J. A. FLETCHER & J. W. HALEY.

FLUSHING ATTACHMENT FOR SEWERS.

APPLICATION FILED MAY 24, 1916.

1,261,224. Patented Apr. 2, 1918.

Fig. 1.

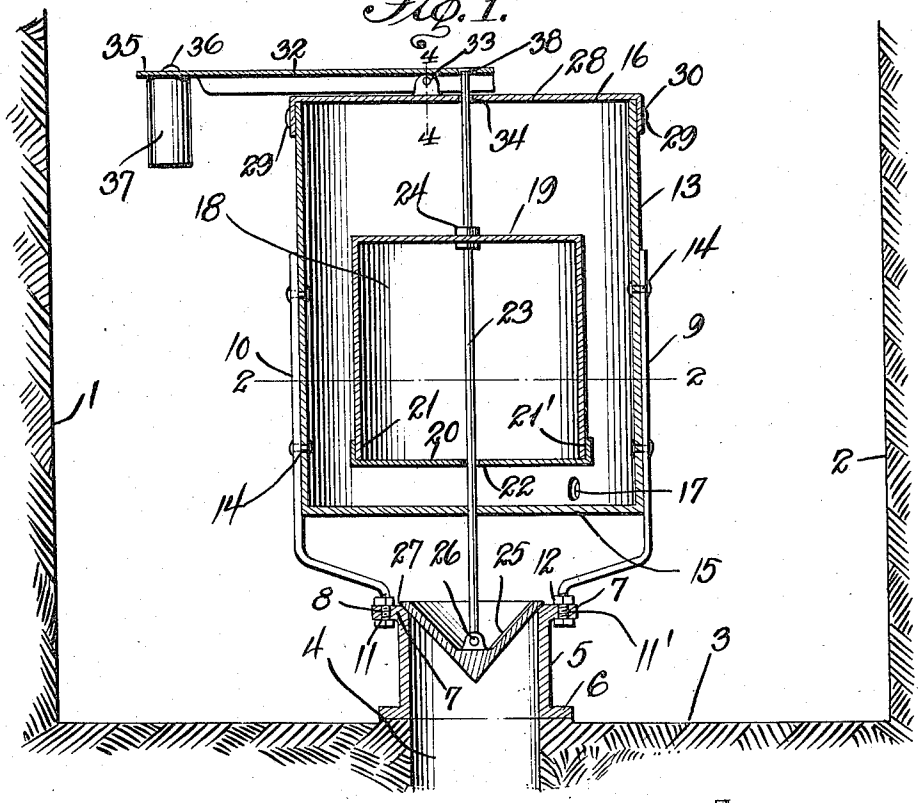



Fig. 2.

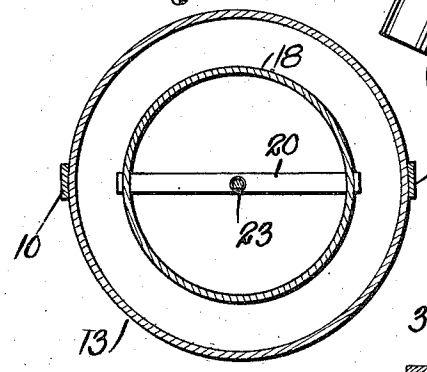



Fig. 3.

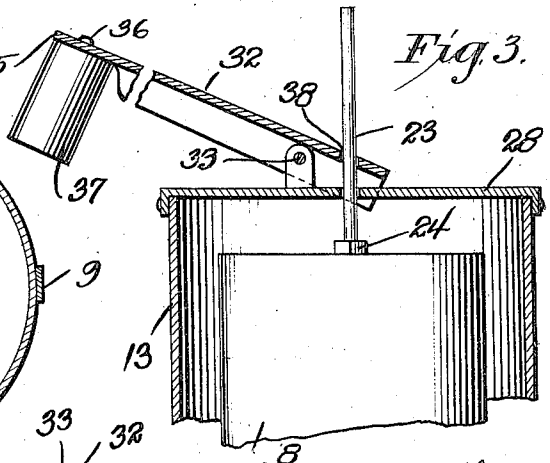
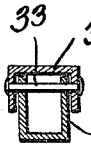



Fig. 4.




WITNESSES

Wm. H. Mulligan

L. F. Jellett

INVENTOR

John A. Fletcher

John W. Haley

BY Richard B. Owen.

ATTORNEY

# UNITED STATES PATENT OFFICE.

JOHN A. FLETCHER AND JOHN WESLEY HALEY, OF SARNIA, ONTARIO, CANADA.

## FLUSHING ATTACHMENT FOR SEWERS.

1,261,224. Specification of Letters Patent. Patented Apr. 2, 1918.

Application filed May 24, 1916. Serial No. 99,603.

*To all whom it may concern:*

Be it known that we, JOHN A. FLETCHER and JOHN WESLEY HALEY, subjects of the King of England, residing at Sarnia, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Flushing Attachments for Sewers, of which the following is a specification.

This invention relates to sewerage, and has more especial reference to an improved automatic flushing attachment for sewers.

The primary object of the invention is to provide means whereby a sewer may be automatically flushed, by an abrupt intake of the water into the sewer having sufficient force to dislodge such matter as has accumulated therein.

The invention contemplates the provision of a cut-off valve associated with the sewer, whereby the flow of water thereinto, may be controlled; a float supported upon a vertical standard connected with said cut-off valve and arranged within a suitable housing; a second float member carried by a pivotal arm supported upon the housing, and means arranged upon said arm engageable with the upper extremity of the vertical standard for permitting upward movement of the same, consequently, allowing the sewer to be flushed.

The annexed drawings and the following description set forth in certain detail, mechanism embodying the invention, such disclosed means, constituting, however, but one of the various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:—

Figure 1 is a vertical section in elevation;

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1;

Fig. 3 is a fragmental detail in section showing the position of the float members when operated; and

Fig. 4 is a section taken on the line 4—4 of Fig. 1.

Referring now more particularly to the drawings, wherein like reference characters designate like or corresponding parts throughout the several views thereof, it may be stated, that the device is preferably placed in a manhole, the side walls of which are designated by the numerals 1 and 2, while 3 indicates a bottom or flooring and 4 the sewer connection.

Referring now to the present improvements, 5 represents an elongated collar having arranged upon its opposite extremities, laterally distended flanges 6 and 7, the former of which serve as means whereby the collar may be secured to the sewer connection, while the latter are adapted to receive in suitable openings 8, a threaded extremity of angular supporting standards 9 and 10, as at 11 and 11′. Locking nuts generally numbered 12 are threaded upon the extremities 11 and 11′ and are arranged adjacent the upper and lower faces of the flange 7. A housing comprising a hollow cylindrical body 13 is secured to the angular supporting standards 9 and 10 by means of rivets or the like as at 14, the said housing being provided with a closed bottom 15 and an open top 16. A drain opening 17 is arranged in one side of the housing 13 the purpose of which shall be subsequently apparent. Arranged interiorly of the said housing 13, preferably concentrically thereof, is a float 18, comprising a hollow cylindrical sheet metal body having its top closed as at 19, while the bottom thereof is preferably left open. A bracing element 20 comprising an elongated strip of rigid material having arms 21 and 21′ formed upon its opposite extremities is frictionally or otherwise secured to the float at a point adjacent its bottom and has arranged therein, an opening 22, which opening is alined with a suitable opening arranged in the top 19, whereby a vertically arranged supporting rod or standard 23 may be passed therethrough and secured to the top portion 19, by means of locking nuts 24. A conical valve 25 is secured to the lower extremity of the supporting rod 23, as at 26, preferably pivotal so as to permit the said conical valve to adjust itself in the seat as formed by the beveled portion 27, upon the inner face of the collar 5.

A cross arm 28 having angularly disposed portions 29 and 29′ is arranged over the top of the housing 13, the portion 29 being secured to said housing by means of rivets or other similar fastening devices as at 30. The cross bar 28 has arranged thereupon, upstanding ears 31 which are adapted to pivotally support a lever or supporting arm 32, as at 33, and, has arranged therein, an

opening 34. The lever 32 comprises a substantially inverted U-shaped member having a flattened outer extremity 35, which has secured thereto, as at 36, a float 37, while the remaining extremity of the lever 32, has arranged therein, an inclined opening 38.

It will be noted that the upper portion of the stem 23 projects through the opening 34 at all times, whereby the arm 28 constitutes a guide for the stem. The upper end of the stem projects into the opening 38 of the supporting lever 32, although because of the inclined construction of the opening 38, it is impossible for the stem to project through the opening 38 when the lever is in a horizontal plane.

In operation, water is permitted to flow into the manhole whereupon, when sufficient water has been admitted thereto to engage with the float 37, the arm 32 will be moved upwardly. Upon continued rising of the water, a portion thereof, will flow into the housing, thus, exerting an upward pressure upon the float 18. However, due to the inclined arrangement of said opening 38, it will be obvious, that the rod 23 will be prevented from passing therethrough. As the level of the water continues to rise, the lever 32 will be moved into the position as shown to advantage in Fig. 3, whereupon the inclined opening 38 will be alined with the opening 34 as arranged in the cross bar and consequently, permit the rod 23 to be passed therethrough. Due to the fact that the pressure of the water against the float 18 will cause a sudden movement thereof, the conical valve 25 will be moved from its seat in a similar manner, thereby permitting the abrupt inflow of the water as contained in the manhole. By this abrupt intake, sufficient force is embodied with the rush of water into the sewer connection 4 to dislodge such matter, as for instance mud or the like, which has accumulated in the sewer, and cause the same to be carried on off into the main. The water as contained by the housing 13, will then be permitted to drain through the opening 17, into the manhole whereupon the valve and floats may be automatically reset for a subsequent flushing.

From the foregoing, it will be apparent that we have provided a simple and efficient device whereby the sewer may be automatically flushed and attention is also directed to the fact, that the amount of water as used during the flushing operation may be varied by increasing or decreasing the length of the angular supporting standards 9 and 10.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards mechanism herein disclosed, provided the means stated by any of the following claims, or the equivalent of such stated means, be employed.

We, therefore particularly point out and distinctly claim as our invention:—

1. In a flushing attachment, the combination of a housing, an automatically operated valve means carried adjacent said housing, a stem projecting above said valve means, a lever pivotally mounted upon said housing, said lever having an inclined opening formed therethrough, said stem normally projecting into said opening for releasably retaining said valve means in a set position, means for automatically swinging said lever at a predetermined time, thus causing said lever to be moved to free said stem and allow the stem to move through said opening and thus allow said valve means to be operated.

2. In a flushing attachment, the combination of a housing, a valve means having a stem extending therefrom, a float carried upon said stem for normally urging said stem upwardly, a lever pivotally mounted upon said housing, said lever having an inclined opening formed therethrough, the upper end of said stem normally projecting into said opening for engaging the lever, thus causing said stem to hold said valve means in an adjusted set position, means for automatically swinging said lever at a predetermined time, thus causing the lever to free said stem and allow the stem to move upwardly through the inclined opening.

3. In a flushing attachment, the combination of a housing, an automatically operated valve means carried adjacent said housing, said valve means including a stem, a lever pivotally mounted upon said housing, said lever having an inclined opening extending therethrough, a float secured to said lever, whereby said lever will be swung at a predetermined time, the upper end of said stem normally projecting into said inclined opening, thus causing said lever to releasably hold said stem against movement, and said lever being adapted to be swung by said float at a predetermined time for allowing said stem to move through said inclined opening.

4. In a flushing attachment, the combination of a housing, a cut-off valve having a stem extending therefrom, a float mounted upon said stem, a lever pivotally mounted upon said housing, said lever having an inclined opening formed therethrough, a float mounted upon said lever, the upper end of said stem normally projecting into said opening, so as to cause said lever to retain said stem in an adjusted set position, said last mentioned float being adapted to swing said lever at a predetermined time to cause said lever to free said stem and allow the stem to pass through said inclined opening.

5. In a flushing attachment, the combination of a housing, means for supporting said housing, a valve carried below said housing,

a stem projecting from said valve and extending through said housing, thus causing said housing to constitute a guide for said stem, a float mounted upon said stem within said housing, a lever pivotally mounted upon said housing and having an inclined opening extending therethrough, a float mounted upon said lever, the upper end of said stem normally engaging said lever within said opening, thus causing said stem to be held in an adjusted set position, said lever being adapted to be swung at a predetermined time by said last mentioned float, thus causing said lever to disengage said stem and allow the same to move through said inclined opening.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN A. FLETCHER.
JOHN WESLEY HALEY.

Witnesses:
EVA J. PASHLEY,
NORMAN F. WATSON.

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