Nov. 3, 1931. L. A. CORNELIUS 1,830,734

VALVE STRUCTURE

Filed June 11, 1930

Fig. 1.

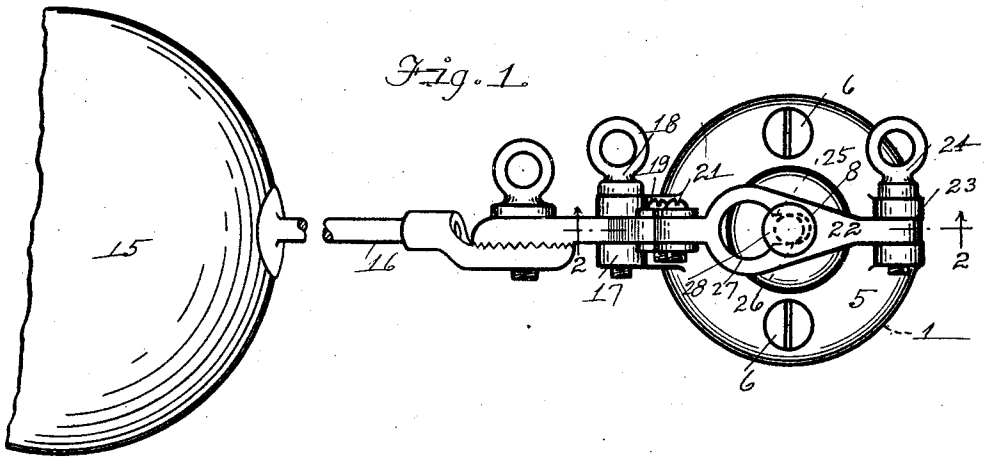
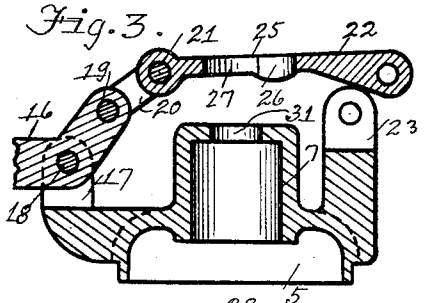


Fig. 3.



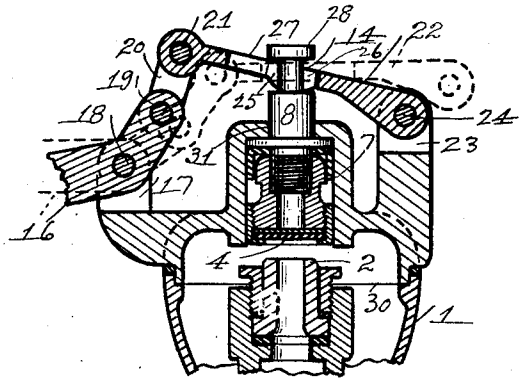


Fig. 2.

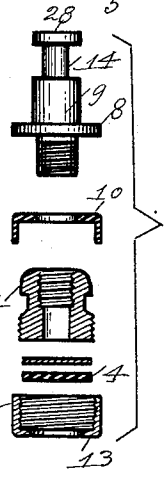


Fig. 4.

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UNITED STATES PATENT OFFICE

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VALVE STRUCTURE

Application filed June 11, 1930. Serial No. 460,377.

The present invention relates to valve structures; and its object is, generally, to provide such a structure whose parts may be readily disassembled or are relatively movable whenever desired for replacing the valves or other parts therein and for like purposes.

This and any other and more specific objects hereinafter appearing are attained by, and the invention finds preferable embodiment in, the valve structure particularly described in the body of this specification and illustrated by the accompanying drawings, in which:

Figure 1 is a top plan view of a valve structure;

Figure 2 is a vertical sectional view thereof taken on line 2—2 of Figure 1;

Figure 3 is a vertical sectional view of the cover for the body of said structure and adjacent parts, taken on the same line and showing some of the parts disconnected; and

Figure 4 is a composite view, partly in vertical section, of the disassembled parts of the valve and its stem.

The valve structure illustrated by these drawings is adapted to be mounted in a water closet flushing tank for controlling the supply of water thereto, and comprises a hollow body 1 through which water passes to the tank and containing a valve seat 2 for the valve 4 which controls the water flow. This body 1 has an open upper end 30 closed by a cover 5 detachably secured thereto as by the screws 6, or otherwise openable, to permit access to the parts inside said body and cover. This cover has a vertical bearing 7 therethrough in which the valve stem 8 is slidably movable, this stem carrying at its lower end, inside the cover, the valve 4 which cooperates with the valve seat.

In the particular construction shown the valve, and valve stem comprise the central rod 9 carrying a washer 10, a head 11 threaded on the rod and the flexible valve member 4 adapted to contact the valve seat and be held on the head by a collar 12 threaded thereon and having a flange 13 engaging the valve member 4.

The valve stem, i. e. its rod 9, has a recessed portion formed by the annular groove 14 adjacent its upper end outside the cover, and is moved to operate the valve by a ball float 15 in the flushing tank, carried by a lever 16 fulcrumed at 17 on the cover by a removable pin 18. The short end of this lever is connected pivotally at 19 to a link 20 which is pivotally connected at 21 to a valve stem-operating lever arm 22 fulcrumed at 23 on the cover by a removable pin 24. This lever arm 22 has a slot opening 25 extending longitudinally thereof and comprising a narrow portion 26 in which the valve stem's recessed portion 14 is operatively engaged, and an enlarged end portion 27 through which the outer end 28 of the valve stem is adapted to be passed.

This lever arm 22 is adapted to be moved longitudinally to a position (shown in Figure 3 and in dotted lines in Figure 2) wherein the outer end of the valve stem may be passed through the enlarged portion 27 of the slot opening in assembling or disassembling the parts, and to another position (seen in Figure 1 and in solid lines in Figure 2) wherein the valve stem is engaged in operative position in the narrow portion 26 of the slot opening.

In assembling and disassembling the parts to gain access to the interior of the body portion 1 of the structure to replace worn valves and the like, the lever arm 22 is disconnected by removing the pin 24 and is slid toward the right hand side of Figures 1 and 2 and thereupon lifted out of connection with the valve stem, whereupon, the screws 6 being removed, the cover with the valve and valve stem may be raised from the open upper end of the body 1, and the valve stem dropped downwardly through the opening 31 in the cover.

The invention being intended to be pointed out in the claims, is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings or hereinbefore described.

I claim:

1. Valve mechanism comprising: a hollow body having an open end and containing a valve seat; an openable cover closing said end

of said body; a valve stem longitudinally movable in the cover, having a recessed portion outside the cover and a valve inside the same cooperating with the valve seat; a lever arm for moving the valve stem to operate the valve, having a longitudinally-extending slot opening comprising a narrow portion in which the recessed portion of the valve stem is operatively engaged and an enlarged portion through which the outer end of the valve stem is adapted to be passed, said lever arm being mounted on the cover swingably and being longitudinally movable to a position wherein the outer end of the valve stem may be passed through the enlarged portion of the slot opening and to another position wherein the recessed portion of the valve stem is operatively engaged in the narrow portion of the slot opening.

2. Valve mechanism comprising: a hollow body having an open end and containing a valve seat; a cover closing said end of said body; a valve stem longitudinally movable in the cover, having a recessed portion outside the cover and a valve inside the same cooperating with the valve seat; a lever arm for moving the valve stem to operate the valve, having a longitudinally-extending slot opening comprising a narrow portion in which the recessed portion of the valve stem is operatively engaged and an enlarged portion through which the outer end of the valve stem is adapted to be passed, said lever arm being mounted on the cover swingably and being longitudinally movable to a position wherein the outer end of the valve stem may be passed through the enlarged portion of the slot opening and to another position wherein the recessed portion of the valve stem is operatively engaged in the narrow portion of the slot opening.

3. Valve mechanism comprising: a hollow body having an open end and containing a valve seat; an openable cover closing said end of said body; a valve stem longitudinally movable in the cover, having a recessed portion outside the cover and a valve inside the same cooperating with the valve seat; a lever arm for moving the valve stem to operate the valve, having a longitudinally-extending slot opening comprising a narrow portion in which the recessed portion of the valve stem is operatively engaged and an enlarged portion through which the outer end of the valve stem is adapted to be passed, said lever arm being detachably mounted on the cover swingably.

4. Valve mechanism comprising: a hollow body having an open end and containing a valve seat; an openable cover closing said end of said body; a valve stem longitudinally movable in the cover, having a recessed portion outside the cover adapted to be passed therethrough and a valve inside the same cooperating with the valve seat; a lever arm for moving the valve stem to operate the valve, having a longitudinally-extending slot opening comprising a narrow portion in which the recessed portion of the valve stem is operatively engaged and an enlarged portion through which the outer end of the valve stem is adapted to be passed, said lever arm being detachably mounted on the cover swingably.

In testimony whereof I have hereunto set my hand at Grand Rapids, Michigan, this 7th day of June, 1930.

LOUIS A. CORNELIUS.