No. 650,161. Patented May 22, 1900.

J., W. H. & E. R. WILLIAMS.

DEODORIZER.

(Application filed Sept. 2, 1899.)

(No Model.)

Fig. 1.

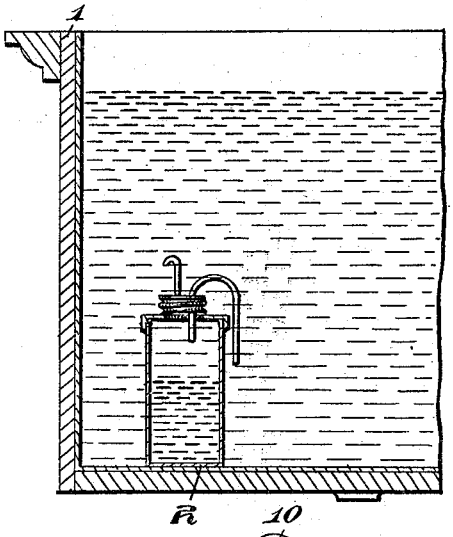


Fig. 2.

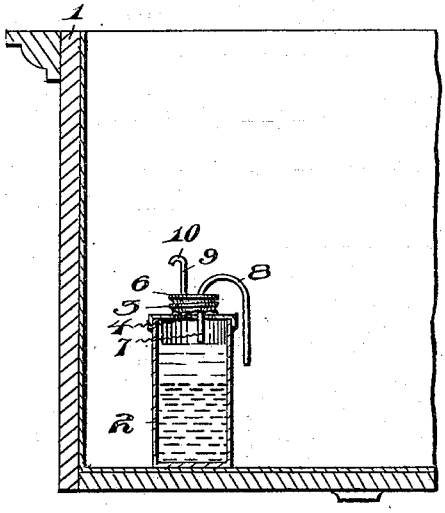


Fig. 3.

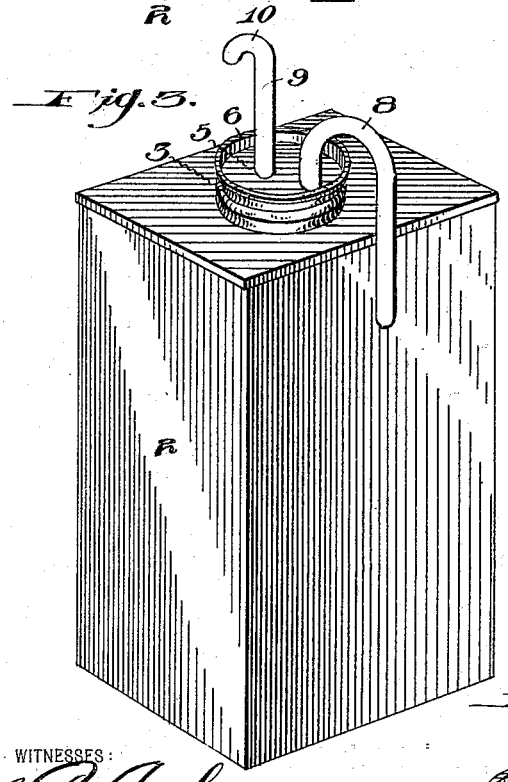


Fig. 4.

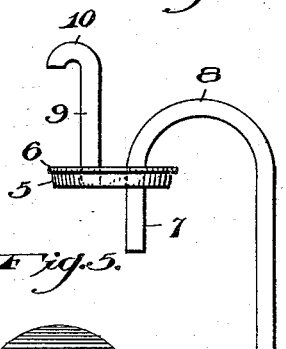


Fig. 5.

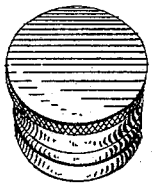
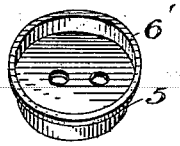


Fig. 6.



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JOSEPH WILLIAMS, WILLIAM H. WILLIAMS, AND EDWARD R. WILLIAMS, OF SHARPSBURG, PENNSYLVANIA.

DEODORIZER.

SPECIFICATION forming part of Letters Patent No. 650,161, dated May 22, 1900.

Application filed September 2, 1899. Serial No. 729,333. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH WILLIAMS, WILLIAM H. WILLIAMS, and EDWARD R. WILLIAMS, citizens of the United States of America, residing at Sharpsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Deodorizers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in deodorizers, and relates more particularly to that class known as "siphon-operated chemical disinfectants."

The herein-described invention is designed and adapted to be used in connection with flushing-tanks for closets, urinals, and the like.

One object of the invention is to provide novel means that will permit of the chemical disinfectant being used in the most economical manner and to automatically operate and distribute the disinfectant by means of the rising and lowering of the water in the flushing-tank.

The invention further contemplates to construct an apparatus of the above-described class that will automatically and accurately regulate a certain amount of disinfectant to be discharged with each operation of the valve in the tank.

A still further object of our invention is to form a water seal at a certain predetermined point in the vent-tube, thereby preventing the disinfectant being discharged too freely, which would greatly reduce the lifetime of the apparatus.

Another object of our invention is to construct an apparatus of this class that will possess advantages in points of simplicity, durability, practicability, and cheapness of manufacture.

With the above and other objects in view the invention, briefly described, consists of a suitable receptacle containing a soluble chemical disinfectant, with the receptacle having a siphon and air-tube removably attached thereto. The air-tube and other parts are constructed in a novel manner to be hereinafter more particularly described, and specifically pointed out in the claim.

We will now describe the particular form of apparatus, reference being had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is a vertical sectional view of a portion of a flushing-tank containing our improved siphon-operated chemical disinfector and indicating in dotted lines the water-level in the tank. Fig. 2 is a similar view showing the water discharged from the tank. Fig. 3 is an enlarged perspective view of our improved apparatus. Fig. 4 is a similar view showing the siphon and air-tube detached. Fig. 5 is a perspective view of the screw-threaded cap. Fig. 6 is a similar view of the cap, showing the siphon and air-tube removed therefrom.

In the drawings the reference-numeral 1 indicates the flushing-tank.

The reference-numeral 2 indicates the receptacle, carrying on its upper face an annular screw-threaded flange 3, forming an opening 4, communicating with the interior of the receptacle. A cap 5, carrying an annular flange 6, is adapted to fit in the opening 4, said cap 5 being further provided with a siphon-tube 7. This siphon-tube extends through the cap 5 downwardly a short distance into the receptacle and is bent over, as shown at 8, and thence extends downwardly a short distance below the end of the tube extending into the receptacle. The cap 5 is further provided with an air-tube 9, the upper end of said air-tube being bent over, as shown by the reference-numeral 10.

The operation of our improved siphon-operated chemical disinfector is as follows: For the purpose of clearly illustrating the operation we will assume that all parts are in the position shown in Fig. 1 of the drawings, the water-line in the flushing-tank being near the top thereof and the receptacle submerged therein, as shown. The receptacle is retained in proper position on the bottom of the tank by reason of the soluble chemical disinfectant therein—for example, soluble thymol—being of greater specific gravity than the water. When the valve of the flushing-tank is opened and the water allowed to escape, no

discharge of the disinfectant is obtained until the water-level in the tank is equal to the liquid-level in the receptacle. At this point the solution formed above the chemical will siphon into the water in the tank until the water-level in the latter is equal to the end of the downwardly-extending siphon-tube in the receptacle, when the water in the tank will be further discharged, but only a small amount of the solution will be siphoned from the receptacle.

We will now proceed to describe the reverse or charging operation, in which the importance of our submerged air-tube creating a water seal will be fully set forth. We will assume that the water is drained or nearly drained from the flushing-tank, and it will be observed that as the soluble thymol is heavier than water it remains at the bottom of the receptacle. As the water rises in the flushing-tank it will enter the receptacle through the siphon-tube and come into contact with the soluble thymol, forming a disinfecting solution which is of about the same specific gravity as the water, but more volatile than the thymol. Hence it is constantly emitting an odor into the atmosphere if the air-tube is straight or not submerged in the manner as heretofore set forth; but when the end of this air-tube is bent over a water seal is obtained by the water entering such bent-over portion as the water rises in the tank, and the odor which would otherwise escape is retained in the receptacle until the tank is again flushed, when it will be, together with the volatile solution, siphoned from the receptacle into the flushing-tank, as heretofore described. Particular attention is called to the fact that if the air-tube is not submerged the solution upon the top of the thymol is constantly emitting its odor and strength into the atmosphere, drawing its supply from the thymol and causing a continual waste, which is overcome by providing a water seal obtained by the construction of a submerged air-tube in the manner heretofore referred to.

In view of the foregoing description with reference to the accompanying drawings others skilled in the art will be enabled to readily understand the construction and practical operation of our improved apparatus, and it is thought that a further description of the parts is unnecessary, except that in case it is desired to pack the apparatus for shipping the siphon is removed from the receptacle. An interior cap is provided similar to the one shown in Fig. 6 of the drawings, with the exception of the openings formed therein, and the screw-threaded cap (shown in Fig. 5 of the drawings) engages the exterior screw-threaded flange 3 and seals the opening 4 of the receptacle.

It will be noticed that various forms of receptacles, siphons, and connections may be used when applying our apparatus to various forms of flushing-tanks without departing from the general spirit of our invention.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination with a flushing-tank, of a receptacle within the tank and supported on the bottom thereof and adapted to contain a disinfectant compound, said receptacle being provided with an opening in its top, an annular screw-threaded flange secured to the top around said opening, a closure-cap engaging in said flange and provided with a pair of eccentrically-placed openings, a siphon-tube secured in one of said openings with its shorter leg extending downwardly into the receptacle and its longer leg extending downwardly outside the receptacle, and an air-tube secured in the other of said openings in the closure-cap with its lower end flush with the underneath face of said cap and its upper end bent downwardly whereby a water seal is effected to prevent the discharge of the disinfectant or odor therefrom into the water in the flushing-tank or to the atmosphere until the tank is flushed or drained, as and for the purpose described.

In testimony whereof we affix our signatures in the presence of two witnesses.

JOSEPH WILLIAMS.
WILLIAM H. WILLIAMS.
EDWARD R. WILLIAMS.

Witnesses:
JOHN NOLAND,
H. H. PATTERSON.