

(No Model.)

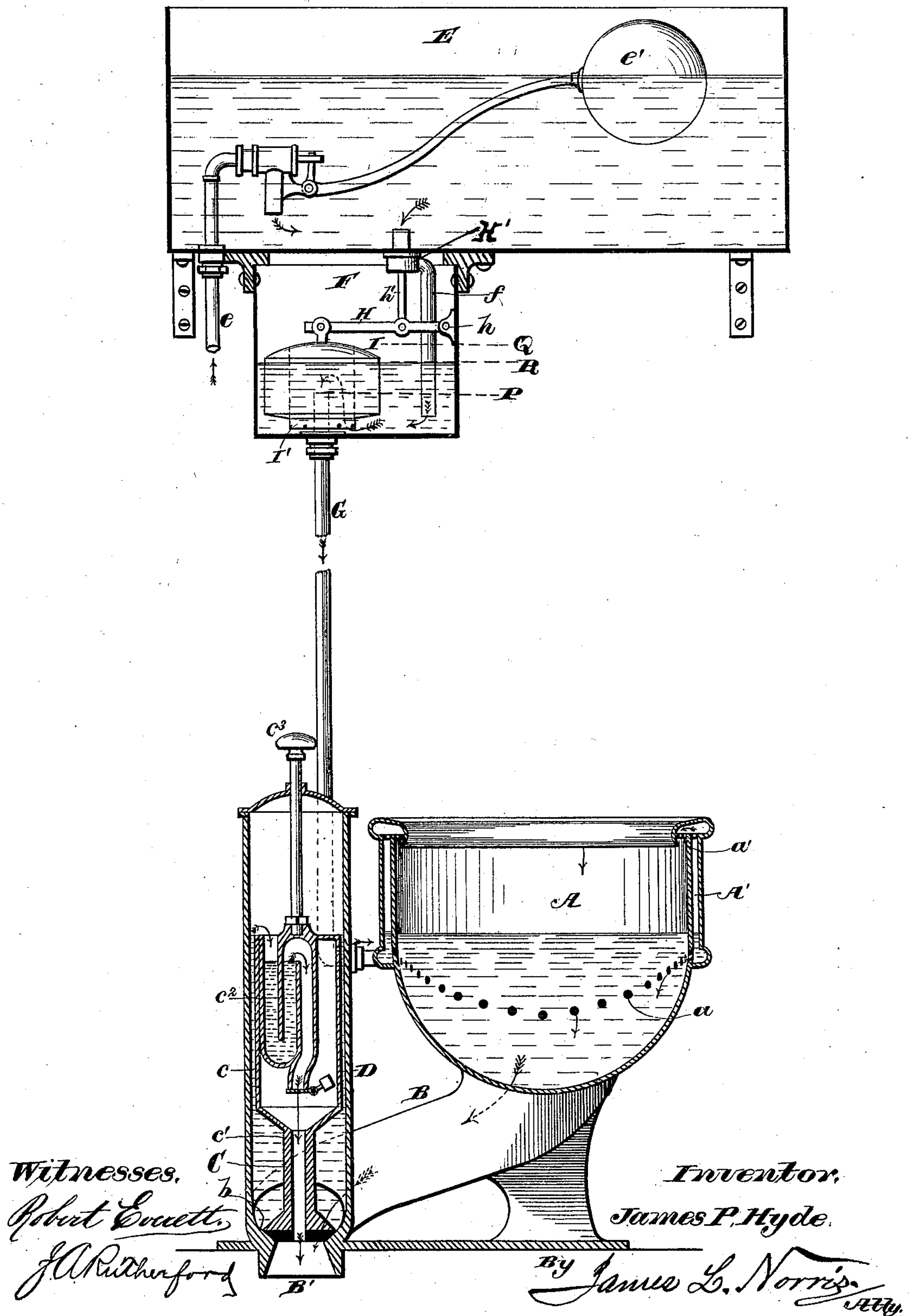
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J. P. HYDE.

WATER CLOSET AND PRESERVING THE SEALS OF THE TRAPS THEREOF.

No. 299,792.

Patented June 3, 1884.





# UNITED STATES PATENT OFFICE.

JAMES P. HYDE, OF NEW YORK, N. Y.

WATER-CLOSET AND PRESERVING THE SEALS OF THE TRAPS THEREOF.

SPECIFICATION forming part of Letters Patent No. 299,792, dated June 3, 1884.

Application filed May 8, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES P. HYDE, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Water-Closets and Preserving the Seals of the Traps Thereof, of which the following is a specification.

My invention relates to means for resealing water-traps or preserving the seal in such traps; and the novelty consists in the construction and arrangement of parts, as will be more fully hereinafter set forth, and specifically pointed out in the claims.

For convenience, I will describe the device as applied to a water-closet, and correspondingly illustrate the parts; but it will be understood that the principle involved will be equally applicable in other relations and combinations.

The object of the invention is to preserve the seal in water-traps, or to renew the seal if broken, the same being accomplished automatically; and to this end the invention consists, essentially, in the mechanisms fully illustrated in the accompanying drawing, which forms a part of this specification, and in which the figure is a vertical sectional view of a water-closet basin, showing my invention connected therewith.

Referring to the drawing, A designates the basin formed with an annular chamber, A', as shown, the said chamber connecting with the interior of the basin by a series of small perforations, *a*, and a perforated flange, *a'*, at the top. The basin A, as well as the bottom of the chamber A' and the perforations *a*, inclines downward from front to rear, and the discharge or connecting pipe B inclines downward in a reverse direction from that point and connects with the drain-pipe B', where a valve-seat, *b*, is produced for the valve-frame C. The valve-frame may be made of metal, porcelain, earthenware, or other vitreous material, or of metal, and then coated or lined with such material.

The valve-frame C is composed of an outer cylindrical portion, *c*, a contracted cylindrical portion, *c'*, which terminates in the valve proper, and which provides an open connection between the service-pipe B' below the valve-seat *b* and the interior of the valve-frame C.

The valve-frame C is sufficiently smaller than the interior of the valve-box D to provide an intervening water-chamber between the two. This water-chamber allows the excess of water when the predetermined water-line has been reached in the basin, to overflow into the valve-frame C, where it is trapped at *c''*, and from thence flows into the interior of the valve-frame, thence through the valve proper and into the service-pipe below the seat *b*. The valve is operated by the stem and handle *c''* to empty the basin, while the trap *c''* operates to prevent the noxious odors from passing into the apartment, and the construction shown provides for a ready and automatic overflow.

E designates a tank, located or supported in any proper manner considerably above the level of the parts just described, having inlet-connections with the water-main, as *e*, and a float-valve, *e'*, adapted to maintain the water substantially at a given level. An outlet-pipe, *f*, from this tank opens into an open-topped sub-tank, F, near its bottom, and a pipe, G, the upper end of which is secured above the bottom of the sub-tank F, connects said sub-tank with the chamber A' in the basin A.

H represents a lever, pivoted at *h* to the tank F, having an arm, *h'*, carrying a valve, H', which controls the pipe-connection between the tank and sub-tank, and carrying also an open-bottomed bell, I, having an inner cylinder, I', secured to and moved with it, and which extends considerably below the lower edges of the bell I, and is adapted to surround the upper end of the pipe G, so as to form an annular water-space between the pipe and cylinder, into which water may pass from the sub-tank, the cylinder near its bottom being perforated for that purpose.

The action of the apparatus is thus: The water-supply to the tank E is regulated by the ordinary ball-and-cock movement, and to the sub-tank F by the valve H', the lever *h'*, and the float-bell I, and it passes to the basin through the outlet-pipe G, connected to the lower flushing-rim of the water-closet basin A. Upon the water entering from the tank E into the sub-tank F, the latter fills to the level of line P at the top of the pipe G within the float-bell I, and then flows through the pipe G until it empties the sub-tank, and so continues alternately to flow until the basin A is filled



to the level sustained by the trapped overflow C<sup>2</sup>, when the air-column in the pipe G will sustain the water in the sub-tank F to the line Q. The float-bell I is so arranged as to raise the lever H and close the valve H' when the water reaches the level R in the sub-tank. Upon raising the valve C, the water in the basin A is emptied into the sewer-pipe, whereupon the compressed air in the pipe G is withdrawn and the water previously sustained in the sub-tank F flows down through pipe G until the sub-tank F is emptied, when again the pipe G is supplied by air under the bell I and the bell-float falls and opens the valve H' and refills the sub-tank, and so on at every operation.

I deem it important that the inlet-connection of the basin is below the water-level thereof, thus using the water-seal as a means for compressing air in the pipe G.

Having thus described my invention, what I claim is—

1. In a device for preserving, maintaining, or restoring the seal in traps, closets, and the like, the combination, with a pipe connecting a tank with such trap below the sealing-line, of a concavo-convex bell attached to an inlet-valve, and having a cylinder to receive the upper end of the connecting-pipe, substantially as described.

2. In a device substantially as described,

the combination, with a tank having a float-valve connection with the water-main, and a sub-tank having a valve connected with the main tank, of a pipe extending within and above the bottom of the sub-tank and connecting it with a basin below the sealing-line, and a bell adapted to surround the upper end of the pipe and serve as a balance air-chamber, substantially as described.

3. The combination of the supply-tank, the sub-tank, the bell-float I in the sub-tank, and the supply-controlling valve H', the bell-float and supply-valve being arranged, substantially as set forth, to close the supply-valve before the water reaches the line Q, or siphon-line, as described.

4. The combination, with the elevated main tank E, of the sub-tank having an open top and suspended directly beneath the bottom of the main, to provide an air-space between the latter and the top edge of the tank, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAMES P. HYDE.

Witnesses:

ALBERT H. NORRIS,  
J. A. RUTHERFORD.