(No Model.)

S. M. HOWARD.

WATER CLOSET.

No. 295,010. Patented Mar. 11, 1884.

Fig. 1.

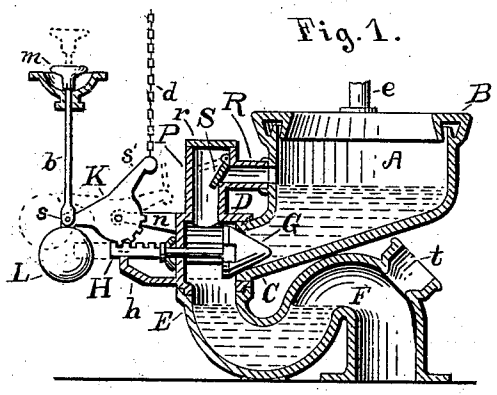


Fig. 2.

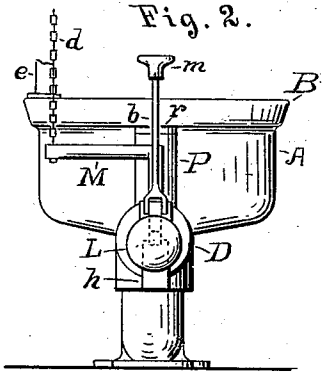


Fig. 3.

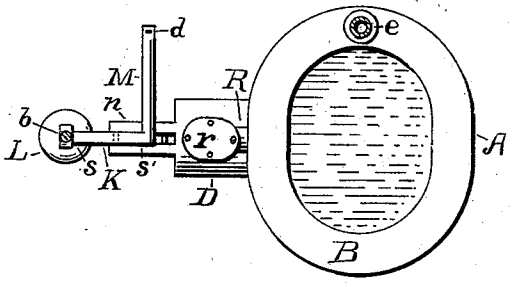


Fig. 4.

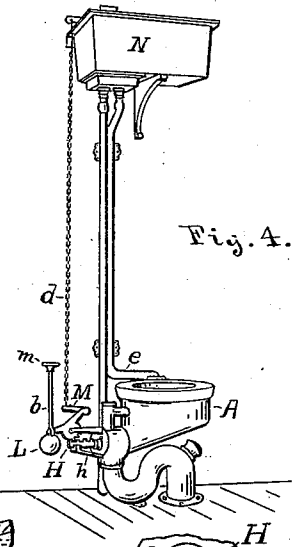


Fig. 5.

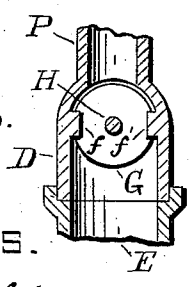


Fig. 6.

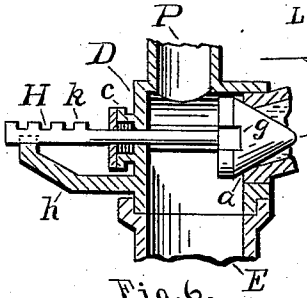
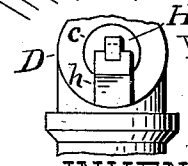


Fig. 7.



WITNESSES.

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UNITED STATES PATENT OFFICE.

STANTON M. HOWARD, OF WHEELING, WEST VIRGINIA.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 295,010, dated March 11, 1884.

Application filed March 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, STANTON M. HOWARD, a resident of Wheeling, in the county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Water-Closets; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The water-closets in general use are open to the following objections: In closets where a water-seal alone is used the traps are liable to siphonage from the contents of the closets being emptied into them, and from suction from the soil-pipe when a large volume of water is passing through the main sewer to which the house-drain is connected. When the closet is not used for some time, as is frequently the case where closets are located in the bed-rooms of hotels, or where the occupants shut the houses up for the summer, the water in the traps evaporates, and permits the gas from the sewer to enter the room. Obstructions in the main sewer, high winds, floods, and tides force the sewer-gas through the water-seal, or the water absorbs the gases and then is released by evaporation, and thus obtains entrance into the premises. Valve-closets have been constructed to meet these objectionable features in a manner; but as far as I have any knowledge the form adopted has failed to give satisfactory results after a practical trial. They do not exclude sewer-gas when the water in the traps dries up, and in many cases the operating mechanism is so situated that the contents of the closet are emptied directly on the working parts, which after a short time fouls the surface, and causes a disagreeable odor to arise that is very offensive and considered unhealthy by sanitary experts.

The object of my invention is to provide a form of valve construction in a water-closet that will operate to effectively exclude sewer-gas from entering the house through the pipes of the closet under any of the unwholesome conditions to which closets are subject—such as siphoning of traps and evaporation of water-seals, back-pressure, &c.—and one in which the peculiar construction of the valve and operating mechanism is such that all liability of fouling from contact with the contents of the closet, or becoming inoperative from obstructions thrown into the same, is removed.

In the drawings, Figure 1 is a central vertical section of a closet containing my improvement; Fig. 2, a side view looking toward the operating mechanism; Fig. 3, a top view or plan; Fig. 4, a perspective view, showing the closet arranged in connection with a cistern or reservoir above. Figs. 5, 6, 7 are detail views.

Like letters of reference refer to like parts.

The letter A represents the bowl of the closet, made the usual size, with an outlet, C, to the end of which is connected a cylindrical valve-chamber, D, having an outlet, E, on the under side, to which is attached a trap, F, and is also provided with an inlet-opening on the upper side, to which is connected an overflow-pipe, R.

G is a conical plug or valve, which is adapted to fit into the mouth or outlet of the bowl A. This conical plug is fitted with a stem, H, to operate the same. The portion passing through the valve-chamber is simply a round rod working through a stuffing-box, *c*, on the side of the valve-chamber. The outer portion of the stem is made square in cross-section, and is provided on the upper side with a rack, *k*.

h is a bracket attached to the side of the valve-chamber to form a support for the valve-rod, the top edge of the bracket being grooved to receive the rack-rod. On the opposite sides of the valve-chamber, on the inside, is formed a small fillet or tongue, *f f'*. (Shown fully in Fig. 5.) These tongues fit in grooves *g g'* in the periphery of the base of the conical plug, and serve as guides to center it in its seat, the edge of the bowl-outlet at *a* being beveled off slightly to receive it and make an air-tight joint. The valve is operated by means of a small segmental rack, *k*, meshing in the rack on the stem. This rack is pivoted to a bifurcated arm, *n*, projecting from the top of the valve-chamber, and is constructed with lever-arms *s s'*, extending in opposite directions. To the arm *s* is attached a weight, L, and a lift-rod, *b*, extending to the top of the closet, and provided with a suitable handle, *m*. To the

end of the lever *s'* is secured an arm, M, extending to the back part of the closet. To this arm is attached a chain, *d*, which extends to tank N, above the closet, and is connected to the water-valve, which regulates the flow of water into the closet.

e is a supply-pipe from the tank or reservoir.

R is an overflow-pipe projecting from the side of the bowl into an upright pipe, P, connected with the valve-chamber. The end of this overflow-pipe, where it enters the upright connecting-pipe, is cut back on an incline and fitted with a lid, S, pivoted at the top edge to permit the lid to rest over the opening in the manner of a back-water trap used in sewers. This lid is fitted on the under side with a rubber gasket, to form a perfect air-tight joint, to prevent the entrance of gas by pressure from the sewer side of the trap. The upper end of the pipe P is fitted with a removable head, *r*, held in position by small bolts for convenience in putting the closet together. This arrangement of the overflow-pipe permits the clean water to flow through the valve-chamber, washing it and the valve perfectly clean from any sediment that may have collected by the passage of the contents of the bowl. A rubber ball can be substituted for this drop-lid, resting on the end of the outlet-pipe, which can be turned up to receive it.

t is a hand-hole to remove obstructions in the trap, or for ventilating purposes.

The conical discharge-valve can be made of metal covered with rubber or any other suitable material that will be sufficiently elastic to insure an air-tight joint. When the discharge-valve is withdrawn, the contents of the bowl are emptied into the trap below and pass through it into the sewer. The same movement of the lever which operates the discharge-valve also starts on the water to flush the bowl, while the contents are flowing into the sewer, and fills the same when the valve is in its seat.

The entire closet, including the valve-chamber and overflow-outlet, can be cast in one piece. The bowl is afterward porcelain-lined; or the bowl can be earthenware or glass and connected with the valve-chamber by screw-threaded joints.

Where the space for the closet is limited, the mechanism herein shown to operate the valve can be arranged on supports on the side of valve-chamber and move the valve in the same manner, and other modifications in construction which involve the same principles I claim within the scope of my invention.

The conical discharging-valve can be combined with a float-tank when so desired, and the arrangement herein shown can be connected to a direct water-supply when the pressure is sufficient to flush the closet.

Having described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, with the basin A, of the discharge-pipe having an upward extension or chamber, P, and the horizontal overflow-pipe R, connecting said chamber P and the basin, and having the valve S, substantially as described.

2. The combination of the basin A, the discharge-pipe and trap, the horizontally-sliding valve and vertical pull-rod, and connections between the valve and pull-rod, which permit the valve to slide horizontally, and a connection between the pull-rod and flushing-cistern.

3. The combination, in a water-closet, of the bowl A, valve-chamber D, and trap F, with conical plug-valve G, valve-stem H, lever-pinion K, weight L, pull *b*, chain *d*, and tank N, substantially as and for the purpose herein described.

In testimony that I do claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

STANTON M. HOWARD.

Witnesses:

F. L. MIDDLETON,

B. P. BLODGETT.