

J. M. YOUNG.
MECHANISM FOR OPERATING FLUSHING VALVES.
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Patented Mar. 14, 1911.

987,030.

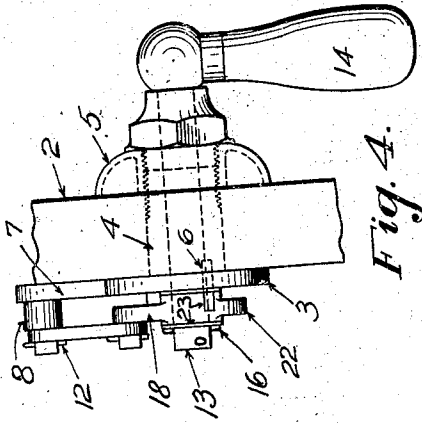


Fig. 4.

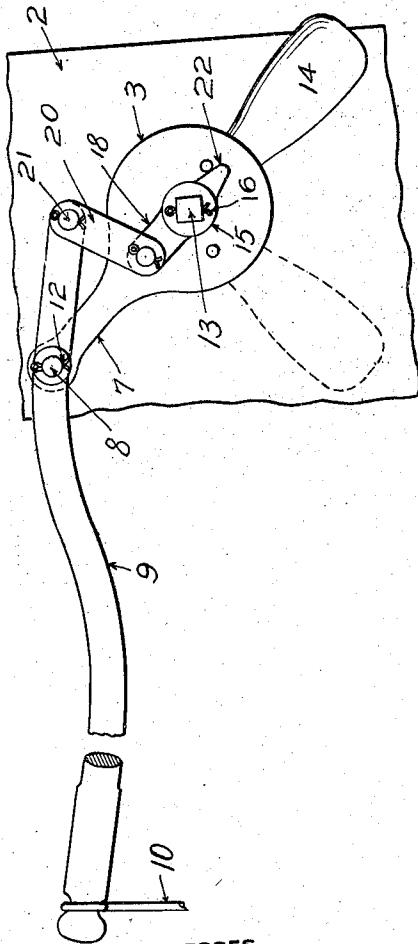


Fig. 2.

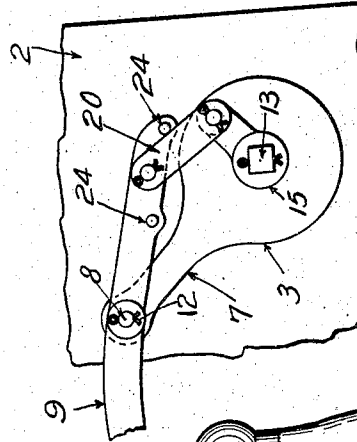


Fig. 5.

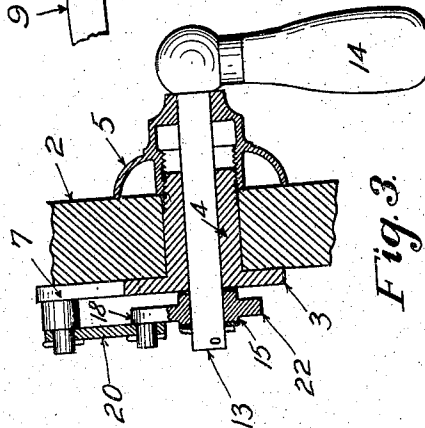


Fig. 3.

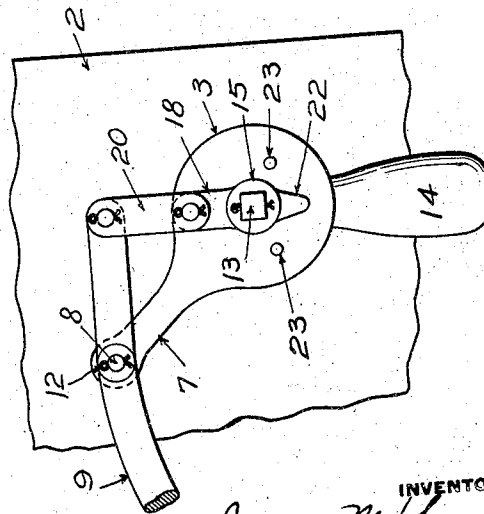


Fig. 1.

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MECHANISM FOR OPERATING FLUSHING-VALVES.

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To all whom it may concern:

Be it known that I, JAMES M. YOUNG, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Mechanism for Operating Flushing-Valves, of which the following is a specification.

This invention relates to mechanism for operating flushing valves of water closet tanks and the like.

The object of the invention is to provide mechanism for this purpose which is of simple, strong and compact construction and which comprises a minimum number of parts, which is so arranged that friction is reduced to a minimum so as to permit the valve to fully close after each operation, and one which has only a single means of attachment or connection to the tank and is thereby particularly adapted to tanks of metal, porcelain or other material to which the attachment of parts is difficult and costly.

The invention comprises the construction and arrangement of parts hereinafter described and claimed.

In the accompanying drawings Figure 1 is an inside elevation of the valve operating mechanism with the parts in position to keep the valve closed; Fig. 2 is a similar view with the parts in position to open the valve; Fig. 3 is a vertical section taken through the operating shaft or spindle; Fig. 4 is an end elevation of the device; and Fig. 5 is an inside elevation showing a modification.

The tank wall is indicated at 2, and may be of metal, wood, porcelain or other suitable material.

The flushing valve operating mechanism comprises a fitting consisting of a plate 3 arranged to lie against the inner face of the tank wall, and in its preferred form being integral with the outwardly projecting hollow bushing or sleeve 4 which is adapted to project through a hole in the tank wall and at its outer end is threaded to receive a cap nut 5 which serves not only to secure the fitting to the tank, but also to conceal the opening through the tank wall and provide the necessary finish on the outside. A projection 6 on the fitting enters a suitable slot or hole in the tank wall and prevents the fitting from turning. In the form shown the nut 5 is the only fastening means necessary or required to secure the entire

mechanism in place, and the fitting requires only a single hole through the tank wall, thereby peculiarly adapting it to metal and porcelain tanks. The plate 3 is provided with a projecting portion or arm 7 which at its outer end carries or is provided with a fulcrum 8 lying at one side of the opening through the sleeve 4, and parallel to the axis of said sleeve opening. A valve operating lever 9 of the first order is mounted between its ends on said fulcrum 8 and to its longer arm is connected the rod 10 which carries the usual flushing valve, not shown. The lever 9 is secured on the fulcrum 8 in any suitable way, such as by means of cotter pin 12.

Projecting through the hollow sleeve 4 is the operating shaft 13 provided on its outer end with a suitable operating member shown in the form of a lever or handle 14. At its inner end said shaft is provided with a crank-arm having operative connection with the short arm of lever 9. As shown, the inner end of shaft 13 is squared and has secured thereon a sleeve 15, the attachment being shown as made by means of cotter pin 16. The crank arm 18 is formed as a part of the sleeve 15 and is connected to the short end of lever 9 by means of the link 20, which is pivotally connected to a wrist pin on the crank arm 18 and a similar wrist pin 21 on lever 9. Preferably cotter pins or the like are used for holding the link on said wrist pins. The connection described enables the lever 9 to be operated whenever the shaft 13 is rotated in either direction. Suitable stops are provided to limit the movement of the actuating shaft 13 in either direction. The stops shown in Figs. 1 to 4 comprise a projection 22 on sleeve 15 moving between a pair of projections 23 on plate 3. In Fig. 5 the stops are shown as projections or pins 24 carried by the lever 9 and in such position that the edges of link 20 contact therewith when the link has reached the limit of its movement in either direction. Various other arrangements of stops will readily suggest themselves.

The operation of the mechanism described will be readily understood from the foregoing description in connection with the drawings. The flushing valve is lifted by moving the handle 14 in either direction. The construction is such that there is practically no friction in the connection between

actuating shaft 13 and the flushing valve, so that as soon as the handle 14 is released the parts readily move to such position as to permit the flushing valve to fully close.

The mechanism described has only a single connection with the tank, this being by means of the threaded sleeve 4 and nut 5. Both the operating shaft 13 and the valve operating lever fulcrum are carried by this one fitting. As a consequence the device can be secured to the tank with a minimum number of attachments, thereby particularly adapting it to metal, porcelain and similar tanks to which attachments cannot be readily secured. This greatly simplifies the fitting of the tank and also provides a more slightly and durable construction.

What I claim is:

1. Mechanism for operating flushing valves comprising a sleeve extending through a wall of the tank and provided with an opening for an operating shaft, a lever fulcrum on the inner face of the tank wall at the side of said sleeve and with its axis parallel to the axis of said sleeve opening, a lever of the first order mounted on said fulcrum, an operating shaft rotatably mounted in said sleeve and provided on its outer end with an operating member and on its inner end with a crank arm, and operative connections between said crank arm and said lever.

2. Mechanism for operating flushing valves comprising a sleeve adapted to extend through a wall of the tank and provided with an opening for an operating shaft, a lever fulcrum on the inner face of the wall of the tank at the side of said sleeve and with its axis parallel to the axis of said sleeve opening, a lever of the first order mounted on said fulcrum, an operating shaft rotatably mounted in said sleeve and provided on its outer end with an operating member and on its inner end with a crank arm, operative connections between said crank arm and said lever, and stops arranged to limit the rotation of the operating shaft in both directions.

3. Mechanism for operating flushing valves comprising a sleeve extending through a wall of the tank and provided with an opening for an operating shaft, a lever mounted on a fulcrum at the side of said sleeve opening and on an axis parallel to the axis of said opening, an operating shaft rotatably mounted in said sleeve and provided on its outer end with an operating member and on its inner end with a crank arm, and a connecting member flexibly connecting said crank arm and said lever.

4. Mechanism for operating flushing valves comprising a sleeve extending through a wall of the tank and provided with an opening for an operating shaft, a lever mounted on a fulcrum at the side of

said sleeve opening and on an axis parallel to the axis of said opening, an operating shaft rotatably mounted in said sleeve and provided on its outer end with an operating member and on its inner end with a crank arm, and a link pivotally connected to said crank arm and to said valve operating lever.

5. Mechanism for operating flushing valves comprising a sleeve extending through a wall of the tank and provided with an opening for an operating shaft, a lever fulcrumed at the side of said sleeve opening and on an axis parallel to the axis of said opening, an operating shaft rotatably mounted in said sleeve and provided on its outer end with an operating member and on its inner end with a crank arm, a link connecting said crank arm and valve operating lever, and stops arranged to limit the rotation of the operating shaft in both directions.

6. Mechanism for operating flushing valves comprising a plate for attachment to the inside of the tank and provided with an opening for an operating shaft and with a lever fulcrum center at the side of said opening and with its axis substantially parallel to the axis of said opening, a lever of the first order mounted on said fulcrum, an operating shaft rotatably mounted in the opening in said plate and provided on its outer end with an operating member and on its inner end with an arm, and operative connections between said arm and said lever.

7. Mechanism for operating flushing valves comprising a plate for attachment to the inside of the tank and provided with an opening for an operating shaft and with a lever fulcrum center at the side of said opening and with its axis substantially parallel to the axis of said opening, a lever mounted on said fulcrum, an operating shaft rotatably mounted in the opening in the plate and provided on its outer end with an operating member and on its inner end with a crank arm, and a connecting member flexibly connected to said crank arm and to said lever.

8. Mechanism for operating flushing valves comprising a plate for attachment to the inside of the tank and provided with an opening for an operating shaft and with a lever fulcrum center at the side of said opening with its axis substantially parallel to the axis of said opening, a lever mounted on said fulcrum, an operating shaft rotatably mounted in the opening in said plate and provided on its outer end with an operating member and on its inner end with a crank arm, a link connecting said crank arm and said lever, and stops arranged to limit the rotation of the operating shaft in both directions.

9. Mechanism for operating flushing valves comprising a plate for attachment

to the inside of the tank and provided with
an opening for an operating shaft and with
a lever fulcrum center at the side of said
opening with its axis substantially parallel
5 to the axis of said opening, a sleeve project-
ing through an opening in the tank wall and
adapted to receive a nut to secure said plate
and sleeve to said wall, a lever mounted on
said fulcrum, an operating shaft rotatably
10 mounted in said sleeve and provided at its

outer end with an operating member and on
its inner end with a crank arm, and a link
connecting said crank arm and said lever.

In testimony whereof, I have hereunto set
my hand.

JAMES M. YOUNG.

Witnesses:

JAS. T. WELDON,
MARY E. CAHOON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
