Jan. 10, 1933. L. KOOPERSTEIN 1,893,648

DEODORIZING AND DISINFECTING APPARATUS

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Fig. 2

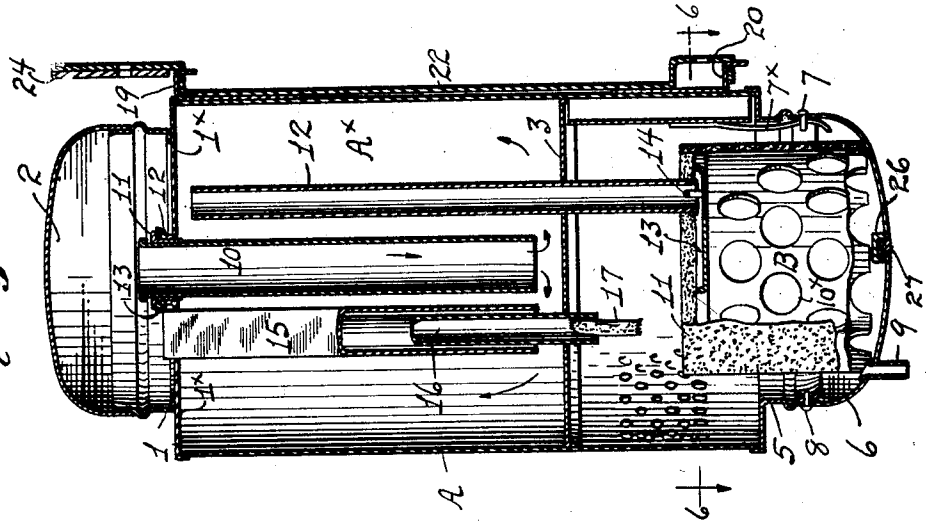


Fig. 1

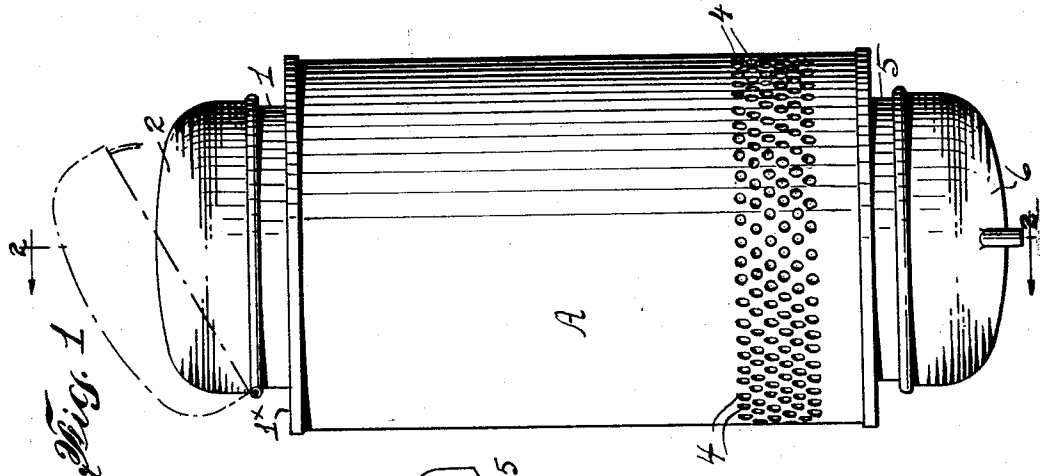
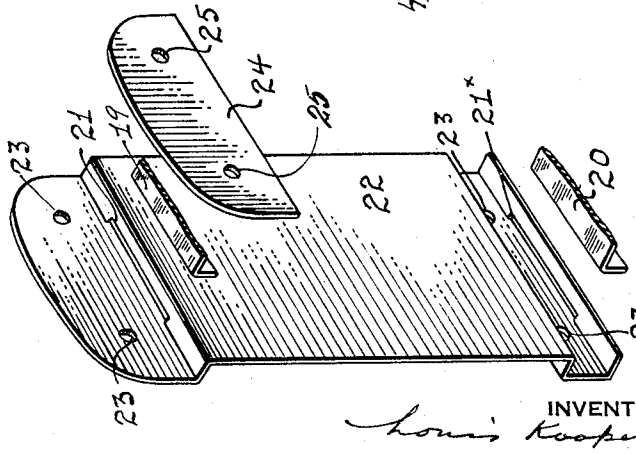


Fig. 3



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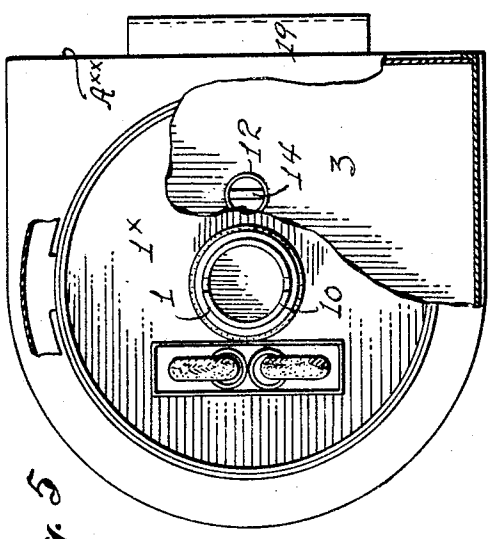


Fig. 5

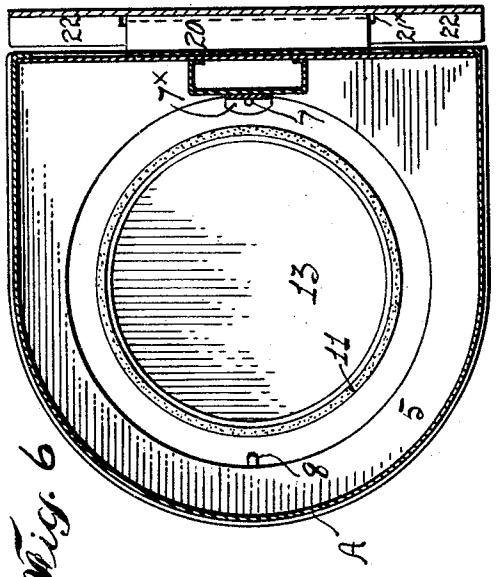


Fig. 6

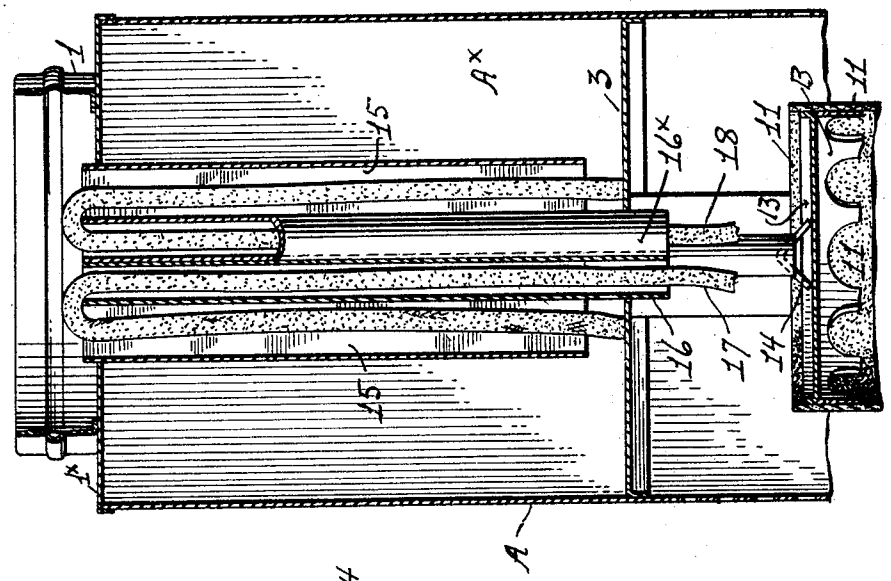


Fig. 4

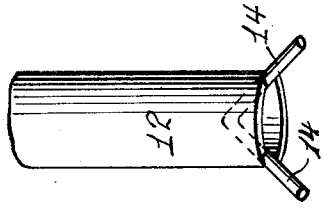


Fig. 7

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UNITED STATES PATENT OFFICE

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DEODORIZING AND DISINFECTING APPARATUS

Application filed January 3, 1930. Serial No. 418,181.

The object of the present invention is to provide disinfecting apparatus comprising means whereby a substantial supply of disinfecting liquid is held within a chamber and is withdrawn, under automatic control, by capillary wick action to a vaporizing wick exposed to the air so that the disinfectant may be absorbed by the surrounding atmosphere, a certain portion of the same passing drop by drop to a tube leading from the apparatus and to a point where the disinfectant or deodorant is desired to have a local effect. The invention will be described with reference to the accompanying drawings in which

Fig. 1 is a view in elevation of the embodiment of the invention;

Fig. 2 is a section in elevation thereof;

Fig. 3 is a perspective view, partly in section, of the supporting bracket for the device.

Fig. 4 is an enlarged section in elevation.

Fig. 5 is a top plan view, partly broken away;

Fig. 6 is a transverse section on the line 6—6, Fig. 2, looking in the direction of the arrow;

Fig. 7 is an enlarged detailed view of the air tube lower end portion.

Referring to the drawings, A represents the casing having an annular flanged neck 1 adapted to be closed by hinged cover 2. Within the casing is a horizontal transversely-extending wall 3, below which the casing is formed with perforations 4 for passage of air. At its base, the casing is formed with a depending ring 5, which is adapted to support a cup-like bottom 6, adapted to be held in place by a stud 7, carried by spring $7x$, the stud entering a suitable aperture formed at the bottom.

Opposite stud 7 is a second stud 8, carried by ring 5, and adapted to enter an aperture formed in said bottom 6.

The bottom member 6 is provided with an outlet 9 for the discharge of liquid disinfectant or deodorant.

The annular neck 1 of the casing is carried by the upper closure wall $1x$. Supported by wall $1x$ axially thereof is a filling tube 10. This tube may be carried by a sleeve 11, threaded within an upwardly extending annular flange member 12 of upper wall $1x$, and a washer 13 may be interposed between the flanged head of the sleeve and the horizontal flange of member 12 so that the connection of tube 10 with the casing may be made airtight. The filling tube 10 extends downwardly within the casing to a point a fraction of an inch above wall 3.

Carried within cup-like bottom 6 is a tubular wick-holder having a shallow, dished top 13, the said wick-holder being shown at B and as formed with a plurality of relatively large perforations $10x$ so that air may pass to the wick both exterior thereof and to its inner wall. The wick is indicated at 11, part of its area being broken away to show the perforated wick holder.

Projecting within chamber Ax of the casing, and through horizontal wall 3 is an air tube 12. The air tube, when the parts are assembled, has its lower end disposed in register with the dished top 13 of the wick holder, and approximately at the top thereof. The air tube at its lower end is provided with a pointed wire device 14 to prevent the closing of the tube by a drop or globule of liquid when the dished top of the wick holder becomes empty of the liquid, as later to be explained.

Secured within chamber Ax of the casing is a wick-box 15. The lower end of the wick box is open and lies above horizontal wall 3 of the casing. Within and extending below the wick box and through horizontal wall 3 are two wick tubes 16, $16x$. In contact with horizontal wall 3, thence extending upwardly through the wick box and thence downwardly through wick tube 16 may be placed a wick 17. In contact with horizontal wall 3 and extending upwardly through the wick box and thence downwardly through the tube $16x$ may be placed a wick 18. The lower end of each wick 17, 18, thus extends below horizontal wall 3 of the casing and immediately above the dished-like top of the wick holder B.

At its flattened side Axx, the casing A may carry an upper downwardly-flanged plate 19 and a lower downwardly flanged plate 20. The flange of each plate is adapted to enter

an appropriate slot 21, 21x formed in a horizontally disposed portion of a bracket 22, the bracket being formed with screw holes 23 by means of which it may be fastened upon a vertical surface. When the flanged plates of the casing are inserted in the slots 21, 21x of the bracket, the casing may be locked against removal from the bracket by an overlying plate 24, having screw holes 25 spaced to register with the screw holes 23, the screws when used passing through plate 24 and the bracket, the assembly being shown in cross section in Fig. 2.

In the operation of the device, the liquid disinfectant or deodorant is poured into the chamber Ax through the filling tube 10, cap 2 being swung upwardly for such purpose. The liquid will flow in the direction of the arrows Fig. 2, and will pass upwardly within the chamber Ax and within the wick box 15 and tube 10, until it rises above the air tube 12, and passes downwardly through the tube into the dished wick-holder top 13. The liquid within air tube 12 will soon be depleted, and the level of the liquid in chamber Ax will fall below the top of the air tube. The wicks within wick box 15 will first act to withdraw the liquid which has risen into the wick box from chamber Ax and will then act upon the main supply of liquid within said chamber inasmuch as the ends of the wick lie upon the horizontal and bottom wall 3 of the chamber. The liquid, by capillary action of the wicks will pass drop by drop into the dished top 13 of the wick holder, and will slightly overflow so as to keep the wick 11 saturated. When the liquid carried to the dished top 13 rises to such an extent that it closes the bottom of the air tube, the partial vacuum within chamber Ax will slacken the flow of liquid therefrom, and when the level again falls below the air tube the vacuum will be broken and reflow of the liquid will be established from wicks 17, 18. As stated above the wicks will first withdraw the liquid from the wick boxes 15 and no further liquid will rise into the wick boxes so that the action of the wicks on the liquid will be entirely below the ends of the wick boxes. Thus the rapidity of the capillary action can be regulated by the length of the wick from the point of its discharge to the point of taking up the liquid, and by my construction, the point at which each wick takes up the liquid is near the base of the liquid container so that the action of the wicks is uniform whether the container Ax be filled, partly filled, or substantially depleted. As the level of the liquid in the container Ax falls, a partial vacuum will be effected in the top of the container. Any air passing upwardly through the wick tube 16, 16x and thence upwardly into the wick boxes 15 will not break the vacuum because the lower end of the wick box will be sealed by liquid, and the air will simply be trapped in the wick box above its lower end.

Wire device 14 is employed in order to break and thus prevent a globule or bubble of oil from maintaining the air tube closed when the dished top of the wick holder becomes empty.

By reference to Fig. 2, it will be noted that in the base of member 6 there is formed a small upwardly extending cup 26 which is open to the atmosphere and which contains an absorbent disk 27. Should moisture appear on the exterior of the cup, either from condensed vapors of the disinfectant or deodorant and form as a drop, the drop will pass down to the lowest level, i. e., the position of the absorbent disk and will be absorbed by the disk and later evaporated by the action of the air. This will prevent drops of disinfectant or deodorant from falling down upon the clothes of persons beneath the apparatus.

I claim:

1. In a deodorizing and disinfecting apparatus, a canister provided with an interior wall forming the base of a liquid receiving chamber, said canister having a top wall and having a perforated annular section below said interior wall, a filling tube projecting within the chamber and having an inlet above the top wall, a wick tube having an inlet above the top wall and an outlet below the interior wall, a wick box adjacent the wick tube and having an inlet above the top wall and an outlet near the interior wall, whereby the wick may be led from the wick tube downwardly through the wick box to the upper surface of the interior wall, an air tube having an inlet below the interior wall and an outlet within and near the top of the chamber, and, a liquid receptacle below the wick tube outlet and so positioned that the air tube inlet is within the receptacle and liquid received by the receptacle may close the air tube inlet.

2. Deodorizing and disinfecting apparatus comprising in combination with a canister, of drip mechanism within the canister, a rounded-wall closure at the lower end of the canister, and an absorbent body carried by said closure at its exterior as and for the purpose set forth.

In testimony whereof, I have signed my name to this specification.

LOUIS KOOPERSTEIN.