J. E. BOYLE.

WATER-CLOSET.

No. 187,251. Patented Feb. 13, 1877.

Fig: 1.

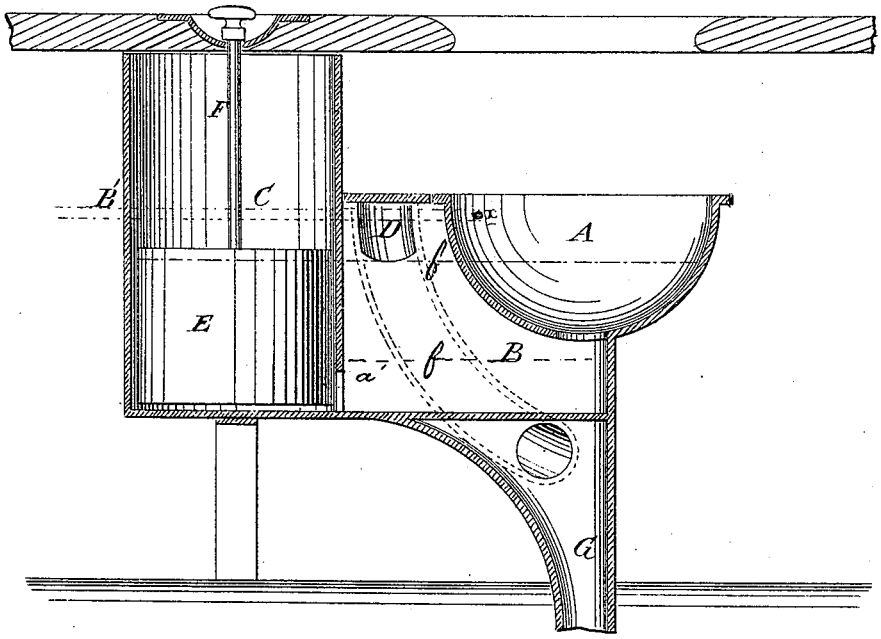
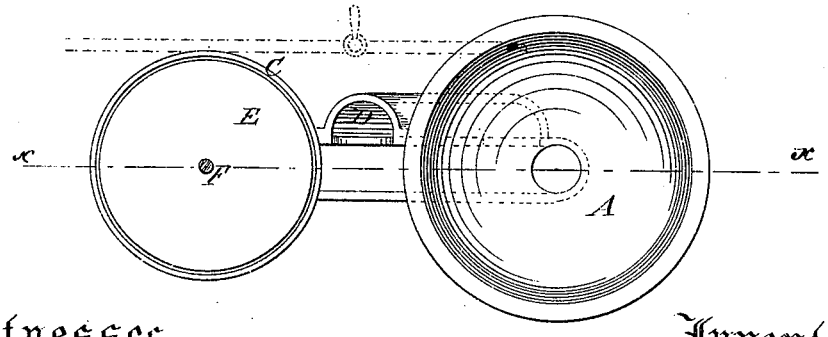


Fig: 2



Witnesses:
Wm. T. Farnham.
Chr. Stevens.

Inventor:
J. E. Boyle.

UNITED STATES PATENT OFFICE.

JAMES E. BOYLE, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE STEVENSON, OF NEW YORK CITY; SAID STEVENSON AND BOYLE ASSIGNORS TO THE NEW YORK VALVE AND FAUCET COMPANY, OF NEW YORK CITY.

IMPROVEMENT IN WATER-CLOSETS.

Specification forming part of Letters Patent No. **187,251**, dated February 13, 1877; application filed June 24, 1876.

To all whom it may concern:

Be it known that I, JAMES E. BOYLE, of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Water-Closet, of which the following is a specification:

My invention embraces the following features: It is a perfect trap in itself, retains within the trunk of the closet a constant supply of water of sufficient depth to prevent soil from adhering to the bottom, dispenses with the ordinary pan, and may be constructed with or without the ordinary bowl. It will, therefore, very much decrease the cost of water-closets to the purchaser.

I do declare that the following is a full and exact description of my invention, reference being had to the accompanying drawings, making part of this specification, and of its construction and operation.

Figure 1 is a sectional view of the closet and of all its parts. Fig. 2 is a vertical view of the closet.

In the several figures the same part is designated by the same reference letters.

A is the bowl of the closet, which is supplied with water in the usual manner through a pipe, B′, arranged as shown in dotted lines, or in any other suitable manner, and provided with a cock. B is the trunk of the closet. C is a chamber or compartment in the trunk, having an opening at *a′* for the passage of water to and from the chamber C. D is an opening in the trunk of the closet, to which is attached the soil-pipe G, connecting the closet with the sewer. E is a plug-plunger or piston, or its equivalent, made of any heavy material or metal, fitting loosely in the chamber C, of sufficient length to reach from the bottom of said chamber C to about two inches above the opening D. The plug-plunger or piston E has a rod, F, attached to it, passing through the cap of the chamber C, with the usual handle for the operator to grasp.

The valve of the closet may be placed within or at the side of the chamber C, and a suitable toe or lever, or other device, may be arranged for opening the valve whenever the closet is operated. The upper part of the bowl of the closet I would make of porcelain, or the whole could be cast together of iron or other suitable material.

In the construction of the closet the proportions of the different parts should be observed. The space occupied by the plug-plunger or piston E in the chamber C should be equal to the area of water in the trunk of the closet within the dotted lines *f f*, so that the withdrawal of the plug-plunger or piston E from the chamber C to a point about two inches above the opening *a′* will cause the surface of the water to fall in the trunk of the closet to a point about two inches below the lowest point of the discharge of the bowl.

It will be observed that the operation of the closet is as follows: When the closet has been used the soil floats on the surface of the water within the bowl. When the plug-plunger or piston E is pulled up the valve is opened, causing water to flow into the bowl through the usual openings *x*, near its top, to wash the closet, and the vacuum formed by the withdrawal of the plunger-plug or piston E in the chamber C is immediately filled with the water in the chamber of the closet. This withdrawal, assisted by the wash, causes a strong current of water toward the chamber C, carrying with it the soil deposited within the bowl to a point beyond the lower edge of the bowl. When, or as soon as the plug-plunger or piston E is released by the operator, and the plug-plunger or piston E descends again to the bottom of the chamber C, the water in the chamber C is forced back through the opening *a′*, which, with the additional water introduced through the valve, raises the surface of water in the trunk B to a point two or three inches above the lower edge of the discharge-pipe or opening D, carrying by the current of the water all the soil into the soil-pipe, and thence to the sewer.

There are several ways in which I can accomplish the result of displacing the water in the chamber of water closets—as, for instance, I might use a plunger in the form of a bucket or hollow plunger, with an opening or trapped

hole at the bottom like the plunger of an ordinary pump, or any equivalent form of a plunger that will form a vacuum to displace the water in the chamber.

Having fully described my improved water-closet, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the bowl A, with the chamber B, the opening D, the plug-plunger or piston E, the opening *a'* in water-closets to form a trap, substantially as described.

2. The mode herein-described of discharging the contents of a water-closet—that is, by increasing the capacity of a receptacle, communicating with the basin, and having a discharge-opening near the top, and then reducing it, so as to cause a portion of the contents to overflow through said opening, as specified.

3. The plug-plunger or piston E, or its equivalent, for the displacing of the water in the chamber or chambers of a water-closet or trap, substantially as described.

J. E. BOYLE.

Witnesses:
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