

(No Model.)

2 Sheets—Sheet 1.

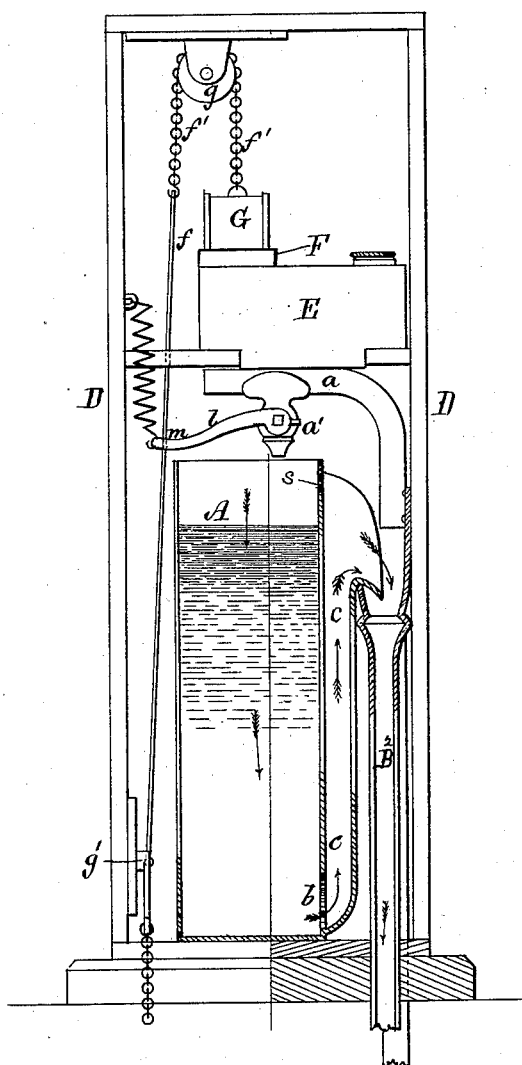
E. M. CHASE.

DISINFECTING APPARATUS FOR WATER CLOSETS.

No. 303,707.

Patented Aug. 19, 1884.

*Fig. 1.*



*Witnesses.*

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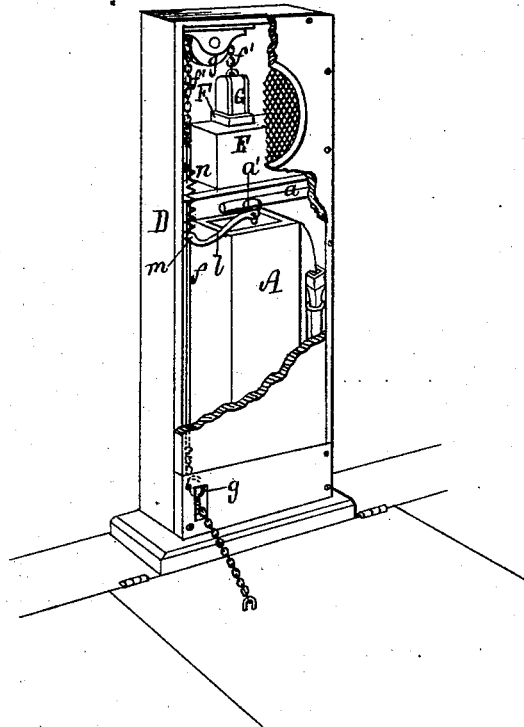
*Edward M. Chase.*  
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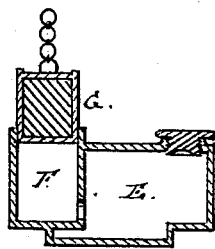
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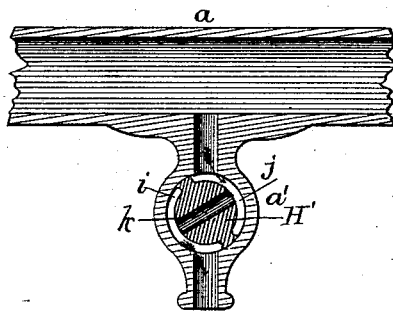
*Fig. 2.*



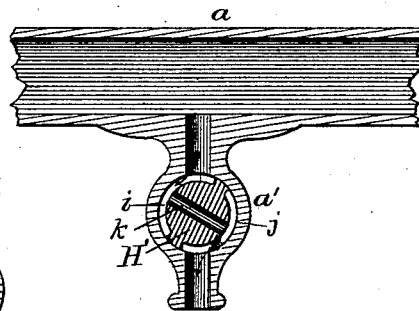
*Fig. 6.*



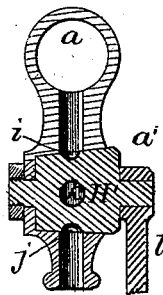
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



Witnesses.  
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# UNITED STATES PATENT OFFICE.

EDWARD MASON CHASE, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JOHN W. MACKINTOSH, OF SAME PLACE.

## DISINFECTING APPARATUS FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 303,707, dated August 19, 1884.

Application filed December 4, 1883. (No model.)

### *To all whom it may concern:*

Be it known that I, EDWARD MASON CHASE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Disinfecting Apparatus for Water-Closets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 or figures of reference marked thereon, which form a part of this specification.

This invention is an improvement in or upon a system of disinfecting and deodorizing water-closets and other localities or objects shown and described in Letters Patent granted on the 7th day of February, 1882, to Edward J. Mallett, Jr., in which the object or locality to be disinfected is supplied with a liquid disinfectant, applied in such manner as to prevent the local generation of noxious gases and neutralize gases seeking to enter from a sewer or other locality, at the same time disinfecting or deodorizing the apartment in which the water-closet or the like is situated. The first result is obtained by combining with the closet a supply duct or pipe, connected on the one hand with the bowl, soil-pipe, or other appropriate part of the closet, and on the other hand with a reservoir which contains disinfecting material, and is in communication with a source of liquid supply in such manner that at all times, no matter how the closet in other respects may be constructed and adapted for operation, a continuous flow of disinfecting-liquid shall be maintained through the bowl or other appropriate part of the closet. In order to disinfect or deodorize the room, use is made of what is termed an "aerial" disinfecter or deodorizer, which discharges into the room, at the times and in the manner substantially as hereinafter described, air charged with suitable disinfecting matter. Extended use of the above-patented invention has developed two objections, which my invention is designed to overcome—first, the water, as it enters the compartment containing the disinfecting material, drops through a tube extending from the top to the lower part of such

compartment and finally escapes at the top, and owing to the density of the disinfecting material and the small area of the pipe exposed to atmospheric pressure, the flow of the water through the material is sluggish, and in some cases ceases and overflows the pipe into the compartment and escapes from the latter without taking up any appreciable amount of the disinfectant; second, the construction of the device is such as to cause the water to enter the mixing-compartment in drops, and it frequently happens that the faucet through which said liquid passes becomes clogged by sedimentary deposits, and the liquid ceases its flow altogether. I remedy the first objection by doing away with the feed-pipe named and supplying water directly to the mixing-compartment, which is open its full size at top, the atmospheric pressure on the large surface of water thus exposed serving to drive the water downward through the disinfecting material, and in lieu of taking the charged water from the mixing-compartment at top, as in the patented device, I take it from the bottom and conduct in upwardly in a suitable pipe or channel to the pipe, which carries it to the bowl of the closet or other locality, thereby compelling the water to flow downward through the mass of disinfecting material and become thoroughly charged with the latter. I remedy the second objection in any manner in which it may be practically accomplished, by forming peripheral passages in the plug of the faucet which communicates alternately with the bore of the supply-pipe and of the plug from opposite sides of the latter, and connecting the plug with the seat of the closet in such manner that with each raising and lowering of such seat the water-way of the faucet is changed from one passage to the other, thereby flushing each passage alternately and preventing collection of sediment.

The drawings accompanying this specification represent in Figure 1 a front elevation, and in Fig. 2 a perspective view, of a device embodying my improvements. Figs. 3, 4, and 5 are sections of the faucet, to be explained. Fig. 6 represents a detail vertical section of the cylinder-tube and plunger hereinafter described.

In said drawings, A represents the box or compartment containing chloride of zinc or other disinfecting substance having an affinity for water. From the water service-pipe extends a small pipe, *a*, which terminates in a faucet, *a'*, overhanging the box A. Water from the faucet *a'* descends in drops into the box A, and, passing down over and through the disinfecting material, escapes in like quantity from the bottom of such box by an outlet, *b*, into a pipe or passage, *c*, disposed alongside such box, and, ascending such pipe, escapes from the top of the latter into the vessel B', that receives it and conducts it to its destination. The water in its passage through the disinfecting material becomes impregnated or charged with the latter. The top or outlet of the pipe or passage *c* should be situated at a point some distance below the top of the box A, in order that a head of water in such box may insure sufficient to force such water through the disinfecting material. In case the passage of water from the faucet *a'* should be more rapid than the percolation of the water through said disinfecting material, a surplus and hence an overflow of water would occur from and over the top of the tank A. To overcome this difficulty and prevent the overflow from passing out and spreading over the floor and elsewhere, I form an outlet, *s*, as shown in Fig. 1 of the drawings, which leads and passes the water into the pipe *c*. Within the case D, which contains this portion of the device, I locate a second box, E, which is disposed above the box A, this box E being to contain a solution of thymol or other disinfectant or deodorizer. Through the closed top of the box E rises a tube, F, which at its lower end extends to or near to the bottom of such box, and communication between the interior of the box and the tube is had by an opening at or near the lower end of said tube, the tube constituting a barrel to guide the movements of a plunger, G, contained in it, and covered with a suitable material to absorb moisture. The plunger is connected with the lid *g'* of the closet by a rod or wire, *f*, secured at one end to such lid, and at its opposite end secured to the lower end of a chain, *f'*, extending to and about pulley *g* in the said case D, and attached at its opposite end to the plunger. The lid, when raised, will permit the plunger to descend into the barrel and become saturated with the liquid therein, and when returned will lift the plunger and allow the liquid absorbed by it to evaporate and the fumes enter the apartment.

In carrying out the second feature of my improvement I form in the periphery of the plug H' of the faucet two channels, *i j*, each of which communicate at one end with one end of the bore *k* of such plug. The head of the plug is secured to one end of an arm, *l*, the opposite or free end, *m*, of such arm being connected with the rod or wire *f*, an intermediate spring, *n*, being employed to insure the partial rotation of the plug when the lid is

lifted, one end of such spring being connected with the arm *l* and the other secured to the side of the case D. When the lid is lifted, the spring *n* operates to partially rotate the plug of the faucet to the limit of its movement in one direction. When the lid is closed, the descent of the rod or wire *f* with such lid turns the plug to its extreme position in the opposite direction. We will suppose, for clearness of explanation of this portion of my improvement, that the channel *i* opens communication between the bore of the plug and the portion of the pipe *a* above the faucet, and the channel *j* with the portion below the faucet, and that when the lid is closed the parts are in the relative position shown in Fig. 3 of the drawings—that is, with the ends of the bore *k* of the plug intersecting the channels *i j* at diagonally-opposite ends of the latter—while Fig. 4 represents the position of parts when the lid is open—that is, the bore of the plug intersects the opposite ends of such channels. Under these circumstances, as the lid is raised, the spring rotates the plug of the faucet from the position shown in Fig. 3 to that shown in Fig. 4, and the water rushes into and flushes the channel *i* and agitates and dislodges the sediment therein, thence flows through bore *k* of the plug into and performs a like office in the channel *j*, and thence drops from the outlet of the faucet into the box A. When the lid is closed, the channels of the plug shift from the position shown in Fig. 4 to that in Fig. 3. The water now enters and flushes the channel *j*, thence passes from the opposite end of the latter through the bore *k* of the plug into the channel *i*, and escapes from the opposite end of the latter through the faucet into the box A.

By the employment of the channels *i* and *j* as intermediate chambers, into which the sediment in the water is allowed to enter, and reversing the direction of the current of water end to end of these channels, the sediment, which ordinarily would collect and clog the faucet, is agitated and dislodged, and the dropping of water from such faucet at all times insured.

I claim—

1. In a disinfecting apparatus for water-closets, the box or compartment A, containing disinfecting material, and having its top uncovered, in combination with the service-pipe *a*, provided with a cock, *a'*, arranged above the open top of the box A, and an outlet from the bottom of said compartment, the inlet, outlet, and compartment forming part of the channel or conduit for the flow of water to the water-closet basin, substantially as shown.

2. The box A, for containing disinfectants, provided on one side with an outlet-passage, *c*, which communicates with the interior of said box near its bottom and discharges at a point near the top thereof, in combination with the service-pipe *a*, provided with a cock, *a'*, arranged above the open top of the box A,

and the tube or vessel B<sup>2</sup>, into which outlet *c* empties, whereby the flow of water is caused to pass through box A on its way to the water-closet basin, substantially as set forth.

5 3. In combination, the rod *f*, the faucet and its plug, the arm *l*, and the spring, the latter operating to turn the plug in one direction when the lid is raised, substantially as explained.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD MASON CHASE.

Witnesses:

A. F. HAYDEN,  
H. E. LODGE.