B. O. TILDEN.

FLUSH TANK OPERATING DEVICE.

APPLICATION FILED OCT. 15, 1908.

915,636. Patented Mar. 16, 1909.

Fig. 1.

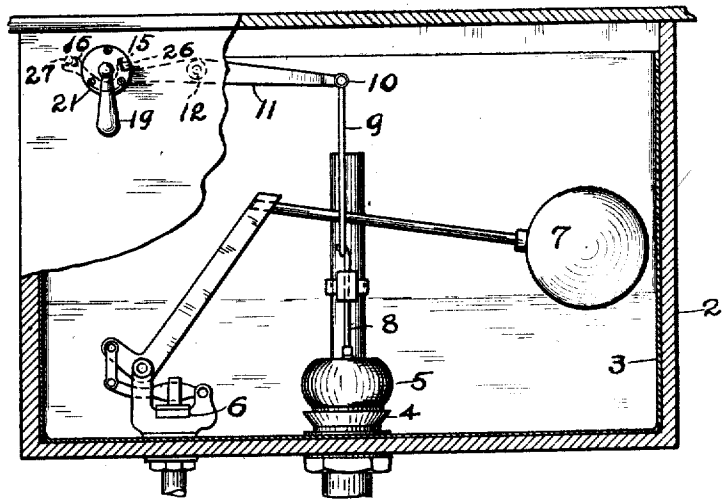


Fig. 2.

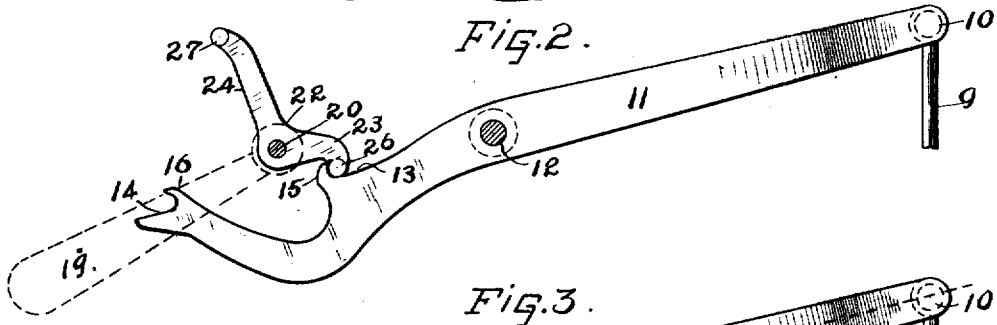
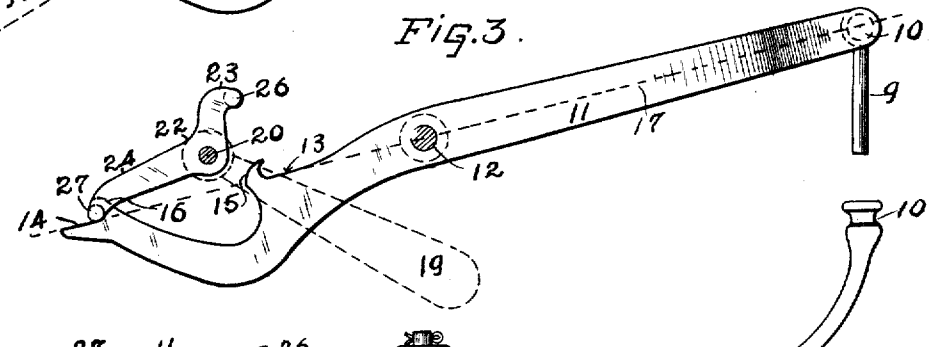


Fig. 3.



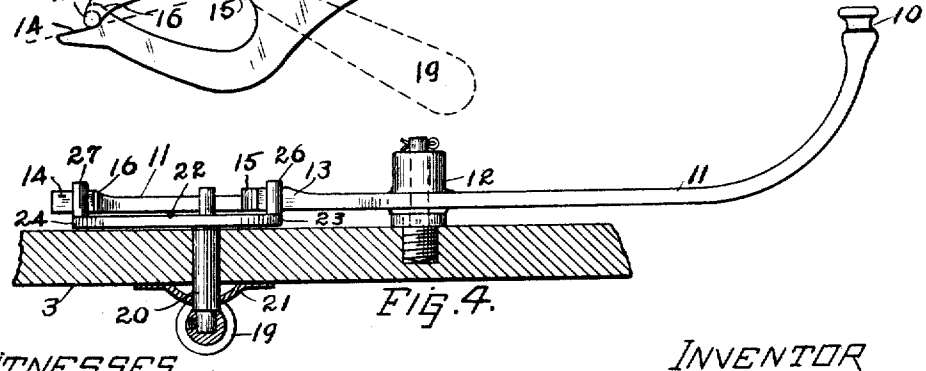


Fig. 4.

WITNESSES
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UNITED STATES PATENT OFFICE.

BERT O. TILDEN, OF NEW YORK, N. Y., ASSIGNOR TO THE AMERICAN SANITARY WORKS, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

FLUSH-TANK-OPERATING DEVICE.

No. 915,636. Specification of Letters Patent. Patented March 16, 1909.

Application filed October 15, 1908. Serial No. 457,772.

To all whom it may concern:

Be it known that I, BERT O. TILDEN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Flush-Tank-Operating Devices, of which the following is a specification.

This invention relates to improvements in flush-tank operating devices, and the invention has reference to a mechanism for operating tanks connected to latrine bowls, and especially what is known as "low down" flush-tanks.

The invention relates particularly to improvements in the devices shown and described in my United States Patent No. 821,002, bearing date May 22, 1906.

The object of the invention is to provide an operating mechanism for unseating the flush valve, which is simple, durable and effective, and wherein the construction and arrangement of the parts are such that the valve may be operated in a ready manner with but slight effort on the part of the user of the closet.

A further object is to provide means for limiting the movement of the operating handle, and also the rocking lever which controls the opening of the flush valve; it being a particular object to make the present device more positive in its operation, and less liable to get out of order than any of the devices of the class heretofore produced.

Other features and parts of the invention will be understood from the detail description which follows, and by reference to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a front elevational view, partly in section, of a flush-tank having my improved operating mechanism applied, illustrating the arrangement and position of the operating parts when the flush valve is closed. Fig. 2 is an enlarged detail view of the operating mechanism, showing the rocking-lever tilted for opening the valve, by the leftward rocking of the handle; also showing the short arm of the operating lever in engagement with one of the stop-lugs for limiting the movement of the rocking-lever and handle. Fig. 3 is a similar detail view, showing the rocking-lever tilted in the same direction and to the same extent, by the rocking of the handle to the right; also showing long arm of operating lever in engagement with the opposite stop lug, for limiting the movement of the rocking-lever and handle. Fig. 4 is an enlarged plan view, partly in section, of the operating parts illustrated in Figs. 2 and 3, showing the disposition and arrangement of the rocking-lever, operating-handle and related parts, when the same are at rest and the valve closed, as shown in Fig. 1.

Similar characters of reference are assigned to corresponding parts throughout the several views.

In the drawing, 2 represents a metallic water tank inclosed within a wooden case 3, and comprises what is commonly known as a "low down" flush-tank. Within the tank 2—3, are operatively disposed a flush valve 4 with its plunger 5, and also a water inlet valve 6 and a float 7, all of which parts may follow any of the well-known constructions, and are not specifically included in the present invention, except for the purpose of illustrating the application and operation of the improved parts.

As shown in Fig. 1, the flush valve 4 is closed by the vertically operable plunger 5, to which are connected lift rods 8 and 9, the latter rod having its upper end pivotally connected at 10 to the long arm of a rocking lever 11, which is pivotally connected to the wooden casing of the tank at 12. The long arm of lever 11 curves inwardly so that its extreme end may be positioned directly over the valve 4. The short arm of lever 11 is constructed in a peculiar manner, as shown, and is provided on its upper edge with flat bearing portions 13 and 14, each of which is terminated by an abrupt upwardly projecting stop-lug, as 15 and 16. The bearing surfaces 13 and 14 are preferably arranged in the same plane as the centers of the pivots 10 and 12 of said lever, as illustrated by dotted line 17 in Fig. 3.

19 represents a depending operating handle, preferably located on the outside of the wooden tank, at the upper left corner thereof, as shown in Figs. 1 and 4. The handle 19 is preferably made of metal, in the form shown, its free end enlarged so that it may gravitate by its own weight and normally hang in the position shown in Fig. 1, when not being handled by the user of the closet. The handle 19 is rigidly mounted upon a rod or rock-shaft 20, which passes through the wooden

case of the tank, preferably above the highest water level, the outer end of the rod 20 being operatively supported by an escutcheon 21, secured to the face of the tank. The inner end of rod 20 is provided with an integral cross-bar or operating lever 22, the latter comprising a short arm 23 and a long arm 24, each of said arms being provided with an inwardly projecting pin or stud, as 26 and 27. Both of the said pins are arranged to respectively engage the bearing portions 13 and 14 of the lever 11. The disposition and arrangement of the operating surfaces 13 and 14, and also the engaging pins 26 and 27 of the lever 22 are such that when the parts are at rest, as shown in Figs. 1 and 4, and the operating handle is held by gravity in vertical position, the engaging studs 26 and 27 are both in contact with the bearing surfaces 13 and 14, this being the normal position of the parts when the valve 4 is closed.

To operate rocking-lever 11 and effect the lifting of the plunger to open the flush valve 4, the operator has the option of swinging the handle 19 either to the left or to the right. If he swings the handle to the left, pin 26 acting upon bearing surface 13, will force the short end of rocking lever 11 downwardly, and its long end upwardly in the direction to open the valve, until the said pin encounters the stop-lug 15, which will arrest the further movement of the handle and also lever 11, as shown in Fig. 2. If the operator elects to swing the handle 19 to the right, pin 27 acting upon the bearing surface 14, depresses the short end, and lifts the long end of lever 11, until pin 27 comes to a stop against the lug 16, which will again raise the plunger the same distance as before, (see Fig. 3).

After the user of the closet has swung the lever 19 in either direction to open the flush valve, as described, he should let go the handle, and then owing to its construction and arrangement the handle will gravitate to resting position, as shown in Figs. 1 and 4, without any assistance.

The handle may be located at the upper right hand corner of the tank, and the order and disposition of the lever 11, and other operating parts reversed, and accomplish the same results.

It will be noticed that the arm 24 of double lever 22 is relatively about twice the length of the arm 23, which, owing to the construction and disposition of the rocking lever 11, renders it possible to tilt the long end of said lever the same distance, no matter in which direction the handle 19 may be rotated. Under this arrangement the handle, lever 11, and related parts, are permitted a positive measured movement or travel, which is intended to open the flush valve sufficiently for the proper flushing of the bowl, and at the same time prevents any extra or useless actuating of the valve-operating parts. Under the construction and arrangement of the operating mechanism shown and described in my former patent referred to, it was possible for the operator to completely rotate the handle and operating lever, in either direction, and thereby lift the plunger a greater distance than necessary for the safe and proper operation of the flushing mechanism, and thoughtless children or mischievous persons could readily disarrange or put the system out of order.

The present invention is intended to correct the defects of the old system of flush-tank operating mechanism, to render the same more positive and reliable, and also to increase the wearing life of the working parts. To that end I find the best service is obtained, and less trouble and disorder to the tank operating mechanism result, when the rocking lever 11 is provided with stop-lugs 15 and 16, and also where the actuating lever 22 is constructed and disposed in the manner shown and described herein.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is—

1. A flush-tank operating mechanism, comprising a rocking-lever pivotally secured within a tank, and normally disposed in horizontal position, one end of said rocking-lever adapted to connect with a flush valve located in the tank, the other end of said rocking-lever provided with upwardly facing bearing surfaces spaced apart, an operating-lever pivotally supported by the wall of the tank, the said operating-lever having one long and one short arm, an integral engaging-pin formed on the end of each arm of said operating-lever adapted to engage by contact the corresponding bearing surfaces of said rocking-lever, a depending counter weighted handle rigidly mounted upon the pivot rod of said operating-lever, and an integral stop-lug projecting upwardly from each of said bearing surfaces adapted to limit and stop the operative movements of all of said parts.

2. The combination with a low-down flush-tank and a flush valve within said tank, of a rocking-lever pivoted within the tank and normally disposed in horizontal position, one end of said rocking-lever connecting with the flush valve, the opposite end of said lever provided with a pair of bearing surfaces facing upwardly and disposed in the same plane, an operating-lever having one long and one short arm and each arm provided with an inwardly projecting engaging-pin adapted to engage by contact with the bearing surface of said rocking-lever, the said operating-lever pivotally mounted within the tank by means of an integral rock-shaft, a pending handle rigidly mounted on the outer end of the rock-shaft, adapted to be swung laterally in either

direction for the purpose of opening the flush valve, and means comprising a pair of integral stop-lugs formed upon said rocking-lever for measuring and stopping the movement of said rocking-lever and handle.

3. In a flush-tank operating device, the combination with a flush valve within a tank, of a rocking-lever pivoted within the tank, the long end of said lever connected with the flush valve, the short end of said lever provided with a pair of upwardly facing bearing surfaces disposed in the same plane and each bearing surface terminating in an upwardly projecting stop-lug, an operating-lever pivoted to the side wall of the tank by means of an integral rod, the said lever having oppositely arranged arms of unequal length, the free end of each arm formed into an inwardly projecting stud adapted to engage by contact the respective bearing surfaces of the rocking lever, and means for rocking both of said levers in the same or in opposite directions a measured distance for opening the flush valve.

4. The combination with a flush-tank and a flush valve within the tank, of a rocking-lever pivoted in the tank, one arm of said lever connecting with the flush valve, the opposite arm provided with a pair of spaced bearing surfaces, each bearing surface terminating in an upwardly projecting stop-lug, an operating-lever pivoted to the tank by means of a rock-shaft, the opposite ends of said operating-lever adapted to engage the corresponding bearing surfaces of said rocking-lever, the said operating-lever capable of being rocked in either direction laterally a certain distance and then stopped by the stop-lugs of said rocking-lever, and means for rocking said operating-lever.

5. The combination with a flush valve disposed in a low-down flush-tank, of a rocking-lever pivoted above said valve, the long end of said lever operatively connected to said valve, the short end of said lever provided upon its upper edge with like bearing surfaces in a common plane, a double lever pivoted to the tank, its opposite ends provided with engaging-pins both of which normally contact with said bearing surfaces when the flush valve is closed, the said double lever capable of being rocked in opposite directions alternately to effect the opening of the flush valve, a pending handle for operating said double lever, and means for stopping the movement of said lever and said handle after the same have traveled a measured distance.

6. The combination with a flush valve disposed in a closet flush-tank, of a rocking-lever in said tank, one end of said lever connecting with the flush valve the other end being free, a pair of flat bearing surfaces formed on the free end of said rocking-lever, a stop-lug forming one terminus of each bearing surface, an operating-lever pivoted to the tank adjacent the free end of said rocking-lever, engaging-studs formed on the opposite ends of the operating-lever and connecting with said bearing surfaces by contact, means for rocking the operating-lever in either direction laterally a measured distance allowed by said stop-lugs, and means for tilting the rocking-lever in the same direction and to the same extent each time said operating-lever is rocked.

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

BERT O. TILDEN.

Witnesses:
M. E. CATTIN,
M. L. SIMONS.