(No Model.) 2 Sheets—Sheet 1.

W. SMITH.

VALVE FOR WATER CLOSETS.

No. 301,932. Patented July 15, 1884.

FIG. 1.

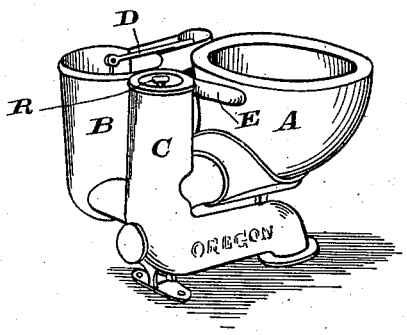
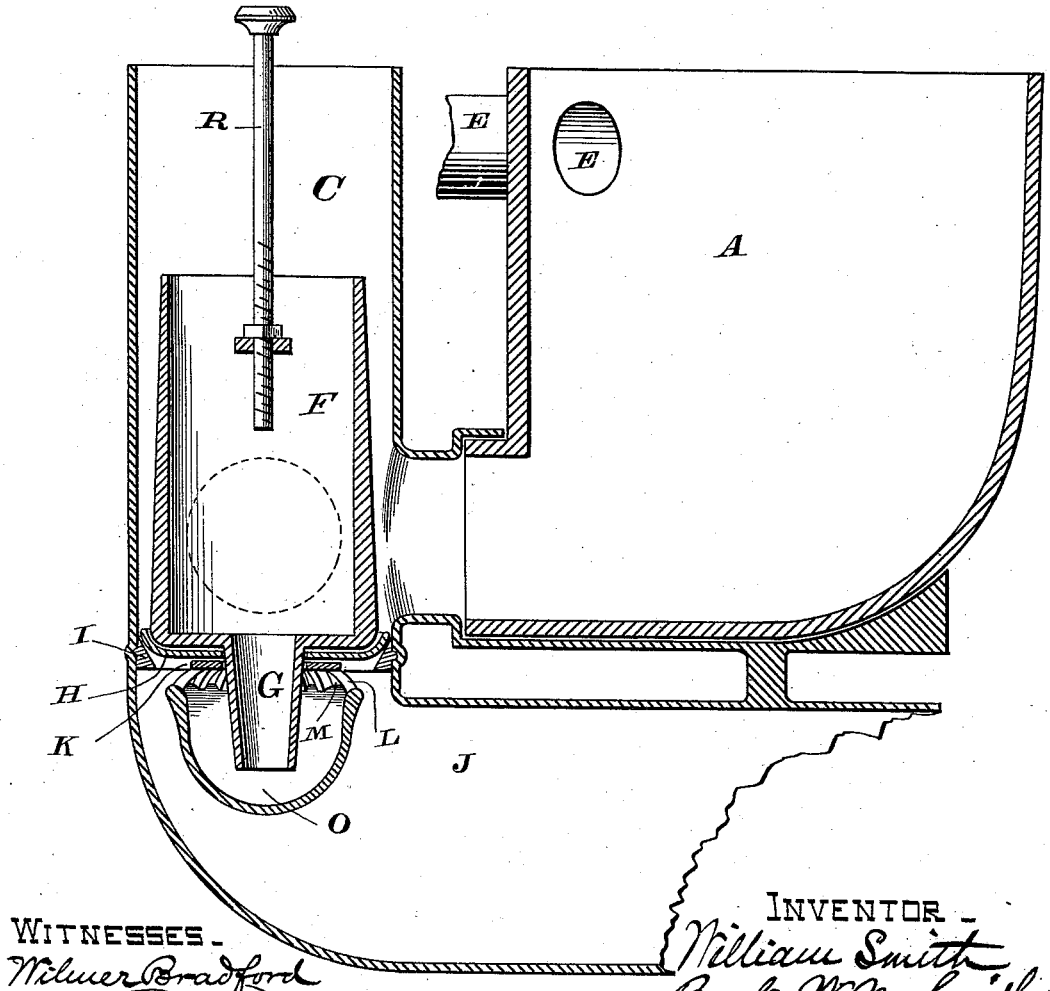


FIG. 2.



WITNESSES.
Milner Bradford
Howard P. Garland

INVENTOR.
William Smith
By C. W. M. Smith
Attorney

(No Model.) 2 Sheets—Sheet 2.

W. SMITH.

VALVE FOR WATER CLOSETS.

No. 301,932. Patented July 15, 1884.

FIG. 3.

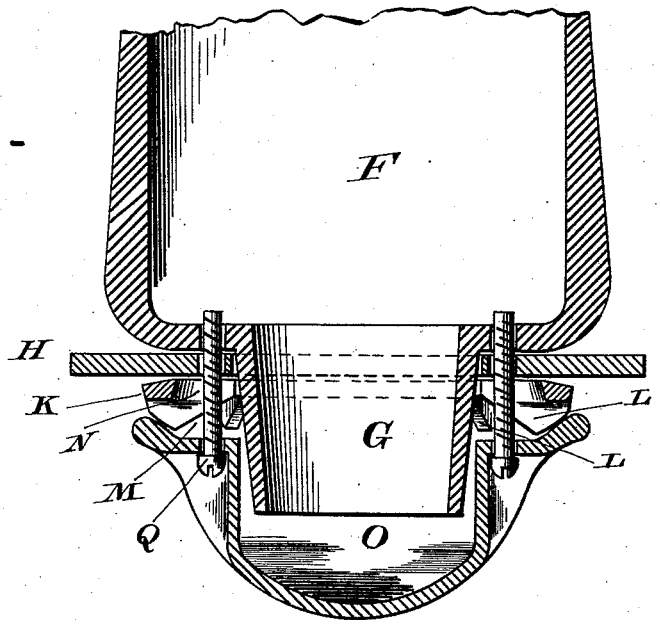


FIG. 4.

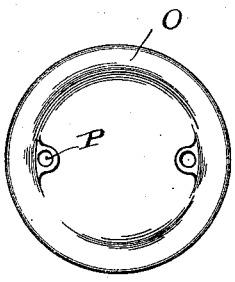


FIG. 5.

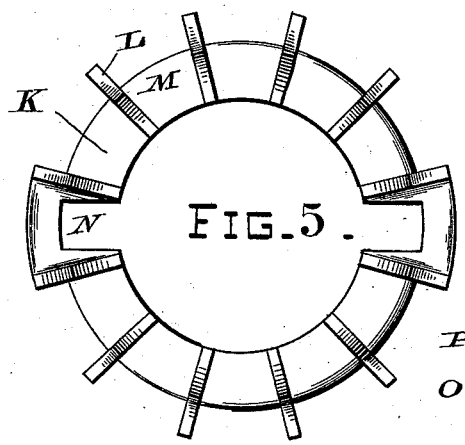
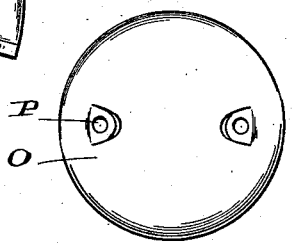


FIG. 6.



WITNESSES.

Wilmer Bradford

Howard P. Garland

INVENTOR.

William Smith

By G. W. M. Smith

attorney

UNITED STATES PATENT OFFICE.

WILLIAM SMITH, OF SAN FRANCISCO, CALIFORNIA.

VALVE FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 301,932, dated July 15, 1884.

Application filed August 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SMITH, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a certain new and useful Valve for Water-Closets, of which the following is a specification.

My invention relates to an improved plunger valve or plug for water-closets; and the objects of my improvements are, first, to provide a valve or plug adapted to close the passage to the soil-pipe, and through which the overflow to the said soil-pipe may pass; second, to provide a centrally-perforated water-closet plug or valve with a permanently-attached trap to prevent the emanations from the sewer from passing up through said plug. I attain these objects by the means illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a water-closet having my invention applied thereto. Fig. 2 is a longitudinal vertical section through a portion of a water-closet, showing the plug or valve in position. Fig. 3 is a central vertical section through the valve and its trap. Fig. 4 is a top view of the trap-bowl. Fig. 5 is a bottom view of the perforated washer. Fig. 6 is a bottom view of the trap-bowl.

Similar letters of reference are used to indicate like parts throughout the several figures.

The water-closet to which this invention is particularly applicable consists of a basin or bowl, A, and two communicating chambers or water-reservoirs, B and C, all placed together as compactly as possible, as shown in Fig. 1. Within the chamber B, I place a weighted float, connected by a lever-arm, D, with a cock upon the water-supplying pipe E, which discharges into the bowl A. The water, when the closet is being flooded, enters into the bowl and chamber C, (passing from thence into the float-chamber,) and when the float has risen to a certain level the cock is closed by the lever attached to the float and the supply of water is shut off, while the outlet to the soil-pipe is securely closed by the plug resting upon its seat at the entrance thereto. Should any accident happen to the float and supply-cock, whereby the latter should fail to close, the continued influx of water would in time completely fill the basin and chambers, and, overflowing, would cause damage to the apartment within which the closet was situated; and hence the object of my invention is to avoid the liability to such accidents, and to provide a means for the escape of the surplus water; and this is accomplished by making the plug or valve F of a cylindrical form and of a height equal to about two-thirds of the height of the chamber within which it is placed. This plug is made hollow throughout its length, and has a head at the lower end having a short pipe or nozzle, G, extending downward therefrom, and of a diameter considerably less than that of the plug itself. Over this nozzle, and resting against the head or bottom of the plug, I place a rubber washer, H, which is of a greater diameter than the plug, and when in position rests against the solid cast-brass valve-seat I, which is clamped between the two sections of casting forming the plug-chamber, and thus held firmly in position at the dividing-line between the plug-chamber C and the soil-pipe J, and thus the ordinary outlet for the contents of the basin and chambers is completely closed.

Over or resting against the rubber washer H, I place a metal washer, K, which has a series of downwardly-projecting ribs or lugs, L, radiating outwardly from the center of the washer, and the spaces M between said ribs form water-passages, for a purpose to be hereinafter described. A portion of the rim of this metal washer is cut out, (see Fig. 5,) so as to form passages N N for the screws, which serve to retain the said washer in position. Beneath this washer I place a cup, O, the rim of which rests against the lower portion of the ribs on the washer K, and is provided with screw-holes P, through which the screws Q are passed, and enter through the washer into the base of the plug, and thus the whole is firmly connected and clamped together, as is clearly shown in Fig. 3.

The operation of my improved water-closet valve or plug will be as follows, to wit: When it is desired to pass the contents of the basin, the plug is raised from its seat in the usual way, and the passage to the soil-pipe then being open, the contents of both the basin and the reservoirs will pass out in a body into the soil-pipe, when the plug is to be dropped back

upon its seat. Should any leakage take place from the supply-valve into the basin, the water will gradually rise in the said plug-chamber C until it has reached the level of the top of the plug or valve, when it will overflow into the said hollow plug, and, falling down through the nozzle G, will fill the cup O, and thus seal or trap the mouth of the nozzle and prevent any influx of sewer-gas into the water-closet. As the water continues to flow into the cup it will find an outlet through the passages or spaces M M, formed by the ribs of the washer K, and, as these openings are considerably above the outlet of the nozzle G, it will be readily seen that the hollow plug may be constantly kept trapped, and also that in case no water should enter the hollow plug from above, yet when the plug is raised up to empty the closet the water within the basin or chamber C will flow in through the perforated or ribbed washer and fill the trap-cup O, and thus seal the closet against emanations from the sewer.

It should here be observed that the plug F is to be provided with a lifting-handle, R, which may be attached in any well-known manner.

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

1. A hollow open-ended valve-plug for water-closets, adapted to operate within a water-containing chamber intermediate between the basin and the soil-pipe, and provided with a trap at its lower end, and an outwardly-projecting rubber washer placed immediately above the trap, and adapted to rest upon a circular beveled solid valve-seat contained within the said water-chamber below the discharge-line of the basin, substantially as shown, for the purpose set forth.

2. In a valve or plug for water-closets, the combination and arrangement of the hollow cylindrical plug F, having a discharge-nozzle, G, rubber washer H, perforated metal washer K, having projecting ribs L, trap-cup O, and screws Q Q, substantially as shown, and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

WILLIAM SMITH. [L. S.]

Witnesses:
WILMER BRADFORD,
CHAS. E. KELLY.