(No Model.)

G. MICHAUD.

WATER CLOSET.

No. 383,750. Patented May 29, 1888.

Fig. 1.

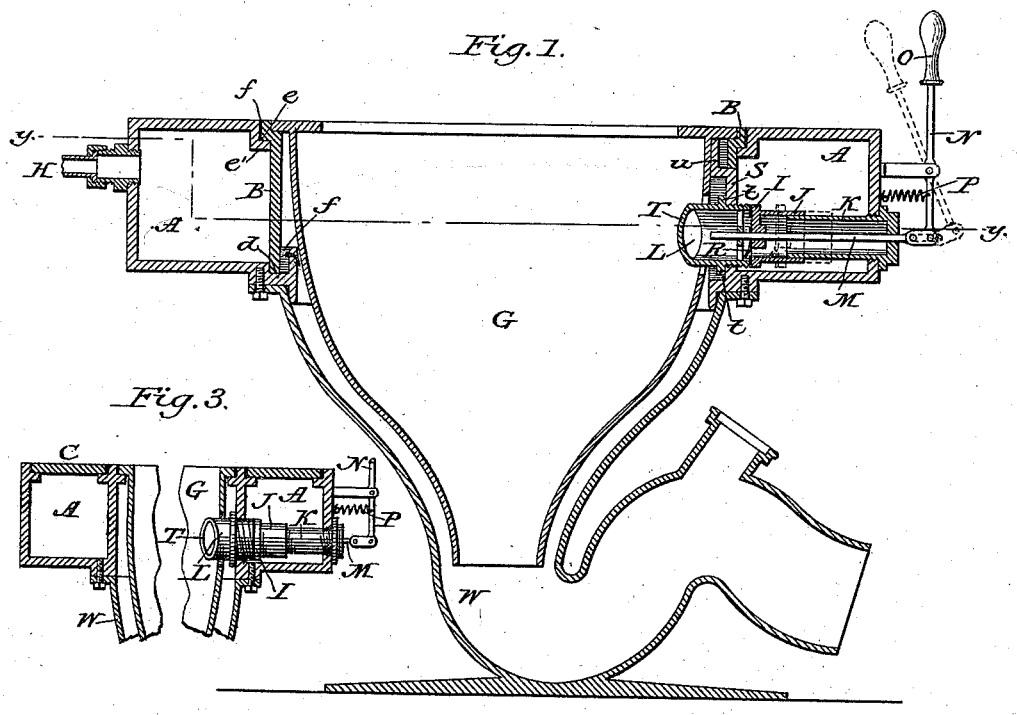
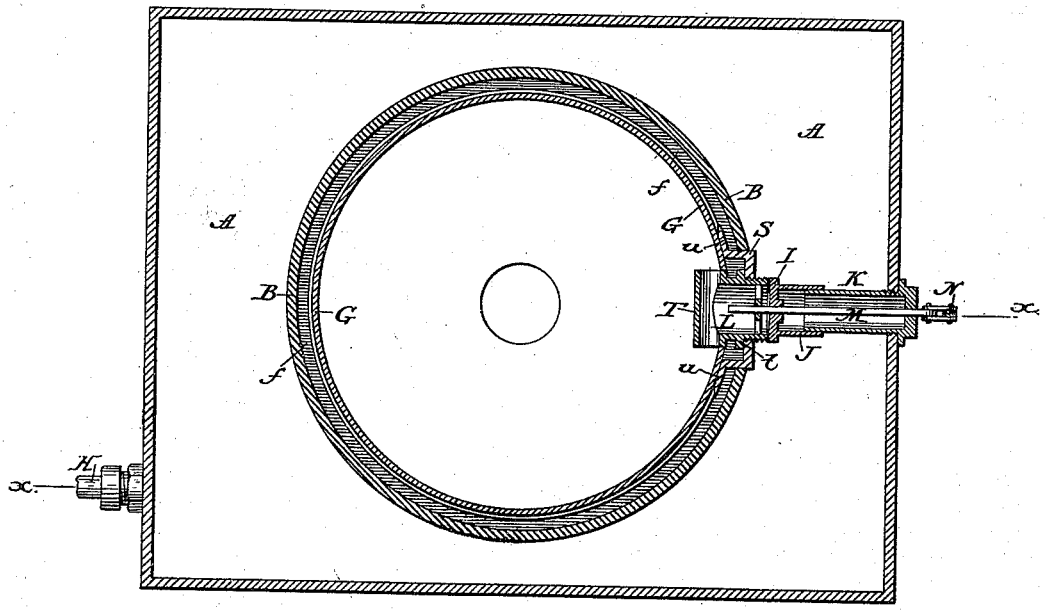


Fig. 3.

Fig. 2.



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GILBERT MICHAUD, OF NEW YORK, N. Y.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 383,750, dated May 29, 1888.

Application filed October 27, 1887. Serial No. 253,495. (No model.)

To all whom it may concern:

Be it known that I, GILBERT MICHAUD, of the city, county, and State of New York, have invented a new and useful Improvement in Water-Closets; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a central vertical section, in lines *x x* of Fig. 2, of a water-closet hopper fitted with my improved flushing-tank; Fig. 2, a transverse section in line *y y* of Fig. 1; and Fig. 3, a vertical section with the hopper partly broken out, illustrating a modification in the connection of the flushing-tank therewith.

My invention relates to a water-closet in which the flushing-tank is fitted beneath the seat to encircle the hopper, and has for its object to simplify the construction of the apparatus and to obviate the disadvantages attending the use of the ordinary forms of flushing-tanks or service-boxes located at a height above the hopper.

It consists in the construction and combination of parts hereinafter described and claimed.

The flushing-tank A is preferably constructed of annular form to encircle the hopper, and for convenience in casting may be constructed either with a separate inner wall, B, as shown in Figs. 1 and 2, or with a separate cover, C, as shown in Fig. 3. When the tank is constructed with a separate inner wall, B, the lower edge of said wall is fitted into a groove, *d*, encircling the inner edge of the bottom of the tank, and its upper edge is made with an offset, *e*, to overlap a counterpart offset, *e'*, on the top of the margin of the tank, as shown in Fig. 1, and the joints both at top and bottom are sealed by means of molten lead, *f*, or its equivalent, in the customary manner. The inner central opening which it incloses is circular in form and adapted to receive a bowl or hopper, G, whose upper flanged edge is made to rest upon a seat formed therefor in the inner edge of the tank. The tank is made air-tight, and is connected in the usual manner with a service-pipe, H, for a supply of water.

The flushing-valve, by means of which the contents of the tank are delivered at will into the hopper G, consists of a disk, I, upon the end of a collar or tubular valve-stem, J, fitted loosely upon the open end of the cylinder K, so as to be free to slide thereon to and from the inner end of a flushing-pipe, L, secured to an opening in the inner wall of the tank A to extend through a corresponding opening in the wall of the hopper.

The guide-cylinder K is made to pass through the outer wall of the tank with a screw-joint, so that its axis shall coincide with the axis of the flushing-pipe L. An axial rod, M, is fitted longitudinally within the cylinder and pipe to work freely through a central opening in the outer end of the cylinder and through an aperture in a cross-bar in the pipe, forming bearings therefor, and the valve-disk I is secured to said rod to be actuated thereby. The outer end of the rod is coupled to the lower end of a vertical lever, N, pivoted to the side of the tank, and whose upper end terminates in a handle, O, above the seat. A spring, P, serves to keep the rod in the inward position and to hold the valve against its seat. An aperture is formed in the lower portion of the disk, inside of the seat, whereby communication is established between the pipe L and the interior of the cylinder K when the valve is closed. To prevent an inflow of water into the cylinder through said aperture when the valve I is opened, the aperture is covered by a flap-valve, R, of rubber or leather, opening outwardly.

The connection of the flushing-pipe with the tank may be made in any suitable manner. It is shown in Fig. 1 of the drawings as effected by means of an offset, S, projecting upward from the inner rim or edge of the bottom of the tank nearly to the top thereof, and through which a threaded opening is formed, into which the pipe L is screwed.

The inner wall, B, of the tank is cut away to fit over said offset, and the joints between the two are made tight by means of molten lead poured in between them, the lead being retained in position by suitable flanges, *u u*. (See Figs. 1 and 2.)

The outer end of the flushing-pipe L is formed with a cross-piece, T, to deflect the

water to the sides of the bowl G, or otherwise is curved with a deflecting-plate for the same purpose.

Where the top of the tank C is made in a separate piece, as shown in Fig. 3, it may be closed and secured to form an air-tight joint with the tank by means of bolts, in connection with suitable packing, in the customary manner. In such case the pipe L is screwed through a threaded opening in the inner wall of the tank, as shown in Fig. 3.

The tank A, constructed as described, and within whose central opening the bowl G is fitted, is mounted and supported upon a trapped hopper, W, in manner as shown in Fig. 1, said hopper being connected with the soil-pipe in the customary manner.

In the operation of the apparatus the tank A, being connected directly with the service-pipe, is filled therefrom with a supply of water under the pressure of the main. The valve I, under said pressure, aided by the force of the spring P, is kept tightly closed against its seat upon the end of the flushing-pipe L. By moving the lever N, however, as indicated by the dotted lines in Fig. 1, the valve I is pulled open, allowing a full flow of water from the tank through the pipe L into the hopper G.

As the valve I opens, the flap valve R will close to prevent a flow of water into the guide-cylinder K. So soon as the valve I is closed again by a return movement of the lever N, which will be automatically produced by the spring P so soon as the lever is released, the flap-valve R will be free to open, and thereby allow any water which may have leaked into the cylinder K to pass out into the pipe L. Any escape or leakage of water around the valve-rod M is thus effectually guarded against.

It is evident that a cord carried over suitable guide-pulleys may be substituted for the lever N, as an equivalent therefor, and I contemplate the use of such an equivalent device for actuating the valve, the spring P in such case being fitted to control directly the valve-rod M.

I am aware that it is not new to provide a water-closet with a flushing-tank fitted below the seat of the closet, and that wash-bowls have been fitted with supply-tanks connected directly therewith, so that a common water-level may be established in the bowl and tank. My invention, however, is novel, in that it provides a tank below the seat, and encircling the hopper of the closet, which is air-tight and connected directly with a water-main, so as to be subject to the pressure therein, and which connects directly with the hopper by means of an opening controlled by a valve which is closed automatically by said pressure, whereby, when the valve is opened, the hopper is thoroughly flushed by a delivery of water from the encircling tank, under a pressure as efficient as if the flushing-tank were placed at a high level.

I claim as my invention—

1. The combination, with the flushing-tank A and flushing-pipe L, of a valve, I, seated against the open end of said pipe, and having a tubular stem, J, a guide-cylinder, K, projecting through the wall of the tank, closed at one end and embraced at its inner end by the tubular valve-stem, a valve rod, M, extending outwardly through the tubular valve-stem and its guide-cylinder, and a lever, N, actuating said rod, substantially in the manner and for the purpose herein set forth.

2. The combination, with the discharge-pipe L, valve I, tubular valve stem J, guide-cylinder K, upon which said valve stem plays, and guide-rod M, extending through said valve-stem and guide-cylinder and passing outwardly through the closed end of the cylinder, of a secondary valve, R, controlling an opening in the valve I, and opening outwardly to permit of a discharge from within the tubular valve-stem and its guide-cylinder when the valve I is closed, substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GILBERT MICHAUD.

Witnesses:
A. N. JESBERA,
E. M. WATSON.