described and claimed.

Referring to the drawings:

Figure 1 is a side view, partly broken away showing a complete flush valve embodying my invention.

Figure 2 is a central sectional view of the valve seat and

Figure 3 is a top plan view of the cage for the ball serving as the valve.

In the drawings 1 indicates a hollow base plate from which outlet pipe 2 leads downward and overflow pipe 3 leads upward both outlet pipe and overflow pipe communicating with the interior of the base plate so that water passing down the overflow pipe will flow through the base plate into the upper end of the outlet pipe. In the upper plate of the base plate 1, directly above and in line with the outlet pipe is a circular opening 4 having in its wall a groove 5 to receive a packing ring or gasket 6 of rubber or like material, preferably in the form of a solid ring as shown, which forms a seat for a ball 7 of considerably larger diameter than the diameter of the opening 4 so that when in position the centre of the ball will be a considerable distance above the base plate.

Surrounding the opening 4 and resting on the upper surface of the base plate is a ring 8 carrying the lower ends of U-shaped strips 9 and 10 extending upward and arranged to cross at their upper ends of the U's so as to

form a cage in which the ball 7 is free to rise and fall within the limit of the height of these U shaped strips. This ring 8 is so secured on the base plate as to be readily detached to permit the ball 7 to be removed or replaced, the means for this purpose shown comprising keyhole slots 11, 12, and 13 formed in the ring, the enlarged portions of these slots being adapted to fit over the heads of headed pins 14, 15, and 16 carried by the base plate and the narrow portions of the slots being of less width than the diameters of the heads so that when the ring is placed in position with the enlarged pins and is then rotated the narrower portions of the slots will fit about the pins beneath their heads and the ring will thus be held from removal. To prevent the ring from being accidentally rotated so as to free it from engagement with the pins, a latch 17 is pivoted on the ring so that it may be turned into position to engage one of the pins.

On the upper face of the base plate between the overflow pipe 3 and the opening 4 is arranged a lug 18 in which is pivoted a lever 19 the free end of which extends toward the opening 4 and carries at its end a ring 20 of a diameter somewhat greater than the diameter of the opening 4 but less than the diameter of the ball. This ring normally rests on ring 8 about the opening 4 within the lower ends of the U shaped strips 9 and 10. On the upper side of the lever 19 is a lug 21 in which is pivoted the lower end of an operating rod 22 by which the lever may be operated to lift the ring 20.

The ball 7 may be hollow rubber ball as is usual in flush valves but is preferably a hollow glass ball. It should be of such specific gravity that when the tank (not shown) in which the flush valve is placed is full and the ball is lifted from its seat, it will float upward within the limit permitted by the cage formed by the U shaped strips 9 and 10, and when the water or nearly all of it has run out of the tank the ball will fall to its seat and, as the tank refills, will be held to its seat by the pressure of the water until forcibly lifted from its seat by the lifting of the ring 30.

Having thus described my invention, what I claim is:—

In a flush valve, a base plate having an outlet therein, a recess extending about the outlet, a tubular washer arranged within

said recess and forming a seat for a valve, a spherical valve of a diameter greater than the diameter of said valve seat and adapted to rest upon said tubular washer, a lever 5 pivoted to the upper side of the base plate and provided on its free end with a ring extending above the valve seat but below the horizontal plane of the center of the spherical valve, and encircling the lower portion of 10 said valve, the interior diameter of said ring being greater than the outer diameter of the tubular washer, means for moving the lever to displace the valve from its seat, and means for limiting the upward movement of the spherical valve when displaced from 15 its seat comprising a ring provided with keyhole slots and having U shaped strips secured thereto, the base plate being provided with headed pins adapted to enter the enlarged portions of the keyhole slots, and a 20 locking means attached to the ring comprising a pivoted member provided with a recess adapted to encircle said headed pin against disengagement.

In testimony whereof I hereunto affix my signature.

GEORGE E. RICHARDSON.