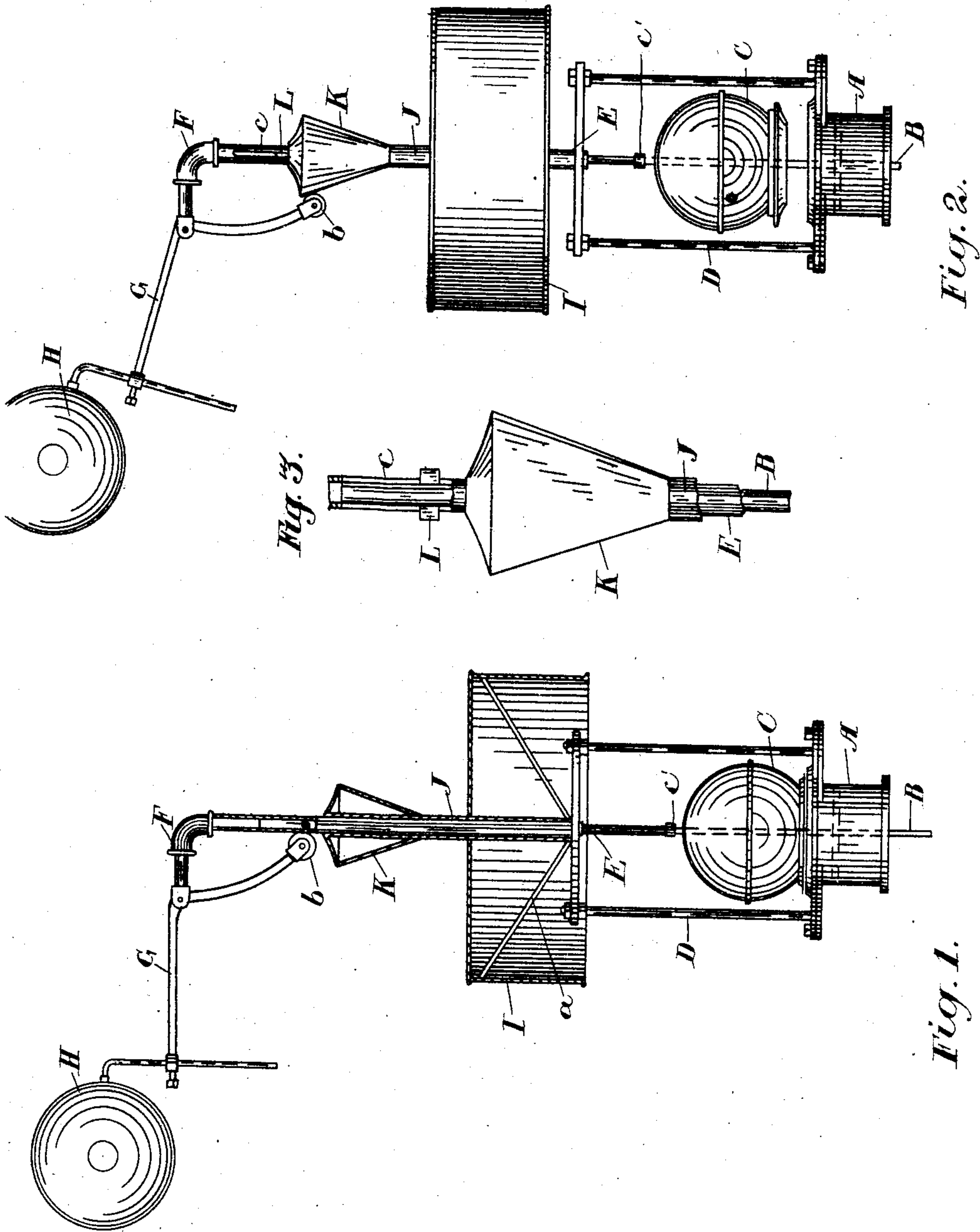


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M. J. QUINN.  
AUTOMATIC FLUSHING APPARATUS.  
APPLICATION FILED NOV. 29, 1901.



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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC FLUSHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 785,682, dated March 21, 1905.

Application filed November 29, 1901. Serial No. 84,113.

*To all whom it may concern:*

Be it known that I, MARTIN JOSEPH QUINN, of the city of Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Automatic Flushing Apparatus, of which the following is a specification.

My invention relates to that class of flushing-tanks in which the valve closing the discharge-pipe is raised from its seat by the lifting action of the water on a float; and my object is to devise means for locking down the valve till the water has risen sufficiently in the tank to lift the valve well up from the seat, and thus avoid the dribbling of water due to partial lifting of the valve.

With this object in view my invention consists, essentially, of a trip-float vertically movable above the ordinary floats and adapted to operate a lock which will prevent the lifting of the valve till the water-level has reached the trip-float and lifted it to release the lock, substantially as hereinafter more specifically described and then definitely claimed.

Figure 1 is a sectional elevation of my improved flushing apparatus with the valve closed. Fig. 2 is an elevation of the apparatus, showing the lifting float in the act of raising the float-valve. Fig. 3 is an elevation, partly in section, showing the arrangement of the valve-stem, float-stem, and locking-piece.

In the drawings like letters of reference indicate corresponding parts in the different figures.

The apparatus is illustrated without the tank and water-supply being shown, as these are ordinary features.

My device is particularly adapted for use in flushing the septic-tanks used in sewage disposal, but of course is adapted for use in all the cases where automatic flushing is necessary or desirable.

A represents the discharge-pipe, provided with the usual valve-seat and guide for the valve-stem B. The valve C is preferably a float-valve of ordinary pattern. Supported from the discharge-pipe is a frame D, which supports the tube E. The upper end of this

tube carries a bracket F, on which is pivoted the bent lever G, to the outer end of which is adjustably connected the trip-float H. Before describing the operation of this float it will be necessary to set out the construction of the other parts.

I is a float provided with the sleeve J, surrounding the tube E and extending, of course, down substantially to the level of the lower side of the float I. Braces *a* are provided to stiffen the connection of the float with the sleeve. The sleeve J extends upwardly above the float and has secured thereto the cone-shaped catch K, the base of the cone being turned upward and preferably curved, as shown. The parts are so proportioned that the base of the cone is normally almost in contact with the friction-roller *b*, pivoted on the lower end of the bent lever G. This lever may be conveniently referred to as the "lock-lever."

The spindle of the float-valve C extends up through the tube E to the point above the catch K and has a pin L driven through it, projecting through slots *c*, formed in the tube E. This pin is preferably a short distance above the top of the catch K.

The operation of the device is substantially as follows: Supposing the water to be gradually rising in the tank, the float-valve C, being open at the bottom in the ordinary manner, is held on its seat by the pressure of the water. As soon as the water rises to the level of the float I a strong upward pressure is exerted by this float, which is resisted by the lock-lever G. When, however, the water reaches the trip-float H, the lock-lever is moved till the friction-roller *b* disengages itself from the catch K. The float I then suddenly rises, and the catch K forcibly strikes the pin L, lifting the float-valve C from its seat, raising it until the pin L comes into contact with the top of the slots *c*, when the further upward movement of the float-valve and lifting float is arrested. This upward movement of the float-valve and lifting float would be arrested by the shoulder *c'* on the valve-stem B coming into contact with the



lower end of the tube E in the event of the slot *c* being of a greater length than that of the valve-rod B between the bottom of the tube and shoulder *c'* when the float-valve is in its initial position. This action is so powerful that the valve is raised well up, and the water flows from the tank with the sudden rush desired. Of course as soon as the float-valve rises from its seat its own power of flotation comes into action and aids in maintaining the valve open until the tank is nearly emptied.

Apparatus constructed as I have described entirely avoids the dribbling common in automatic apparatus not provided with my locking mechanism, in which the float frequently leaves the valve a little way from its seat, allowing the water to escape in small quantities. The trip-float H being adjustable, the exact amount of water allowed to flow into the tank before the valve has lifted may be accurately adjusted.

I do not wish to confine myself to the exact details of construction, as the essential feature of my invention lies particularly in the use of the trip-float to release the ordinary float which is dependent upon it to raise the valve. By giving this float a certain amount of play before it strikes the pin L, I take advantage of the momentum of the float I to insure the valve being properly lifted from its seat.

What I claim as my invention is—

1. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float and a lifting means for the float-valve engaged by the lifting float as it rises to raise the float-valve from its seat and be disengaged by the lifting float as the latter descends.

2. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float, a lifting means for the float-valve engaged by the lifting float as it rises to raise the float-valve from its seat and be disengaged by the lifting float as the latter descends, and means for locking the lifting float in its depressed position released when the water within the flushing apparatus has attained a predetermined level.

3. In automatic flushing apparatus a discharge-pipe; a float-valve normally closing the said pipe; and a valve-stem extending up from the said valve; in combination with a stationary frame; a tube connected to the said frame into which the valve-stem extends and having a slot therein; a pin on the valve-stem extending into the said slot; a float having a sleeve surrounding the said tube below the pin; a catch shaped as a cone, base up, secured to the said sleeve above the float and below the pin; a lever pivoted at the upper end of

the tube and having one end adapted normally to rest above the cone; and a trip-float connected to the other end of the lever, substantially as described.

4. In automatic flushing apparatus a discharge-pipe; a float-valve normally closing the said pipe; and a valve-stem extending up from the said valve; in combination with a stationary frame; a tube connected to the said frame into which the valve-stem extends and having a slot therein; a pin on the valve-stem extending into the said slot; a float having a sleeve surrounding the said tube below the pin; a catch shaped as a cone, base up, secured to the said sleeve above the float and below the pin; a lever pivoted at the upper end of the tube and having one end adapted normally to rest above the cone; and a vertically-adjustable trip-float connected to the other end of the lever, substantially as described.

5. In automatic flushing apparatus a discharge-pipe; a float-valve normally closing the said pipe; and a valve-stem extending up from the said valve; in combination with a stationary frame; a tube connected to the said frame into which the valve-stem extends and having a slot therein; a pin on the valve-stem extending into the said slot; a float having a sleeve surrounding the said tube below the pin; a catch shaped as a cone, base up, secured to the said sleeve above the float and below the pin; a lever pivoted at the upper end of the tube; a roller pivoted at one end of the lever and normally resting against the tube above the cone; and a trip-float connected to the other end of the lever, substantially as described.

6. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float, and means connecting the lifting float with the float-valve when the former rises but not connecting them when it descends.

7. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float, means connecting the lifting float with the float-valve when the former rises but not connecting them when it descends, and means for locking the lifting float in its depressed position released when the water actuating the lifting float has attained a predetermined level in the flushing apparatus.

8. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float, and means connected to the float-valve constructed and arranged to be engaged by the lifting float as it rises and disengaged from it as it descends.

9. In a flushing apparatus having a source

of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float, means connected to the float-valve constructed and arranged to be engaged by the lifting float as it rises and disengaged from it as it descends, and means for locking the lifting float in its depressed position released when the water actuating the

lifting float has attained a predetermined level in the flushing apparatus.

Toronto, November 25, 1901.

MARTIN JOSEPH QUINN.

In presence of—

JOHN G. RIDOUT,  
A. J. COLBOURNE.