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H. E. RILEY ET AL

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FUMIGATOR

Filed April 28, 1932

Fig. 1.

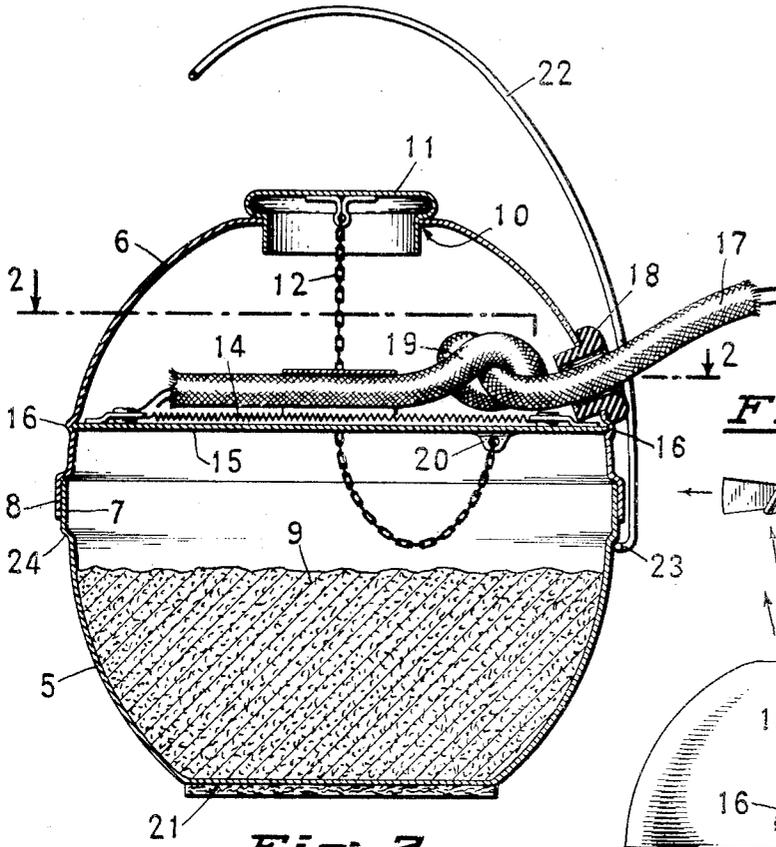


Fig. 2.

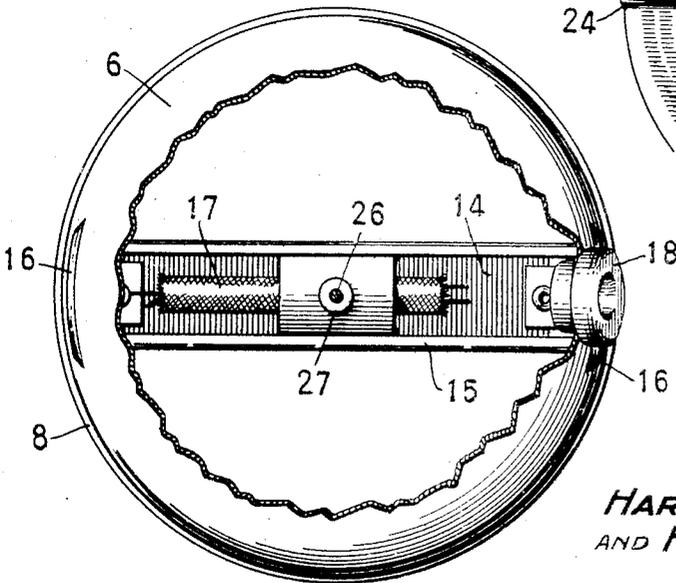
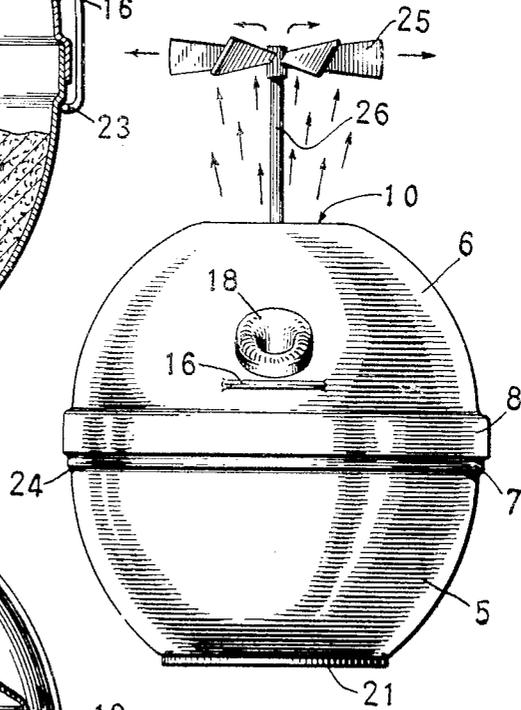


Fig. 3.



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FUMIGATOR

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Our invention relates particularly to means for protecting clothing, furniture, rugs, furs, etc. from moths, eggs, larvæ and other insects.

5 The main object is to provide a simple and inexpensive device which will kill moths, eggs and larvæ.

A special object is to provide a construction which is highly efficient.

10 Another object is to provide a construction which is safe and convenient to use.

Another object is to provide a construction which can be readily refilled with the desired chemical.

15 Another object is to provide a construction in which the electric heater unit may be readily replaced.

Another object is to provide a construction which will conserve the chemical when
20 not in use.

Another object is to provide a construction which is durable.

Another object is to provide a construction which is neat and attractive in appearance.
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Another object is to provide a construction which can be readily handled.

Another object is to adequately diffuse the vapor from the device.

30 Fig. 1 is a vertical sectional view showing one form of construction embodying our invention when not in use.

Fig. 2 is a plan view of the same construction (without the handle of Fig. 1), parts
35 being broken away along the section line of Fig. 1 and showing a support for a diffusing fan.

Fig. 3 is a side view of the construction, the closure device and handle of Fig. 1 being omitted and showing an additional dif-
40 fusing means.

In its preferred form the construction includes a casing or receptacle consisting of a lower cup-like portion 5 and an upper
45 cover section 6 which are respectively provided with flanges 7 and 8 which interfit.

The lower portion is adapted to hold a chemical 9 which is normally solid at atmospheric temperature. For this purpose
50 we preferably employ paradichlorbenzene

which has a melting point of approximately 53° C. The vapor of this substance is considerably heavier than air but when heated sufficiently will rise.

The cover member 6 has an opening 10
55 or outlet for the vapor from the chemical. This opening is preferably provided with a closure device 11 so as to prevent evaporation which will ordinarily take place even at atmospheric temperature unless the chemical is confined. This closure may conveniently be protected from loss by a chain or
60 cord 12.

Within the upper part of the receptacle we provide an electric resistance heater 14 of
65 any suitable type. This, for convenience and cheapness, may be mounted upon a cross bar 15 suitably secured in the cover member as, for instance, by having its ends sprung into sockets 16 on opposite sides. The conductor cord 17 may be of any suitable character and is preferably led into one side of
70 the cover through an insulating bushing 18. A strain relief knot 19 may be tied in the cord or the cord may be otherwise suitably anchored in the receptacle.
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The anchorage chain 12 might conveniently be attached at 20 to the cross bar 15.

If desired, a protective pad 21 may be provided for supporting the receptacle and
80 such a pad might be a thermal non-conductor for instance asbestos.

For convenience in carrying the receptacle especially when it is sold, we may provide a handle 22 which has a gripping finger 23
85 adapted to be detachably sprung in the groove 24 beneath the flange 7.

To facilitate the diffusion of the vapor we may provide a fan 25 carried by a rotatable spindle 26 which may be detachably supported in a socket 27 secured to the cross
90 bar 15. This fan is adapted to be rotated by the rising currents of hot vapor which are thus laterally diffused. This fan also serves as an indicator showing when the device is in operation.
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To put the process into operation the device is placed on the floor in the closet or room which it is desired to fumigate or placed beneath the garments to be treated.
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The closure 11 is then removed and the cord 17 is connected in an electric circuit in any suitable manner and the current turned on. The heater 14 then heats the air in the upper part of the receptacle. Some of this heat is reflected or radiated downward and causes evaporation of the chemical. The heated vapor rises and sets in rotation the fan 25 which shows when the apparatus has started to work.

As the vapor cools it is deposited on surrounding objects or falls of its own weight. Such vapor is thus condensed upon objects above and gradually evaporates even at atmospheric temperature and pressure, and the vapor being heavier than air, it descends.

Objects in the closet are thus subjected to a fumigating action of the warm vapor as it rises and parts are again subject to the action of the descending cool vapors. Ordinarily the apparatus as shown will be sold as a unit. Replacement units of the chemical in the form of cakes may be provided or an entirely new cup member 5 may be provided with an enclosed mass of the desired chemical.

When the receptacle is to be replenished with the chemical the cover is removed thus taking with it the electric heater and its connections which are themselves subject to inspection and replacement when necessary. The cover serves as a protection to the electric heater and also provides a restricted outlet over the center of the chemical so as to provide a concentrated draft for the rising vapor.

We claim:

1. A fumigator comprising a metallic receptacle having a base portion for containing a fumigant and a detachable cover portion having an outlet at the top, a cross bar supported by the opposite sides of the receptacle, an electric heater wire carried by the upper surface of the cross bar beneath the outlet and having a conductor cord for the heater extending into one side beneath the level of the outlet so that the cord is subjected to a minimum effect of the fumigant escaping from the outlet.

2. A fumigator comprising a receptacle consisting of a base formed of sheet metal and a detachable cover formed of sheet metal and having an outlet in the top, the base and cover having interfitting flanges, said cover having grooves in the inner wall thereof, an electric resistance type heater unit detachably supported in said grooves in thermally conductive relation to the cover and beneath said outlet and electric conductors entering the cover through the side and connected to the heater unit.

3. A fumigator comprising a receptacle having a base portion for containing a liquid and having a detachable cover portion with a vapor outlet in the top, one of said por-

tions being formed of sheet metal having grooves in its opposite walls, an electric heater detachably mounted in said grooves in thermally conductive relation to said walls beneath said outlet and electric conductors at one side of the receptacle connected to the heater unit.

4. A fumigator comprising a metallic receptacle having a base for containing the fumigant and a cover member connected to the base, said cover member having an outlet through the top and a cable connection at one side, and an electric resistance type heater device secured to the cover adjacent its lower edge and in thermally conductive relation to the cover below the outlet and above the base whereby the cable connection is free from the action of the hot vapor escaping from the outlet.

5. A fumigator comprising a receptacle having a base for containing the fumigant and a metallic cover having an outlet for the vaporized fumigant, an electric resistance type heater having conductors passing through a side wall of the cover and means for supporting said electric heater at two points oppositely disposed in the cover below the outlet and above the base whereby the conductors are free from the action of the hot vapor escaping from the outlet.

6. A fumigator comprising a receptacle for a vaporizable chemical having a cover with a central outlet at the top, an electric heater supported in thermally conductive relation with the opposite inside walls of the cover above the level of the chemical and independently of the outlet, and an electrical conductor leading to the heater through one side of the receptacle below the level of the outlet whereby some of the heat from the heater is conductively transmitted to the walls of the receptacle and the conductor is not subjected to the action of the hot vapor as it leaves the outlet.

7. A fumigator comprising a shell having a body part and a cover part detachably connected together, the body part being adapted to contain a vaporant, and the cover part having an outlet for vapor, a heater unit including a resistance wire and a cross bar support therefor having its ends supported in the cover part of the shell above the level of the vaporant, and a conductor cord connected to the resistance wire and passing through one side of the shell below the vapor outlet.

8. A portable evaporator comprising a container having a base portion adapted to contain a chemical to be evaporated and a cover member for said base adapted to protect the said chemical from displacement and accidental disturbances, said cover member being provided with a restricted opening for discharging vapors from said container, an electrical heating element sup-

ported by the opposite side walls of the cover member in thermally conductive relation with the walls of the cover member and below the discharge opening and wholly within and surrounded by said container and protected by said cover member and having a conductor cord extending through the side of the cover beneath said opening, said heating element being located when the cover is closed adjacent to but out of contact with the exposed surface of said chemical, said container constituting a vaporizing chamber, whereby when the heating element is energized the chemical is heated and converted to a vapor state, said base portion and said cover member having means for detachably connecting them together, said detachable connection permitting ready removal of the cover to permit insertion of the chemical within the base said conductor cord being free from the action of the hot vapor as it leaves the discharge opening.

9. An evaporator comprising a shell having a base member and a cover member with interfitting flanges, one of said members at least being formed of sheet metal and resilient laterally, an electric heater element including a metallic cross bar detachably sprung into position in the resilient sheet metal member, said cover member having an outlet at the top for the escape of vapor above the heater element.

10. An evaporator comprising a shell having a base member adapted to contain vaporizable material and a metallic cover member having a flange detachably supported by the base member and having a vapor outlet in the top thereof for the discharge of vapor, an electric resistance heater wire, a supporting member for said heater wire connected to the opposite side walls of the cover member adjacent its flange and above the level of the vaporizable material in the base member, and a conductor cord connected to the resistance wire and passing outwardly through one side of the cover member close to the supporting member and below the vapor outlet whereby the effect on the cord of the hot vapor escaping from the vapor outlet is minimized.

11. A fumigator comprising a shell having a body part and a cover part having their peripheries detachably connected together, the body part being adapted to contain a vaporant and the cover part having an outlet in its center for the discharge of vapor, one of the parts of the shell being formed of sheet metal, a heater unit including an electric resistance wire and a crossbar support for said wire having its ends supported by the opposite sides of the metallic part of the shell above the level of the vaporant, said resistance wire being supported on the upper surface of the crossbar, and a conductor cord connected to the opposite ends of the

resistance wire and passing through one side of the shell on a level below the vapor outlet whereby the conductor cord at the point where it passes through the shell is free from the influence of the hot vapor leaving the vapor outlet.

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