

Dec. 29, 1931.

J. GLOVER

1,838,221

FUMIGATOR

Filed Aug. 28, 1930

Fig. 1

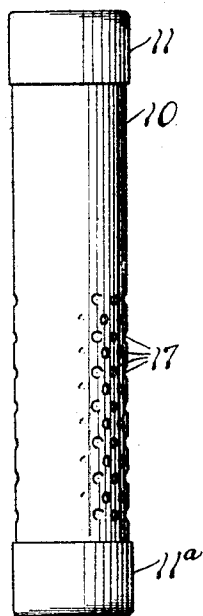


Fig. 2

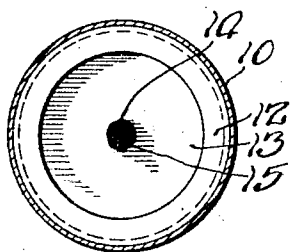
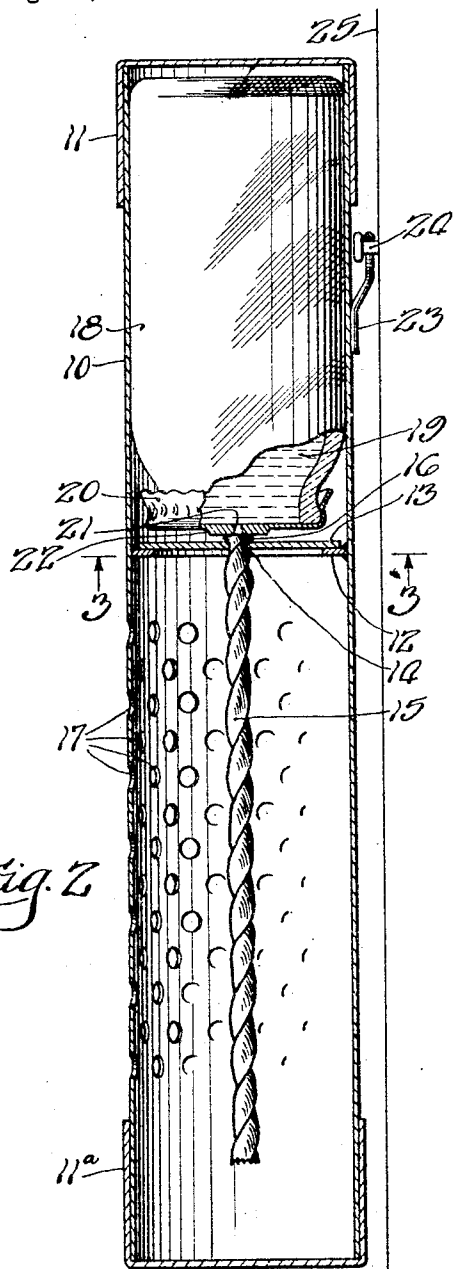


Fig. 3

Inventor:
John Glover

By *Wesley H. Hays*
Att'y.

UNITED STATES PATENT OFFICE

JOHN GLOVER, OF CHICAGO, ILLINOIS, ASSIGNOR TO MIDWAY CHEMICAL COMPANY,
OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE

FUMIGATOR

Application filed August 28, 1930. Serial No. 478,501.

The present invention relates to a fumigator and has particularly to do with an apparatus intended to supply for disseminating into the air, over a long period of time, a liquid fumigating agent which will evaporate slowly at normal atmospheric temperatures.

One of the principal difficulties encountered with the employment of the ordinary fumigator, whether it be provided with liquid, gas or solid, is that the fumigating action extends over a limited period of time, and the effect of the active agent is felt sometimes for only a few moments after the fumigating act and seldom for any period longer than for several hours.

The primary object of the present invention is to provide a device which may be placed in a closet, in a room, or elsewhere, there to charge the air thereabout with a fumigating agent, over a long period of time.

Another object of the invention is to provide a device of the character just mentioned in which the fumigating liquid may be contained in a bottle or other standard container which, when empty, may be readily replaced without disturbing the remainder of the device, such ready recharging of the apparatus being one of the great desirabilities of a device of this kind.

Another object of the invention is to simplify and improve the construction of a fumigator intended to be permanently installed and recharged with fumigating material from time to time.

These object, and such other objects as may hereinafter appear, are obtained by the novel construction, unique combination, and improved arrangement of the several parts illustrated in the accompanying drawings, illustrative of one form of the invention, hereby made a part of this specification, and in which:

Figure 1 is an elevation of a device made in accord with the invention;

Figure 2 is a longitudinal section through the device illustrated in Figure 1, the device being enlarged to substantially actual size, and certain elements being shown in fragmentary section rather than in longitudinal section; and

Figure 3 is a transverse section on the line 3—3 of Figure 2, looking in the direction of the arrows.

Like reference characters are used to designate similar parts in the drawings and in the description of the invention hereinafter given.

The external appearance of the apparatus is illustrated in Figure 1. This picture is somewhat reduced in size, but an accurate idea of the apparatus may be obtained therefrom.

Reference should now be had to Figures 2 and 3 which may be read concurrently and in conjunction with Figure 1.

The apparatus comprises a tube 10 which may be of metal or of other suitable material. Said tube should be inexpensive in order to maintain the price for the apparatus at a low figure. Each end of the tube 10 is closed by a telescoping cap. The cap at the top is designated by the ordinal 11, and the cap at the bottom is designated by the numeral 11a. The caps 11 and 11a may be made interchangeable, and serve no function other than to close the ends of the tube 10.

Intermediate the length of the tube 10, there may be provided an annular shelf 12, suitably formed and firmly secured to the tube 10 solder or otherwise. Instead of using an annular shelf 12, there may be an internally projecting beading, not shown, adapted to serve the same purpose as a shelf.

Resting upon the shelf 12, whether it is an annular member securely attached by solder or otherwise to the tube 10, or an internal beading formed in any suitable manner, is an annular disk 13. The center of the disk 13 is apertured at 14, and there depends therefrom a wick 15, which may be of twisted and woven material, or of any other suitable absorbent material, the portion passing through the aperture 14 being constricted to firmly secure the wick 15 in such aperture. The size of the aperture may be used also to control the flow of the liquid through the constricted portion of the wick 15. A larger hole increases the flow and a small hole providing compression of the wick 15 reduces such flow. Above the disk 13, there is a

short spread out section of the wick 15 not under compression, such section being marked 16.

The wick 15 is thus encased in a section of the tube 10 all to itself, closed by the cap 11a. There is a plurality of apertures 17 through the wall of the tube 10 about the wick 15 to permit of the ready circulation of atmospheric air into the tube 10 and out thereof when such air is saturated with the liquid which is held by the wick 15.

In the upper section of the tube 10, above the disk 13, and resting upon the wick end 16, is a bottle or other container 18 in which fumigating liquid 19 is contained. The bottle 18 is closed by a metallic cap 20 or other device, there being an aperture 21 through said cap 20. Said aperture and the material of the cap 20 thereabout may be reinforced by a thickened boss 22. The boss 22 comes directly into contact with the wick end 16, and aperture 21 registers with the center or near the center of the wick 15.

At the side of the tube 10 and preferably at the upper portion of the top section thereof, is a hook member 23 which hook member may comprise an eye adapted to be secured over the head of a nail 24, driven into a wall or other support 25.

The completely assembled device thus may be made to hang in a suspended position, making it convenient to place the device in a closet, or in a room, or in a cellar, or in a lavatory, from whence it cannot readily be displaced, or accidentally overturned, or otherwise damaged.

The cap 11 is removed to allow the insertion of a bottle 18, and is replaced when a bottle 18 is disposed in the upper compartment of the apparatus. No reason for removing the cap 11a other than to inspect the wick 15 is known, and it therefore may be said that the employment of the cap 11a is a manufacturing convenience.

Assembly of the device is had by first making the tube with the shelf 12 therein, as indicated above, or with an internally projecting heading. A wick 15 is secured through the aperture 14 of the disk 13. The disk 13 is then dropped into the device while it is upright and so that said disk will rest upon the shelf or head 12. The cap 11a may have been placed on tube 10 anterior to this assembly, or it may be placed thereon at a later time. Cap 11a of course, serves to catch any drip from the wick 15, but it is believed that such a drip can only occur if the apparatus is improperly assembled, or improperly used, or accidentally inverted, or tilted, or jarred.

The bottle 18 is filled with liquid 19, and closed with cap 11. The plug or other closure covering the aperture 21 is removed. Thereupon the bottle 18 is placed in an inverted position in the upper compartment

of the tube 10 so that the aperture 21 registers with the center of the wick 15, the boss 22 spreading itself over the end 16 of the wick.

Liquid 19 will be drawn into the section 16 by capillary attraction and by gravity, but its rapid flow will be retarded because of the constriction of the wick 15 at the point it is secured in aperture 14 of disk 13. The liquid 19 passing through the aperture 14, will descend in the wick 15, until the whole of wick 15 becomes saturated. Such saturation point will tend to govern the further flow of the liquid 19 from the bottle 18.

As atmospheric air passing through the apertures 17 comes into contact with the liquid on the wick 15, such air will absorb a certain quantity thereof. Said differently, the liquid 19 upon the wick 15 will slowly vaporize and escape with the atmospheric air through the apertures 17. As said liquid 19 vaporizes, capillary attraction will cause additional liquid 19 to pass through the aperture 21 into the wick 15, keeping the wick 15 constantly saturated and supplying to the atmosphere volatile fumigating liquid.

When the bottle 18 is empty, a new bottle 18 may be placed in the tube 10, it being necessary only to uncover the aperture 21 which is of relatively small diameter, invert the bottle, and place it in the same position as bottle 18 is shown in the drawings. Of course, to accomplish this, cap 11 must be removed before the empty bottle 18 is taken from the device, and said cap 11 should be replaced after a fresh bottle 18 is disposed in the tube 10.

Preferably the wick 15 should not reach to the bottom of the device or to the cap 11a for if this occurs, there is a tendency to increase the flow of the liquid 19 through the wick 15 of the capillary attraction which the metal will have for the liquid upon the wick 15. The unique feature of the device is that it may be constructed for use with a stock bottle, hence supplying the fumigating liquid is a simple and inexpensive matter.

I claim:

1. In a fumigating device, a tube, a replaceable disk therein and engaging the internal portion of said tube to determine its location therein, a wick at the center of said disk and extending longitudinally of said tube and through said disk, and a replaceable container adapted to be held in upright position by the walls of said tube and having an opening therein adapted to rest upon the end of the wick projecting through said disk.

2. In a fumigating device, a tube, a shelf therein, a readily movable disk on said shelf, a wick at the center of said disk and extending longitudinally of said tube, there being a section of said wick at the opposite side of said disk, and a replaceable container of

the shape of said tube having an opening therein adapted to rest upon the short end of said wick projecting through said disk.

3. In a fumigating device, a tube, caps at
5 the ends thereof, a shelf therein dividing said tube into two parts, a disk on said shelf and maintained thereon by gravity, a wick depending from said disk and extending longitudinally of one section of said tube, there
10 being perforations in the section of said tube surrounding said wick, another section of said wick being disposed at the opposite side of and above said disk, and a replaceable container of the shape of said tube having a dis-
15 charge opening therein adapted to rest upon the portion of the wick in the upper section of said tube.

JOHN GLOVER.

20

25

30

35

40

45

50

55

60

65