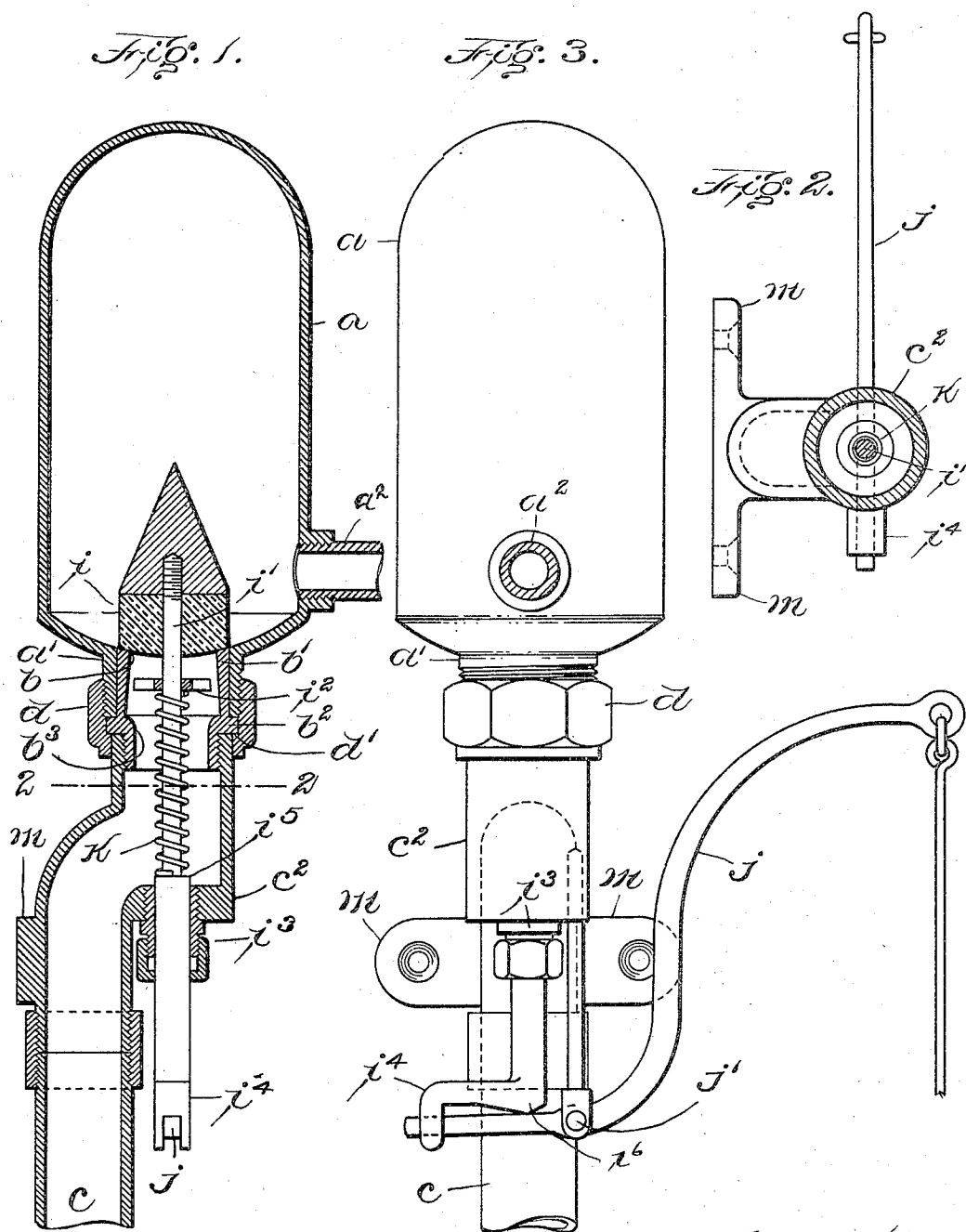


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C. W. LENDH.
FLUSHING APPARATUS.
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FLUSHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 790,796, dated May 23, 1905.

Application filed February 20, 1904. Serial No. 194,463.

To all whom it may concern:

Be it known that I, CHARLES W. LENDH, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Flushing Apparatus, of which the following is a specification.

This invention relates to flushing apparatus comprising a reservoir having an outlet at its bottom portion surrounded by a valve-seat and an inlet above the valve-seat communicating with a source of water-supply, a valve in the reservoir normally closed on the valve-seat to cause the accumulation of a flushing charge of water in the reservoir, and means for opening the valve to permit the escape of said charge through the outlet.

The invention has for its object to provide a simple, compact, and effective flushing apparatus of this class adapted to be manufactured and installed at a minimum expense.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a vertical central section of a flushing apparatus embodying my invention. Fig. 2 represents a section on line 2 2 of Fig. 1. Fig. 3 represents an elevation looking toward another side of the apparatus.

The same reference characters indicate the same parts in all the figures.

In the drawings, *a* represents a reservoir, which is closed at its upper portion and has an outlet branch *a'*, extending downwardly from its bottom, said branch being tubular and surrounding a valve-seat *b*, which in turn surrounds the outlet of the reservoir.

a'' represents an inlet branch located below the top of the reservoir and above the outlet branch and valve-seat. The inlet branch may be connected in any suitable way with a pipe communicating with a source of water-supply.

c represents a flush-pipe section forming a continuation of the passage through the outlet branch *a'*. The valve-seat *b* is formed on a tubular bushing *b'*, which is formed to be removably inserted in the outlet branch *a'* and has a peripheral flange *b''* between its up-

per and lower ends. The lower portion of the bushing *b'* is preferably somewhat contracted at *b'''* and is provided with an external screw-thread, which is engaged with an internal thread formed in the upper end of the section *c*.

d represents a coupling-nut, which is internally threaded to engage an external thread on the outlet branch *a'* and has a shoulder *d'*, which engages the flange of the bushing *b'*. It will be seen, therefore, that the bushing and the flush-pipe section are detachably connected by the nut *d* with the outlet branch *a'*, so that the reservoir may be separated from the bushing and the flush-pipe section, the bushing being separable from the flush-pipe *c*. The valve-seat *b* is formed on the upper end of the bushing *b'*, and hence it is exposed when the parts are separated.

i represents a valve, which is normally closed upon the valve-seat *b* to confine the body of water in the reservoir *a*. The valve is provided with a stem *i'*, which extends downwardly to a guide *i''* in the bushing *b'* and through a stuffing-box *i'''*, which is engaged with an offset portion *c''* of the section *c*. The valve-stem projects below and outside of the offset portion *c''* and is engaged at its lower end with a lifting device, which is preferably a lever *j*, fulcrumed at *j'* to a fixed support, which is attached to the section *c*, as shown in Fig. 3, one arm of said lever being engaged with an arm *i''* on the lower end of the valve-stem *i'*.

k represents a spring which is interposed between the valve-stem guide *i''* and a shoulder *i'''* upon the valve-stem, said spring normally holding the valve against its seat.

As shown in Fig. 3, the arm *i''* of the valve-stem *i* is provided with a nose or downward projection *i''''*, which bears on the lever *j* at a point much nearer the fulcrum of said lever than the forked end of the arm *i''*. These parts are in practice so proportioned that when the valve is firmly seated the only part of the arm *i''* which bears on the lever is the projection *i''''*. When the lever is moved to raise the valve-stem and valve, the lever acts

first on the nose i^a , which is relatively close to the fulcrum of the lever, so that the lever acts through a relatively short arm in the initial raising of the valve from its seat when the resistance to the upward movement of the valve is the greatest. As the shorter arm of lever j swings upwardly it strikes the outer portion of the arm i^a after the valve has been raised from its seat and imparts an additional and more rapid upward movement to the valve. The valve i is so formed that when the reservoir and the section c are disconnected the valve can pass freely through the outlet branch d' . Provision is thus made for readily obtaining access to the valve and its seat. The apparatus is supported by means of ears $m m$, formed on the flush-pipe section c , said ears being attached by screws to a wall or other support and offset from the reservoir, as shown in Fig. 1, so that the reservoir is out of contact with the wall, the outer face of said ears being in a plane laterally beyond or at one side of the vertical plane of the rear side of the reservoir. Therefore the reservoir and then the valve, nut, and valve-seat may be removed without detaching the rest of the device from the wall or other support.

It will be seen that the entire apparatus is of compact and simple construction, the valve-operating mechanism being located at the lower portion of the apparatus and imposing no strain upon the reservoir which is not required to support any of the operative parts. The described provisions for permitting the removal of the valve-seat and valve enable the apparatus to be readily kept in good working order. The offset portion c^2 of the flush-pipe section and the stuffing-box i^3 therein enable the valve to be operated by a stem arranged in the line of movement of the valve, the valve-operating mechanism as a whole being relatively simple and inexpensive.

The apparatus may be readily installed in the desired position by screwing the ears $m m$ to a wall, and when so installed the reservoir may be disconnected without disturbing the flush-pipe by unscrewing the nut d . The removal of the reservoir exposes the valve-seat and valve, the reservoir being adapted to be lifted from the valve-seat and valve. The arm i^a , laterally extended from the valve-stem, enables the lever j to be fulcrumed at a point in close proximity to the valve-stem, as shown in Fig. 3.

I claim—

1. A flushing apparatus comprising a res-

ervoir having an outlet at its bottom portion, a valve for controlling said outlet and having its stem extending downwardly therefrom, the lower end of said stem having a downward projection or nose in the axial line of the stem, an arm extending laterally therefrom, and a lifting-lever having one end extending under the said nose or projection of the valve-stem and having an operative connection with the outer end of the lateral arm of said valve-stem, whereby the lever may initially raise the valve by contact with said nose or projection.

2. A flushing apparatus comprising a reservoir having an outlet at its bottom portion surrounded by a valve-seat, and an inlet above the valve-seat communicating with a source of water-supply, a flush-pipe section connected with the outlet and having an offset portion below the outlet, one wall of said portion having a stuffing-box, a valve in the reservoir formed to close on said valve-seat, a stem affixed to the valve and extending downwardly through said stuffing-box, said stem having a laterally-extending arm at its lower portion and having also a downward projection or nose in the axial line of the stem, and a lifting-lever fulcrumed to a support attached to the flush-pipe section and engaged with the said arm, said lever supporting the said nose or projection near the fulcrum of the lever.

3. A flushing apparatus comprising a reservoir having an externally-threaded tubular outlet branch extending downwardly from its bottom and an inlet above the bottom, a tubular bushing having a valve-seat at its upper end and removably inserted in said branch, said bushing having an external peripheral flange seated on the lower end of the outlet branch, and an externally-threaded portion below the flange, a flush-pipe section internally threaded to engage the external thread of the bushing, a coupling-nut engaging the external thread of the outlet branch and the flange of the bushing to detachably secure the flush-pipe section and the bushing to the outlet branch, a valve within the reservoir normally closed on said valve-seat, and means for opening the valve, the diameter of the valve being less than that of the outlet branch.

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

CHARLES W. LENDH.

Witnesses:

R. M. PIERSON,
E. BATCHELDER.