A. J. GRINER.

DISINFECTING APPARATUS.

APPLICATION FILED DEC. 14, 1916.

1,222,756. Patented Apr. 17, 1917.

FIG. 1.

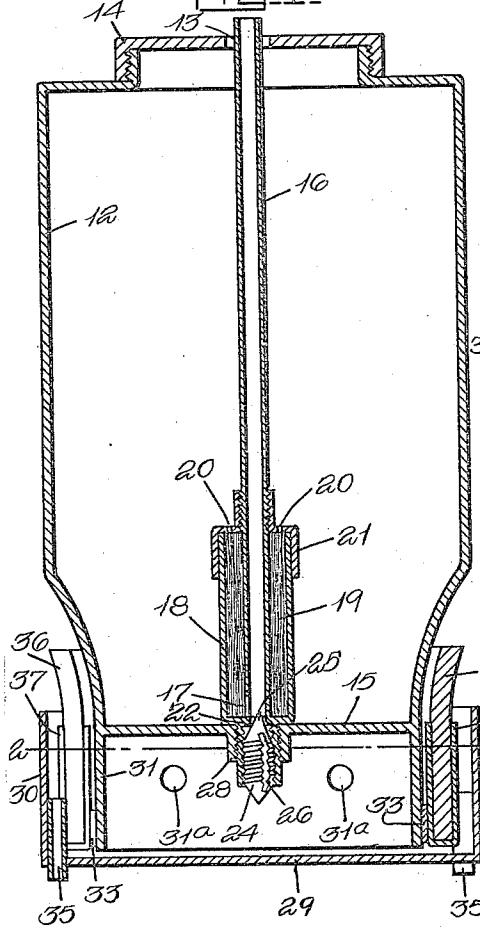


FIG. 2.

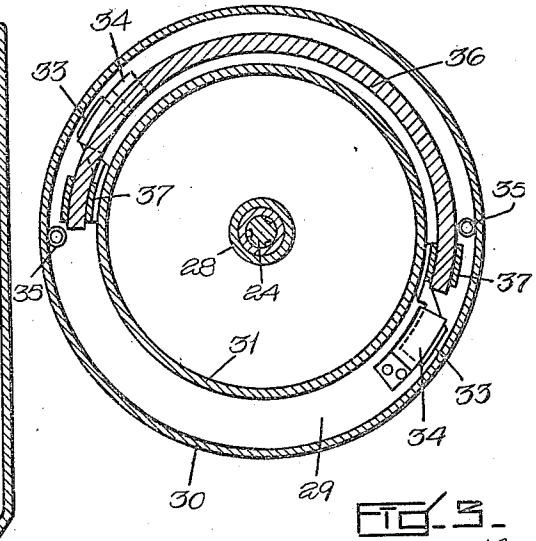


FIG. 3.

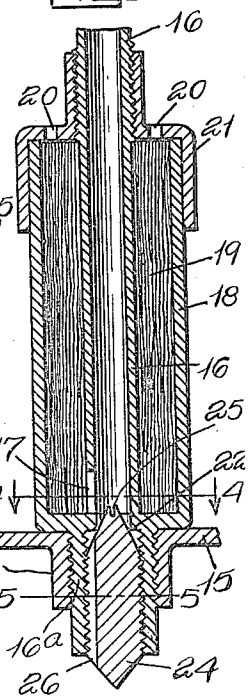


FIG. 4.

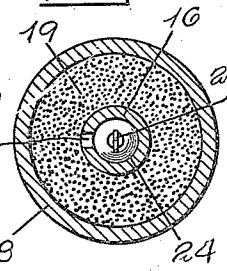


FIG. 5.

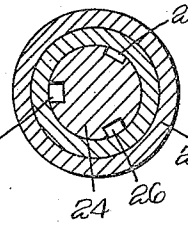


FIG. 6.

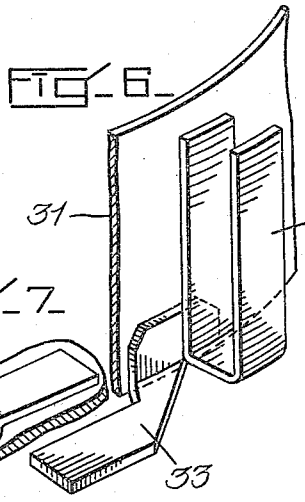


FIG. 7.

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DISINFECTING APPARATUS.

1,222,756. Specification of Letters Patent. Patented Apr. 17, 1917.

Application filed December 14, 1916. Serial No. 136,955.

To all whom it may concern:

Be it known that I, ARTHUR J. GRINER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Disinfecting Apparatus, of which the following is a specification.

This invention relates to apparatus for disinfecting sanitary fixtures and the rooms in which they are used. The object of the invention is to provide an apparatus of this character adapted to feed liquid disinfectants by gravity and control the gravity feed in accordance with the specific gravity of the disinfectant employed, said disinfectant being in some cases a relatively heavy oil, and in other cases a lighter oil.

The invention is embodied in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a vertical sectional view of an apparatus embodying my invention.

Fig. 2 is a horizontal section on line 2—2 of Fig. 1.

Fig. 3 is an enlargement of a portion of Fig. 1.

Fig. 4 is a section on line 4—4 of Fig. 3.

Fig. 5 is a section on line 5—5 of Fig. 3.

Figs. 6 and 7 are perspective views illustrating the coupling members hereinafter described.

The same reference characters indicate the same or similar parts in all the figures.

In the drawings,—12 represents a reservoir which may be adapted in any suitable way to be attached to a wall or other vertical support, the reservoir being open to the atmosphere at its upper end, the connection with the atmosphere being preferably provided by an air hole 13 formed in a cap or cover 14, detachably secured to the upper end of the reservoir.

Extending through the bottom 15 of the reservoir is a conduit 16 which is preferably a tube, the lower end of which constitutes the receptacle outlet. Said conduit is provided between its upper and lower ends and at a point relatively near the reservoir bottom with a liquid inlet 17 which is preferably an elongated slot, as indicated by Figs. 3 and 4.

Owing to the fact that the reservoir is open to the atmosphere at its upper end, the liquid flows by gravity from the receptacle into the conduit 16 through the conduit inlet 17.

In accordance with my invention I provide means for controlling the gravity flow, said means comprising two parts or elements, one adapted for use with relatively heavy oil, and the other with lighter oil, said elements being usable interchangeably.

Attached to and surrounding the lower portion of the conduit 16 is a liquid-conducting casing 18 separated from the portion of the conduit which contains the inlet 17 by an annular space in which is confined a capillary conductor preferably formed by a layer or mass 19 of relatively coarse bristles, such as are used in making paint brushes. The bristles are vertically arranged and extend longitudinally of the conduit 16, parallel with each other, and cover the inlet 17, the casing being provided with openings 20 communicating with the storage space of the reservoir and preferably formed in a cover 21 forming the upper end of the casing. The voids between the filaments form continuous vertical ducts of uniform conducting capacity from end to end, through which the liquid flows downwardly in minute streams. The liquid entering the casing flows from the openings 20 to the conduit inlet 17 through said ducts, the flow being suitably retarded and controlled.

The conduit 16 is provided below the inlet 17 with an annular valve seat 22 which faces downwardly. Below the valve seat the conduit is enlarged and internally screw-threaded to provide a socket 16^a with which is adjustably engaged an externally threaded plug 24, the upper end of which is tapered and constitutes a valve adapted to coöperate with the seat 22. The upper end of the plug may be provided with a slot 25 adapted to engage a screw-driver inserted in the upper portion of the conduit 16, said conduit being preferably open at its upper end, which projects into the hole 13 in the cover of the reservoir. The valve may be adjusted to close upon the seat 22 and thus prevent the gravity flow, but usually it will be adjusted to regulate the flow by varying the distance between its tapering surface and the valve seat.

The plug 24 is externally slotted to provide a duct or ducts 26 through which the liquid flows to the lower end of the plug.

I prefer to provide a plurality of said ducts, each of different depth from the others, as indicated by Fig. 5. By adjusting the plug so that either duct 26 is in alinement with the conduit inlet 17, I am enabled to vary the quantity of liquid delivered.

When the reservoir is charged with a very heavy oil the bristles 19 may be removed, the flow being controlled wholly by the valve plug 24. In feeding some grades of oil the valve plug may be removed, the control being effected entirely by the bristles. If desired, the bristles may be placed within the conduit 16 in position to control liquid flowing from the inlet 17 to the outlet of the reservoir.

The casing 18 is preferably rigidly secured to the conduit 16, as by brazing, soldering, or otherwise. The connected conduit and casing may be detachably secured to the bottom of the reservoir, as shown by the drawings, the said bottom being provided with an internal nipple 28 engaging an external thread on the socket portion 16ª of the conduit.

The apparatus includes suitable means below the reservoir for accumulating liquid fed from the reservoir, exposing the accumulated liquid to the atmosphere, and conducting away the overflow or surplus liquid.

29 represents the bottom, and 30 the rim or curb of an open evaporating cup formed and arranged to receive the liquid discharged from the reservoir, the rim of the cup surrounding the lower end of the reservoir and being separated therefrom by an annular space in which the accumulated liquid is exposed to the atmosphere to permit the escape of vapor.

The cup is preferably detachably secured to the reservoir, the latter being provided at its lower end with a downwardly projecting annular flange 31 formed to enter the cup and be separated from the rim thereof by the above-mentioned space. To the flange 31 is secured by means such as rivets or solder a pair of coupling members 33, adapted to engage complemental coupling members 34 riveted or soldered to the bottom of the cup, said coupling members being shown separately by Figs. 6 and 7.

The form and arrangement of the coupling members are such that a partial rotation of the cup in one direction interengages said members, as indicated by Fig. 2, while a partial rotation in the opposite direction separates the members and permits the removal of the cup from the reservoir.

The cup is provided with overflow tubes 35, the lower ends of which may be engaged with flexible tubes adapted to conduct the overflow from the cup to points where it is to be utilized.

36 represents an elongated curved wick, which is located in the space between the rim of the cup and the lower portion of the reservoir, the lower longitudinal edge of the wick being in close proximity to the bottom of the cup, while its upper longitudinal edge projects from the cup, as shown by Fig. 1. Said wick exposes considerable areas of evaporating surface to the atmosphere. The wick is preferably secured by means such as clips 37, which may be brazed, soldered, or otherwise attached to the coupling members 33 and secured therewith to the reservoir flange 31.

As shown by Fig. 2, the end portions of the wick are inserted in the clips 37, the wick being curved to conform to the space between the cup rim and the flange 31.

The upper end of the conduit 16 is open to the atmosphere so that the liquid flows freely through it at a rate determined by the controlling means. The overflow from the evaporating cup is caused wholly by gravity and not by siphonic action, so that water which may enter the cup and be supported by a heavier liquid therein is carried away by the overflow tubes, and does not prevent evaporation from said cup for any considerable period. The gravity flow of the disinfecting liquid from the reservoir and from the cup is regular, and is not seriously affected by increased viscosity of the liquid due to cold weather.

The reservoir may be either attached directly to a wall, or other support, or inserted in a perforated casing attached to the support.

The reservoir flange 31 should be provided with air holes 31ª.

Granular material such as salt may be inserted in the casing 18 as a capillary conductor, a disinfecting liquid being employed in which salt is not soluble.

I claim:—

1. An apparatus of the character stated, comprising a reservoir having an opening in its bottom, a gravity feed conduit communicating with said opening and extending above the bottom of the reservoir, said conduit constituting the outlet of the reservoir and having a liquid inlet communicating with the reservoir, and a mass of parallel, vertical filaments associated with said conduit in position to control a gravity flow of liquid, the voids between said filaments forming continuous vertical ducts of uniform conducting capacity from end to end, through which liquid flows by gravity.

2. An apparatus of the character stated comprising a reservoir having an opening in its bottom, a gravity feed conduit communicating with said opening and extending above the bottom of the reservoir, said conduit having a liquid inlet communicating with the reservoir near the reservoir bottom, the conduit constituting an outlet for the

reservoir, a layer of filaments applied externally to the conduit within the reservoir and covering the said liquid inlet, said filaments constituting a capillary conductor, through which liquid flows by gravity, and a casing confining said filaments and communicating with the storage space of the reservoir to receive liquid therefrom.

3. An apparatus of the character stated comprising a reservoir having an internally-threaded nipple at its bottom, a conduit extending through said nipple and constituting the outlet of the reservoir, said conduit being provided with a liquid inlet above the reservoir bottom, a valve seat below the liquid inlet, and an internally-threaded socket below said valve seat adapted to adjustably support a valve coöperating with said seat, and a liquid-conducting casing surrounding the inlet-containing portion of the conduit and adapted to confine a layer of bristle against said inlet.

4. An apparatus of the character stated comprising a reservoir having a flange projecting downwardly from its lower end, a gravity feed conduit connected with the reservoir bottom and forming an outlet communicating with the space within said flange, said conduit having a liquid inlet communicating with the reservoir, means associated with said conduit for controlling a gravity feed of liquid therethrough, and a cup detachably engaged with said flange and adapted to accumulate liquid flowing from said outlet, and expose said liquid to the atmosphere, the rim of said cup surrounding said flange and being separated therefrom by an open space, and an elongated wick confined in said space with its lower longitudinal edge adjacent to the bottom of the cup and its upper longitudinal edge projecting above the rim of the cup.

5. An apparatus of the character stated comprising a reservoir having a flange projecting downwardly from its lower end, a gravity feed conduit connected with the reservoir bottom and forming an outlet communicating with the space within said flange, said conduit having a liquid inlet communicating with the reservoir, means associated with said conduit for controlling a gravity feed of liquid therethrough, and a cup formed to surround said flange and adapted to accumulate liquid flowing from said outlet and expose said liquid to the atmosphere, the said flange and cup being provided with separable inter-engaging coupling members, and the coupling members on the flange being provided with wick-engaging means.

In testimony whereof I have affixed my signature.

ARTHUR J. GRINER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."