

J. F. JENNINGS.
OPERATING MECHANISM FOR VALVES.
APPLICATION FILED OCT. 10, 1910.

996,587.

Patented June 27, 1911.

Fig. 1.

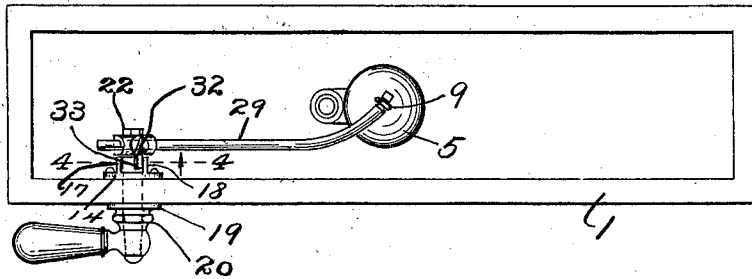


Fig. 2.

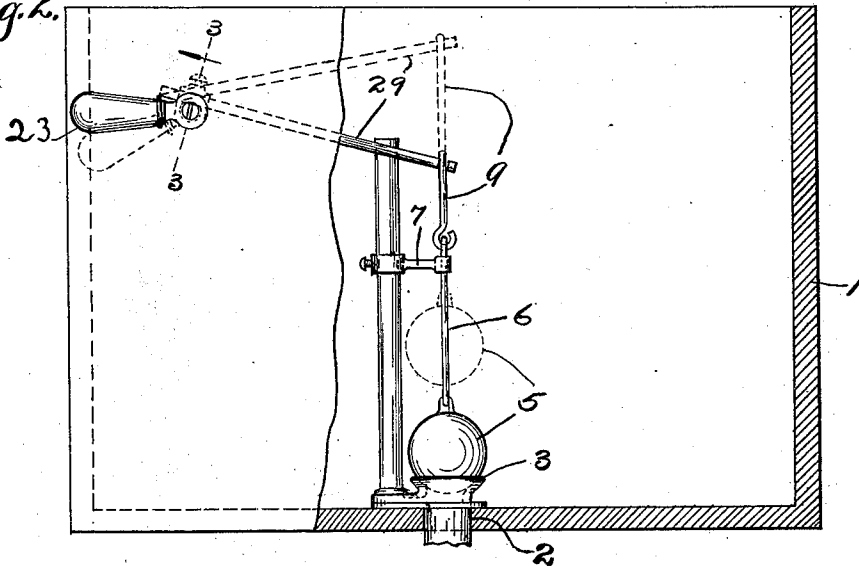


Fig. 3.

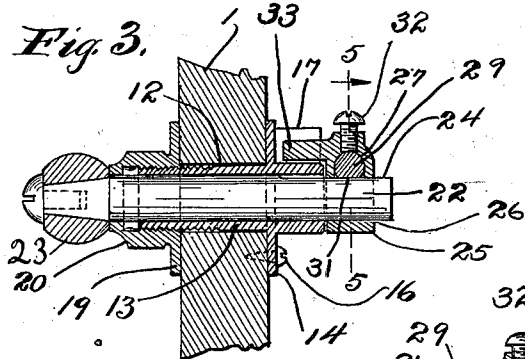


Fig. 4.

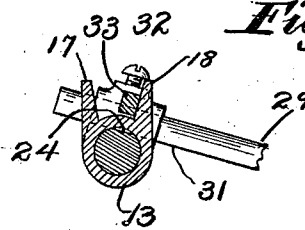
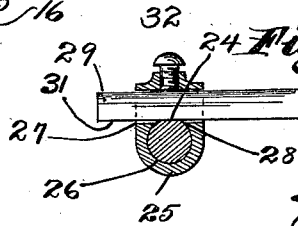


Fig. 5.



Witnesses:
H. J. Gettins.
H. L. McVonnell.

Inventor:
John F. Jennings
By *[Signature]*
his Attorneys.

UNITED STATES PATENT OFFICE.

JOHN F. JENNINGS, OF CLEVELAND, OHIO, ASSIGNOR TO THE MONARCH BRASS COMPANY, OF CLEVELAND, OHIO.

OPERATING MECHANISM FOR VALVES.

996,587.

Specification of Letters Patent. Patented June 27, 1911.

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To all whom it may concern:

Be it known that I, JOHN F. JENNINGS, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Operating Mechanism for Valves; and I 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 pertains to make and use the same.

This invention relates to improvements in operating mechanism for valves and particularly to mechanism for lifting the valve used for stopping the outlet in closet tanks.

The object of the invention is to provide mechanism of this character which can be readily mounted on the side of any tank irrespective of the thickness of the walls of the tank or the location of the outlet opening in the bottom of the tank.

My invention, therefore, consists in providing an adjustable bushing which can be made to conform to the thickness of the wall of the tank and also in providing an adjustable trip lever which can be adjusted according to the distance between the point where the operating stem extends through the wall of the tank and the outlet opening in the tank.

My invention also consists in the features of construction and combination of parts hereinafter described, pointed out in the claims and illustrated in the accompanying drawings.

In the accompanying drawings Figure 1 is a top plan of a tank embodying my invention. Fig. 2 is a side elevation with part broken away. Fig. 3 is a section on line 3-3, Fig. 2. Fig. 4 is a section on line 4-4, Fig. 1. Fig. 5 is a section on line 5-5, Fig. 3.

Again referring to the drawings 1 represents a tank of the usual construction which is provided with the usual flush outlet 2 in which is arranged a valve seat 3. A ball valve 5 is adapted to rest on the valve seat 3 so as to close said outlet and the said ball is provided with a stem 6 which is adapted to slide in a suitable guide 7 and to the end of the stem 6 is pivotally secured a link 9, all of which is of the usual construction and forms no part of my invention.

The operating mechanism which embodies my invention is mounted and arranged as

follows,—In the side of the tank is formed an opening 12 and in this opening is mounted an exterior screw-threaded sleeve 13 which is provided near its inner end with an annular flange 14 having screw holes through which screws 16 are passed for securing the said flange 14 to the inner face of the tank. The sleeve projects inwardly beyond said flange 14 and on the end thereof are arranged two stop forming lugs 17 and 18. The outer end of said sleeve is arranged to project beyond the outer face of the tank a greater or less distance according to the thickness of the wall of the tank and on the outer end of the sleeve 13 is arranged a clamping nut 19 which is provided with a boss 20 of sufficient depth to receive the entire portion of the sleeve 13 which projects beyond the outer face of the tank so that the nut 19 will clamp tightly against the outer face of the tank. A small shaft 22, which is provided on its outer end with a suitable handle 23, is mounted within the said sleeve 13 so as to turn freely therein, and the inner end of said shaft 22 projects beyond the inner end of the sleeve and thereon is formed a flat face 24.

On the inner end of the shaft 22 is mounted a collar 25, the said collar being provided with a bore 26 which receives the end of said shaft 22 and a bore 27 above and at a right angle to the bore 26 and the bore 27 is arranged to cut through the upper part of the bore 26 making an opening 28 thereinto, so that the bores are in common where they intersect each other. The collar is arranged on the shaft 22 so that the flat face on said shaft 22 registers with the opening 28 between the bores. The bore 27 is adapted to receive the end of a trip lever 29 and this lever is provided where it passes through the bore 27 with a flat face 31, and the said lever is so arranged in the bore 27 that the flat face 31 registers with and comes in contact with the flat face 24 on the shaft 22. In the collar 25 is arranged a set screw 32, the end of which is adapted to engage the end of the lever 29 in the collar 25 and force it down against the end of the shaft 22 so that when the said screw is turned down into position the flat face of the said shaft 22 is clamped against the flat face of the lever 29 and the collar 25 is rigidly secured to both. On the collar 25 is arranged an outwardly extending projection or finger 33 which extends between

the stop forming lugs 17 and 18 on the flange 14. The free end of the lever 29 is operatively connected to the link 9.

It will of course be understood that owing to the various styles of tanks and the method of mounting the same the thickness of the walls will vary with different tanks and also the distance between the point at which the operating shaft enters the tank and the outlet opening in the tank will vary in different tanks. By my invention I have provided a valve operating mechanism which can be readily applied to all tanks without any change therein. By my arrangement of the sleeve and nut the mechanism can be readily fitted to a tank wall of any thickness and the trip lever can be lengthened or shortened by sliding it through the supporting collar according as there is a greater or less distance between the point at which the operating lever enters the casing of the tank and the outlet opening.

What I claim is,—

1. In mechanism of the character described, the combination with a tank having an outlet and a valve closing said outlet, of a screw-threaded sleeve arranged in the wall of said tank and provided with a flange near its inner end arranged to abut against the inner face of the wall of said tank, a nut adapted to engage the outer end of said sleeve and clamp against the outer face of the wall of said tank, a shaft rotatably arranged within said sleeve and provided at its outer end with a handle, a collar secured on the inner end of said shaft a trip lever slidably mounted in said collar and means connecting one end of said lever with said valve.

2. In mechanism of the character described, the combination with a tank having an outlet and a valve closing said outlet, of a screw-threaded sleeve arranged in the wall of said tank, and provided with a flange near one end arranged to abut against one face of the wall of said tank, a nut adapted to engage the other end of said sleeve and clamp against the other face of the wall of said tank, a shaft rotatably arranged within said sleeve and provided at its outer end with a handle, a trip lever mounted on the inner end of said shaft and shiftable transversely of the axis of said shaft and means connecting one end of said lever with said valve.

3. In mechanism of the character described, the combination with a tank having an outlet and a valve closing said outlet, of a screw-threaded sleeve arranged in the wall of said tank and provided with a flange near its inner end arranged to abut against the inner face of the wall of said tank and with a pair of stop forming lugs, a nut adapted

to engage the outer end of said sleeve and clamp against the outer face of the wall of said tank, a shaft rotatably arranged within said sleeve and provided at its outer end with a handle, a collar secured on the inner end of said shaft and provided with a finger arranged to extend between the stop forming lugs on said sleeve and a trip lever slidably mounted in said collar and means connecting one end of said lever with said valve.

4. In mechanism of the character described, the combination with a tank having an outlet and a valve closing said outlet, of a screw-threaded sleeve arranged in the wall of said tank and provided with a flange near its inner end arranged to abut against the inner face of the wall of said tank, a nut adapted to engage the outer end of said sleeve and clamp against the outer face of the wall of said tank, a shaft rotatably arranged within said sleeve and provided at its outer end with a handle, a collar having a bore arranged to receive the inner end of said shaft and a bore at a right angle thereto cutting said first-mentioned bore, a trip lever having one end mounted in the last-mentioned bore in said collar and having its other end operatively connected to said valve and a set screw arranged in said collar and adapted to clamp the end of the trip lever in said collar against the end of said shaft.

5. In mechanism of the character described, the combination with a tank having an outlet and a valve closing said outlet, of a screw-threaded sleeve arranged in the wall of said tank and provided with a flange near its inner end arranged to abut against the inner face of the wall of said tank and with a pair of stop forming lugs, a nut adapted to engage the outer end of said sleeve and clamp against the outer face of the wall of said tank, said nut having a hollow extension adapted to receive the projecting end of said sleeve, a shaft rotatably arranged within said sleeve and provided at its outer end with a handle, a collar secured on the inner end of said shaft and provided with a finger arranged to extend between the stop forming lugs on said sleeve, a trip lever slidably mounted in said collar and in contact with said shaft where it passes through said collar, a set screw for clamping the end of said lever against said shaft and means connecting said lever with said valve.

In testimony whereof, I sign the foregoing specification, in the presence of two witnesses.

JOHN F. JENNINGS.

Witnesses:

VICTOR C. LYNCH,
N. L. McDONNELL.