J. W. MEAKER.

FLUSHING VALVE MECHANISM.

APPLICATION FILED JAN. 12, 1914.

1,168,530.

Patented Jan. 18, 1916.

2 SHEETS—SHEET 1.

Fig. 1

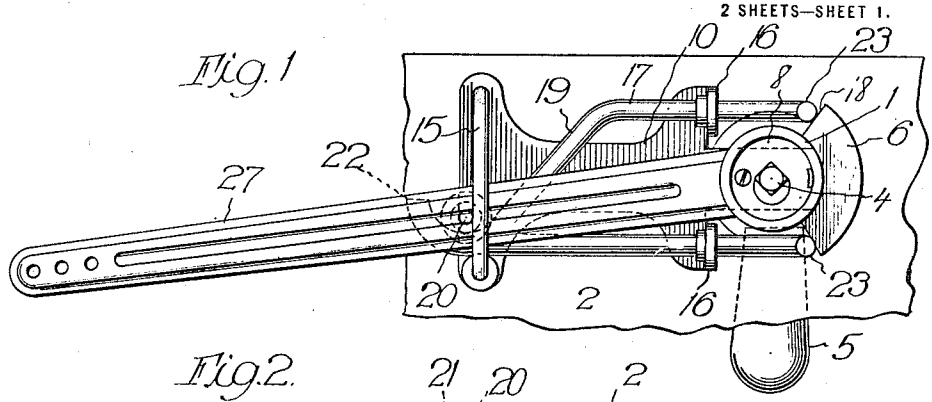


Fig. 2.

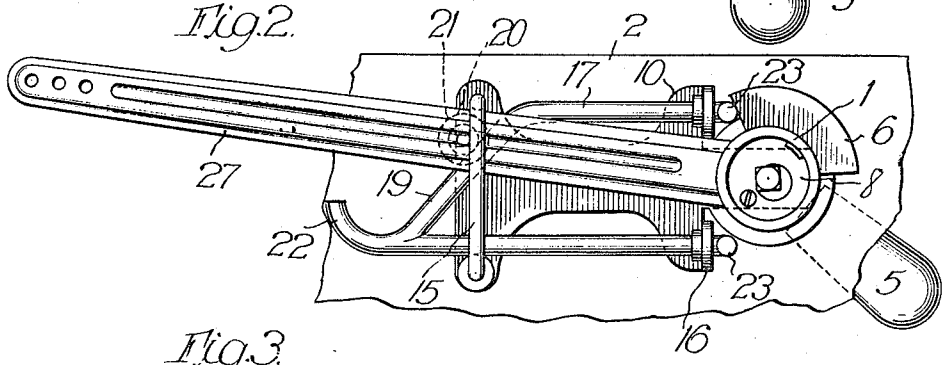


Fig. 3.

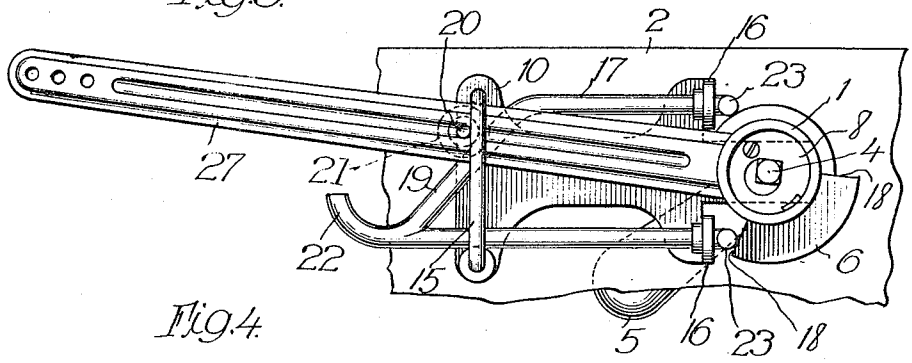
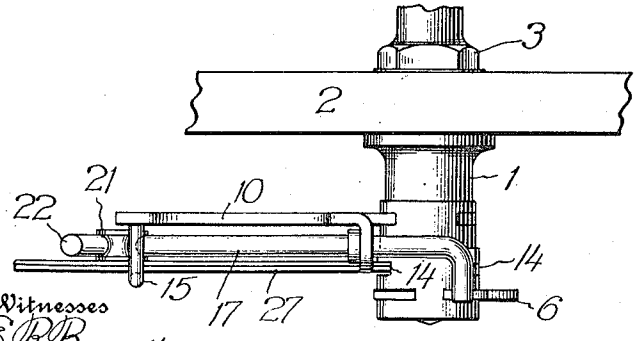


Fig. 4.



Witnesses

E. R. Barrett

A. M. Dorr

Inventor

John W. Meaker

By Bartholomew & Bartholomew

Attorney

J. W. MEAKER.

FLUSHING VALVE MECHANISM.

APPLICATION FILED JAN. 12, 1914.

1,168,530.

Patented Jan. 18, 1916.

2 SHEETS—SHEET 2.

Fig. 5

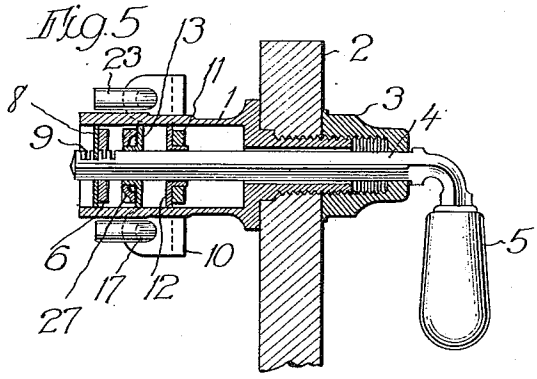


Fig. 6.

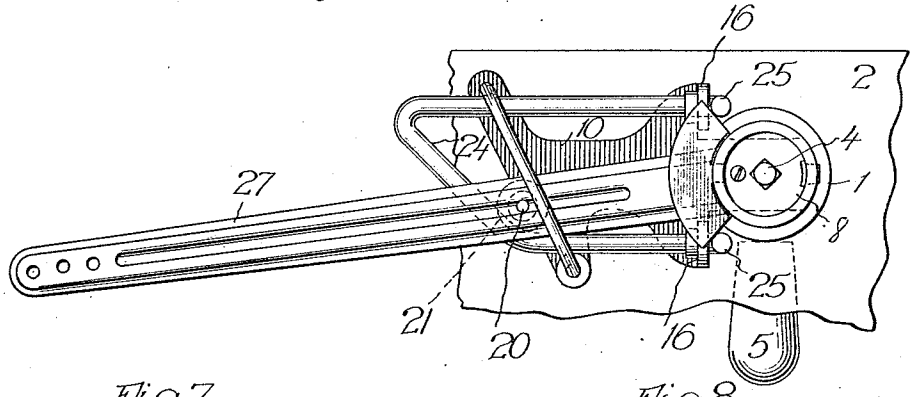


Fig. 7.

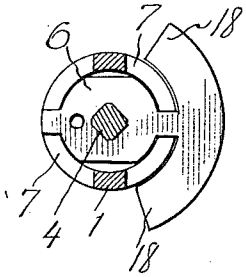
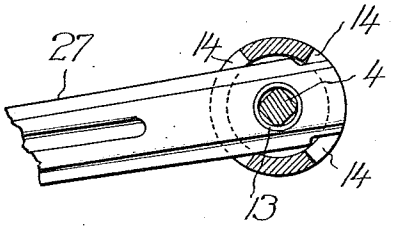


Fig. 8.



Witnesses

E. R. Barrett

A. M. Dorr.

Inventor

John W. Meaker

By Bethel & Bethel

Attorney

UNITED STATES PATENT OFFICE.

JOHN W. MEAKER, OF DETROIT, MICHIGAN.

FLUSHING-VALVE MECHANISM.

1,168,530. Specification of Letters Patent. Patented Jan. 18, 1916.

Application filed January 12, 1914. Serial No. 811,739.

To all whom it may concern:

Be it known that I, JOHN W. MEAKER, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Flushing-Valve Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings.

In the operation of flushing valve mechanism it is desirable that the arrangement be such as will insure ease of operation as well as stability of the parts, together with such design as will enable the device to be mounted and dismounted at will readily.

This invention relates to mechanism for operating flushing valves and to an arrangement thereof whereby movement of the handle in either direction from neutral or closed position throws the mechanism into released or open position, the parts being so disposed as to bring the application of power to a valve operating member close to the load point thereby insuring ease of operation.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a view in front elevation of a mechanism embodying the invention with an operating handle in closed position; Fig. 2 is a view showing the mechanism moved into opened position by movement of the handle in one direction from the neutral point; Fig. 3 is a similar view showing the handle moved in the opposite direction; Fig. 4 is a plan view, partially broken away, of the mechanism; Fig. 5 is a view taken in section on or about the center of motion of the handle; Fig. 6 is a view of a mechanism showing a slight modification in the slide member; Fig. 7 is a view in detail of the slide operating cam; and Fig. 8 is a view in detail of an operating lever pivot connection.

Referring to the drawings a cylindrical sleeve 1 is arranged to be secured in an opening of a tank wall 2 on the inner face thereof as by means of a suitably disposed nut 3, the sleeve and nut constituting a housing in which the shaft 4 of an operating handle 5 is rotatably mounted. Preferably the shaft is squared or polygonal to nonrotatably engage and carry a cam member 6, which plays in guide slots 7 of the sleeve 1. The shaft may be secured in position against longitudinal displacement as by means of a locking plate 8 or latch member pivoted thereon to drop into any one of a series of notches 9 in the shaft.

A guide plate 10 of suitable material has a tang 11 entering a suitable opening in the sleeve 1 so as to be secured therein when the shaft 4 is in position, by means of a bushing 12 that is inserted after the plate is mounted in the sleeve. The bushing 12 locks the plate in position but does not act as a bearing for the shaft which is loosely movable therein. A valve operating lever 12 reciprocates in suitable slots 14 in the sleeve 1, being pivoted therein by a bushing 13 which also operates as a bearing for the shaft 4. A guide member 15 which may be in the form of a rod whose inbent ends are riveted or otherwise made fast to the plate 10 coöperates with the latter to guide the lever 27. This guide member also coöperates with other guide projections 16 or ears to limit the movement of a slide member 17 that is longitudinally reciprocable in a plane parallel to the plane of oscillation of the lever while the inner end portions of the slide embrace the sleeve 1 and abut a projection 18 on the member 6. The outer end face 19 of the slide member is arranged to operate as a cam to underrun and lift a stud 20 on the lever 27 when the slide is shifted and thereby raise the outer end of the lever. A friction roll 21 may be provided on the stud if desired. As a further detail of construction there may be an upturned end portion 22 on the slide to check the lever when the handle moves quickly back to neutral position past which point its inertia is liable to carry it.

As hereinbefore described the cam face 19 is on the outer part of the slide, the latter being built up of a suitable rod with outturned end portions 23 to engage the member 18. Other constructions of the slide, may of course, be used. One such modification is indicated in Fig. 7 in which the slide has an inner beveled face 24 engaging the stud of the lever, the member 6 being reverse in position with the extension 18 operating to move the abutting ends 25 of the slide inward when the handle is operated.

As a result of this construction a valve operating mechanism is obtained that not only works very freely but maintains its position when once assembled. As the slide engages the lever at a considerable distance

from the shaft the power arm of the lever is sufficient to raise the lower end very readily. The distance of the application of power to the lever from the pivot center of the latter may obviously be varied to meet the requirements of service. The latch plate by which the shaft is retained in the sleeve is readily disengaged and permits the dismounting of the entire device and its reassemblage without the use of tools, the bushing being readily pushed out to permit the withdrawal of the guide plate and the lever.

Obviously, changes in the details of construction may be made without departing from the spirit of my invention and I do not care to limit myself to any particular form or arrangement of parts within the scope of the appended claims.

What I claim is:—

1. Mechanism for operating a flushing valve comprising housing means adapted to be secured in an opening of a tank wall, a rotatable handle member mounted therein, a guide member detachably mounted on the housing member, a slide member reciprocable on the guide member operatively connected to the handle member, and a valve operating oscillatory member pivotally mounted on the housing and shaft and engaged by the slide, the slide being projected when the shaft is turned in either direction from neutral position.

2. Mechanism for operating a flushing valve comprising housing means adapted to be secured in an opening of a tank wall, a rotatable handle member mounted therein, a guide member detachably mounted on the housing member, a slide member reciprocable on the guide member operatively connected to the handle member, a valve operating oscillatory member pivotally mounted on the housing and shaft and engaged by the slide, the slide being projected when the shaft is turned in either direction from neutral position, and means for detachably locking the handle member against removal from the housing.

3. Mechanism for operating a flushing valve comprising a housing adapted to be secured in an opening of a tank wall, a handle member rotatably mounted in the housing to swing in either direction, a guide member detachably secured to the housing, a slide member detachably mounted on the guide member, means on the handle member engaging the slide for projecting the latter when the handle member is swung in either direction from neutral position, and an oscillatory valve operating member pivotally mounted in the housing and engaged by the guide member and slide to move to open position when the slide is projected.

4. Mechanism for operating flushing valves comprising a housing adapted to be mounted in the opening of a tank wall, a rotatable handle member therein, a guide member, means detachably securing the guide member on the housing, a slide member reciprocable on the guide member, means operated by the handle member for projecting the slide when the handle member is swung in either direction from neutral position, an oscillatory valve operating member mounted in the housing, and means detachably securing the oscillatory member in the housing and forming the bearing for the handle operating member, the slide engaging the oscillatory member to move the latter to open position when the slide is projected.

5. Mechanism for operating flushing valves comprising a sleeve having a lateral slot, means for securing the sleeve in an opening of the tank wall, a handle shaft member loosely rotatable in the sleeve, a guide member inserted in the lateral slot of the sleeve, a bushing detachably engaging the guiding member within the sleeve and interlocking it with the latter, a slide on the guide member, a member detachably secured on the shaft in abutment with the slide and adapted to project the latter when the shaft is swung in either direction, means on the slide operating member for locking the shaft against longitudinal displacement, and a lever pivotally mounted on the shaft and engaged by the slide to move to open position when the slide is projected.

6. Mechanism for operating flushing valves comprising a sleeve having a lateral slot, means for securing the sleeve in an opening of the tank wall, a handle shaft member loosely rotatable in the sleeve, a guide member inserted in the lateral slot of the sleeve, a bushing detachably engaging the guide member within the sleeve and interlocking it with the latter, a slide on the guiding member, a member detachably secured on the shaft in abutment with the slide, and adapted to project the latter when the shaft is swung in either direction, means on the slide operating member for locking the shaft against longitudinal displacement, a lever pivotally mounted on the shaft and engaged by the slide to move to open position when the slide is projected, and a bushing forming a pivot bearing and locking member for the lever and a journal for the shaft.

7. Mechanism for operating a flushing valve comprising a sleeve, means for detachably mounting it on the tank wall, a guide member mounted in peripheral slots of the sleeve, a bushing detachably engaging the guide member in the sleeve and locking the sleeve and member together, a handle shaft extending through the sleeve, a slide reciprocable on the guide member, a lever playing in the guide member and slots in

the sleeve in engagement with the slide by which it is oscillated, a bushing centering the lever in the sleeve and forming a bearing for the handle shaft and a member non-rotatably secured to the shaft and adapted to abut and reciprocate the sliding member when the shaft is moved in either direction.

8. Mechanism for operating a flushing valve comprising a sleeve, means for detachably mounting it on a tank wall, a guide member mounted in peripheral slots of the sleeve, a bushing detachably engaging the guide member in the sleeve and locking the sleeve and member together, a handle shaft extending through the sleeve, a slide reciprocable on the guide member, a lever playing in the guide member and slots in the sleeve in engagement with the slide by which it is oscillated, a bushing centering the lever in the sleeve and forming a bearing for the handle shaft, a member non-rotatably secured to the shaft and adapted to abut and reciprocate the slide when the shaft is moved in either direction, and means on the latter member locking the shaft from longitudinal displacement.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. MEAKER.

Witnesses:
C. R. STICKNEY,
ANNA M. DORR.