

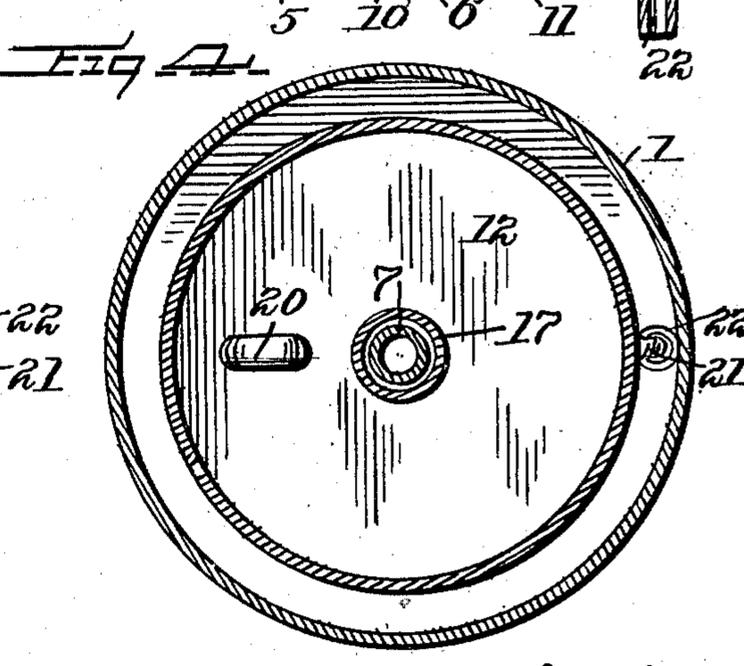
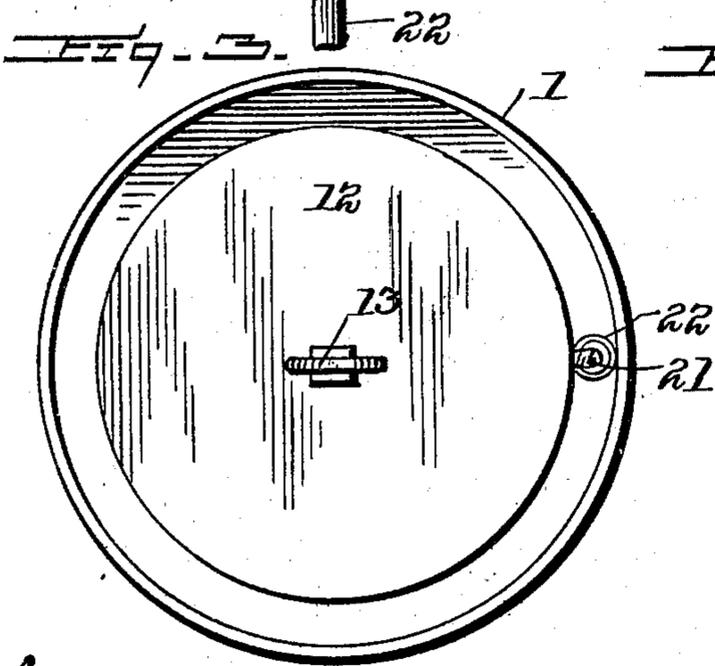
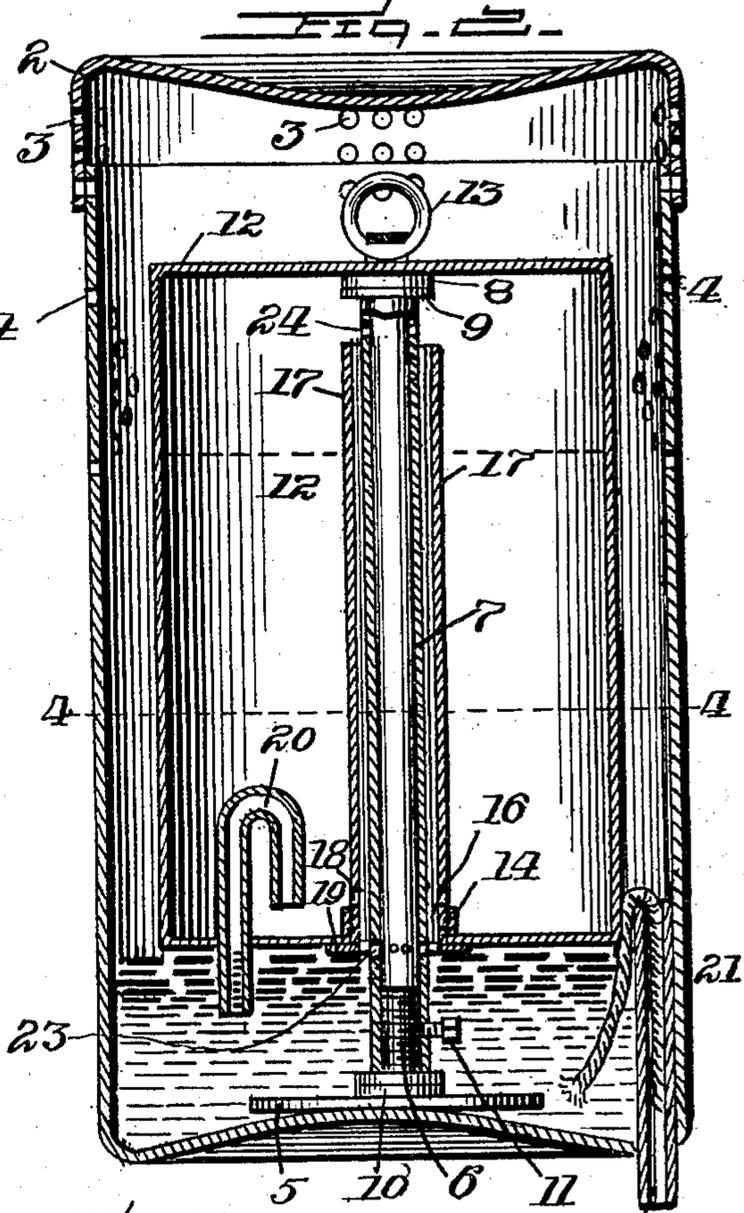
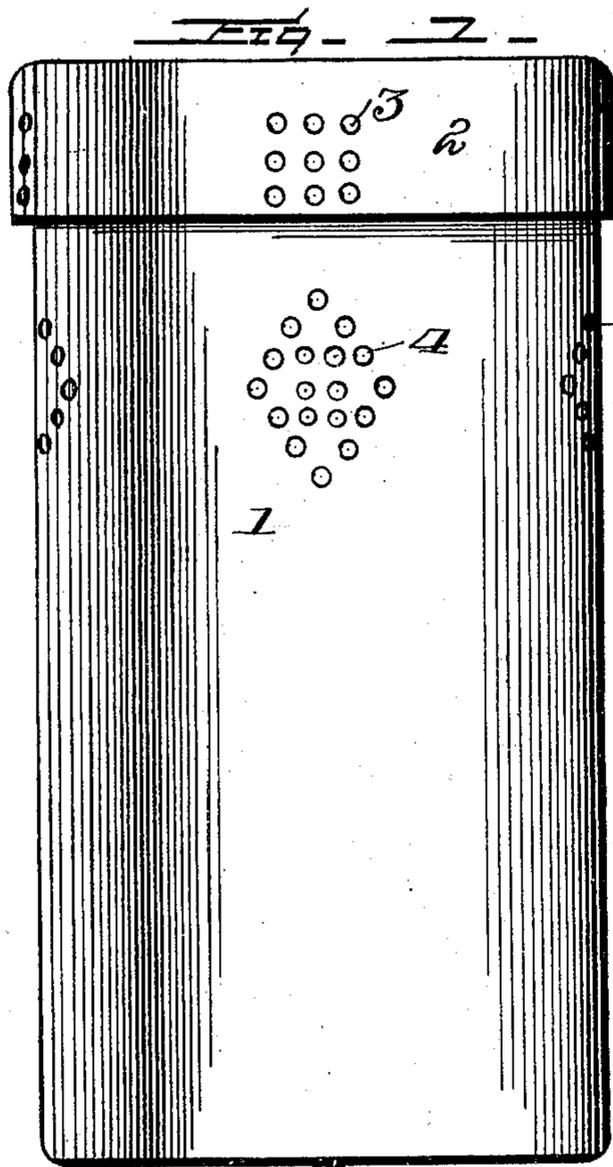
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J., W. H. & E. R. WILLIAMS.
DISINFECTING APPARATUS.

APPLICATION FILED JAN. 30, 1902.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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DISINFECTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 719,929, dated February 3, 1903.

Application filed January 30, 1902. Serial No. 91,895. (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 Disinfecting Apparatus, 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 disinfecting apparatuses applicable to the walls, partitions, or other suitable support within lavatories or other places in which disinfectants are employed, and has for its object a device of this character wherein the quantity of disinfectant permitted to remain within the outer casing and from thence find egress into the room shall be automatically regulated by the supply retained within the outer casing and being fed thereto by means of the admittance of air, said air admittance being controlled by the disinfectant in the outer casing.

The invention has for its further object an apparatus of the above-described character wherein the quantity of disinfectant necessary to cause the fumes of the disinfectant to emanate and the disinfectant itself to drop from the outer casing with regular intervals between each drop and at all times be adjustable, so as to cause a longer or shorter interval between each drop, and thus cause a greater or less feed of the disinfectant.

Further objects of the invention reside in the simplicity and economical features of construction, the comparative inexpense to manufacture, and the efficient operation.

With the above and other objects in view the invention consists in the novel combination and arrangement of parts, to be hereinafter more fully described, and specifically pointed out in the claims.

In describing the invention in detail reference is 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 side elevation of the appara-

tus, showing the same in its operative position. Fig. 2 is a vertical sectional view thereof. Fig. 3 is a top plan view showing the cover of the outer casing removed. Fig. 4 is a transverse vertical sectional view taken on the line 4 4 of Fig. 2.

The outer casing (designated by the reference-numeral 1) is preferably of an annular form, though this is optional and is not essential to the aims of the invention. The usual cover or top 2 is secured at the upper end of the casing 1 and has a series of perforations 3 therein, whose shape and number may vary, as well as those designated by the reference-numeral 4 of the outer casing 1. An annular disk 5 has a screw 6, formed integral with the upper face thereof, which is threaded into one end of the interior tube 7, the other end of which carries an integral cap 8, to the under face of which is secured the rubber or leather washer 9, which surrounds this inner tube 7. Surrounding the screw 6 are washers 10 placed thereon, which are seated upon the upper face of the disk 5. The upper face of the uppermost washer is engaged by the lower end of the interior tube 7, and the washers may vary in number according to the height desired to adjust the apertures 23 for the admission of air to the interior of tube 7. A thumb or set screw 11 is screwed through the side of the interior tube 7 and engages the threads of the screw 6 for securing the tube 7 against rotation when a finer adjustment is to be had. When it is desired to adjust the aperture 23 in tube 7 to a less height than would be had were a washer placed over the screw 6, the tube is turned upon the screw 6 until the desired height has been reached, when the thumb or set screw 11 is turned to engage the screw 6, and the tube is thus retained in its adjusted position, thereby retaining the air-apertures 23 at the desired height.

The inner casing or tank 12, as shown, is preferably of an annular form, though this is optional and is not essential to the invention, and is supported by the cap 8, mounted upon the upper end of the tube 7, and carries upon the outer face of its upper end the ring

13, whereby the removal of the inner casing or tank may be had. Formed integral or rigidly secured to the lower end of the inner casing or tank 12 is an interiorly-threaded collar 14, inserted in the opening 16, formed in the bottom of the inner casing or tank 12. The outer tube 17, having one or more apertures or perforations 18 near its lower end, carries the annular outwardly-extending flanged collar 19, adapted for engagement with the interior of the bottom of the inner casing or tank 12, this flanged collar 19 being exteriorly threaded to engage the interiorly-threaded collar 14.

15 In order to establish communication between the contents of the interior casing or tank 12 and the interior of the outer casing 1, a tube preferably of a siphon shape 20, having its one end projecting through and beneath the lower end of the inner casing or tank 12 and the other end thereof located within the tank 12, extending in proximity to the bottom thereof. The use of a siphon has the advantage of presenting a communication wherein the gathering of sediments or foreign substances is prevented, thus obviating any danger of clogging. This siphon may be supplanted by providing the outer tube 17 with one or more apertures 18, permitting the disinfectant from the inner casing to flow therethrough to the space between the tubes 17 and 7 and thence to the outer casing. While we have shown both of these means of establishing communication, still we reserve the right to dispense with one or the other, since it is only necessary to employ one means, though both can be conveniently used.

40 A tube 22, which extends above the highest point to which the air-apertures are capable of being moved, and consequently the highest point possible for the disinfectant to attain within the outer casing, has an absorbing-wick or other like material 21 secured therein and has the one end of said wick extending into the disinfectant and the other end extending down into the tube 22, whereby a gradual exhausting of the disinfectant is obtained. The rapidity of feed of the disinfectant from the outer casing to the urinal or other point to which it is desired the disinfectant should be fed is dependent upon the distance from the surface of the disinfectant within the outer casing to the uppermost portion of the wick where it enters the tube 22. Thus when the disinfectant has a less distance to traverse the feed will be faster than when it has a greater distance to travel, in which event the feed will consequently be slower. This is readily predetermined by adjusting the height of the apertures 23 in tube 7. Thus when a rapid feed is desired the tube is raised, and consequently the apertures, which will allow of a greater amount of disinfectant to find egress to the outer casing prior to the sealing of the air-apertures 23.

We will assume for the purpose of illustra-

tion that the inner tank 12 has a quantity of disinfectant therein, which quantity must be regulated, so that the surface of the disinfectant will lie below the aperture near the upper end of the inner tube 7. The air passing through the inner tube 7 and entering between the upper surface of the liquid and the top of the inner casing or tank 12 will cause a certain amount thereof to exhaust through the siphon 20 or apertures 18 near the lower end of the tube 17 into the outer casing 1. However, after the entrance of the air has ceased no disinfectant will further exhaust. The outer tank 1 at this time has a sufficient quantity of disinfectant therein to cause the upper surface thereof to form a sealing contact with the periphery of the inner tube 7 and apertures 23, effectually preventing any air from gaining access to the interior of the tank 12 by means of the inner tube 7 and the space formed between the inner and outer tubes 7 and 17. Thus all air is shut off from having ingress to the inner casing 12, permitting the disinfectant therein to remain in an undisturbed state. During this time the fumes of the disinfectant are exhausting through the various foraminous portions of the outer casing 1 and the cap 2; also, the disinfectant is at the same time dropping from the tube 22, and it is desirable that the same be replenished from the inner tank 12 in order to permit the unretarded exhaust of the fumes and disinfectant, which is at all times carried on by means of the wick or other absorbent material 21. When the liquid in the outer casing 1 has become exhausted to such an extent as to lower the upper surface thereof to a point beneath the perforations 23 near the end of the tube 7, air finds its way into the interior of this inner tube 7 through the aforesaid openings 23 and exhausts through perforations 24, formed in the upper end thereof, above the upper extremity of the outer tube 17, which air exerts pressure upon the upper surface of the liquid and causes the same to exhaust through the siphon 20, as well as through the apertures 18 in the tube 17, until the level of the liquid has again reached that point where it forms a sealing engagement with the apertures 23 in the inner tube 7 and prevents the entrance of the air. It will thus be seen that the automatic recharging of the receptacle 1 from whence the fumes and disinfectant escape is constantly being kept up so long as the supply of the disinfectant within the inner casing or tank 12 is such as will permit the same to exhaust when the air exerts pressure upon the surface thereof, requiring no attendance other than the recharging of the inner tank or casing 12.

To recharge the inner casing or tank 12, the same is bodily removed from the outer casing, together with the tubes 17 and 7, and the apparatus is placed in an inverted position, tubes 7 and 17 being then removed and the disinfectant poured through the collar 14

until the desired amount has been reached, when the tubes are replaced, and the inversion of the inner tank causes the inner tube 7 to drop downwardly of its own weight, the washer 9, carried thereby, forming a sealing engagement with the upper end of the tube 17, thus shutting off all air which would normally gain access through the interior of the tube 7 and the space between the tubes 7 and 17. The device is then placed within the outer casing 1, with the disk 5 resting upon the bottom, when the cap 8 will engage the upper end of the casing or tank 12 and cause the same to assume the position as shown in Fig. 2.

While in the drawings we have not illustrated any manner of securing the device to the walls or the support, still it is obvious that any means may be employed. Since this does not enter into the invention, we have not described or shown the same.

It will be noted that various changes may be made in the details of construction 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—

1. In a disinfecting apparatus, the combination of an outer casing, with means for exhausting the disinfectant therein, an inner casing adapted to receive the charge of disinfectant, adjustable means supported by the outer casing extending within the inner casing and engaging the top thereof for suspending the inner casing, said means being hollow and having air-apertures extending above the surface of the disinfectant in the inner casing, a tube apertured at its lower portion carried by the inner casing surrounding and spaced from said means, with air-apertures formed in the lower portion of said hollow means adapted to be sealed by the disinfectant in the outer casing whereby the exhaust from the inner casing may cease, and a communication between said casings.

2. In a disinfecting apparatus, the combination of an outer casing adapted to receive the disinfectant, of an inner casing mounted within the outer casing above the bottom thereof and being suitably spaced therefrom, an outer tube carried by the inner tank, having one or more perforations therein for establishing communication between the disinfectant in the inner tank and the outer casing, a tube mounted within said tube and supporting said inner casing or tank, said tubes being suitably spaced apart, the inner tube having perforations therein whereby air may be admitted to the interior of the inner tank, and means for exhausting the disinfectant from the outer casing, and means carried by the inner casing whereby the said outer casing may be recharged when the disinfectant therein has been sufficiently exhausted to permit air to enter into the perforations in the

said tube whereby the air is admitted to the inner tank, substantially as described.

3. In a disinfecting apparatus, an outer casing carrying a perforated tube therein with means for adjusting the height of the tube, an inner casing supported by the said tube, means for exhausting the disinfectant from the outer casing, means for establishing communication between said casings, the surface of the disinfectant within the outer casing adapted to control the entrance of the air into said tube whereby the outer casing is recharged.

4. In a disinfecting apparatus, an outer casing carrying an inner casing with a perforated tube carried by the outer casing and a perforated tube carried by the inner casing surrounding said first-named tube, a tube of a siphon shape carried by the inner casing and extending into the outer casing, said first-named tube being adapted to permit air to enter therethrough and into the inner casing whereby the disinfectant therein is fed to the outer casing, the entrance of air into said first-named tube being controlled by the disinfectant within the outer casing, and means for exhausting the disinfectant from the outer casing, substantially as described.

5. In a disinfecting apparatus, an outer casing carrying a tube provided with a perforation to admit air to said tube, means for varying the distance between the bottom of the casing and the perforation in said tube to regulate the feed of the disinfectant, an inner casing supported by said tube, means communicating with said inner casing for feeding the disinfectant to the outer casing, means for establishing communication between said casings, the surface of the disinfectant within the outer casing adapted to control the entrance of the air into said tube whereby the outer casing is recharged.

6. A disinfecting apparatus comprising two casings, one mounted within the other and in communication with each other, the inner casing adapted to receive the charge of the disinfectant, means for feeding the disinfectant from the inner casing to the outer casing, means for exhausting the disinfectant from the outer casing, means for regulating and varying the quantity of disinfectant fed from the outer casing, means for raising and lowering the tank to change the point at which air is admitted to or shut off from the inner tank whereby the desired height of the disinfectant upon the said means used for exhausting the disinfectant from the outer casing is regulated.

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

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

Witnesses:

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