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FOGGING GUN FOR INSECTICIDES AND THE LIKE

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FIG. 1.

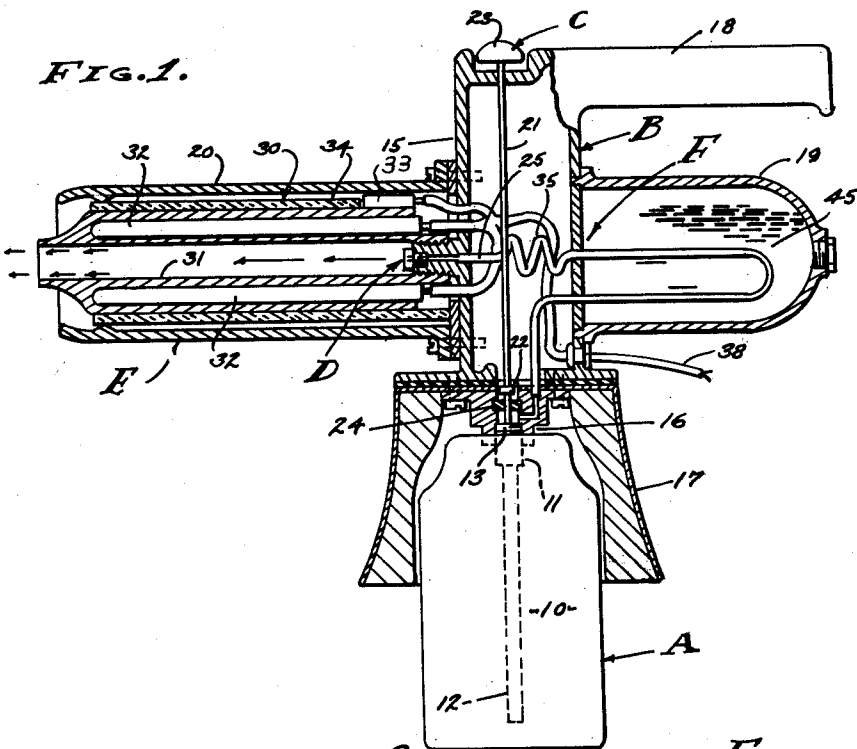


FIG. 2.

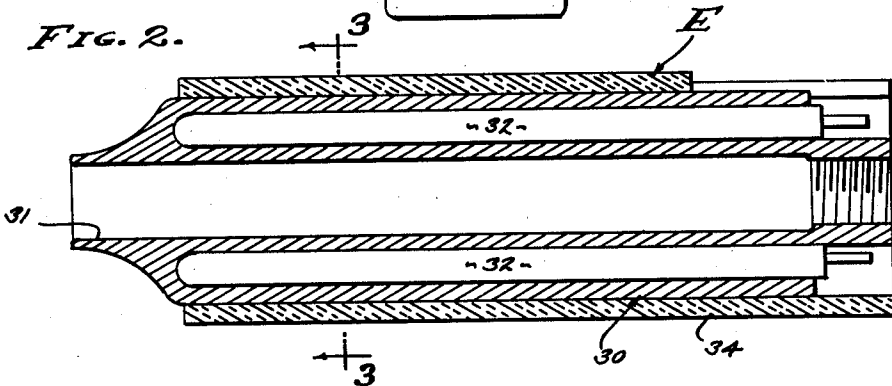
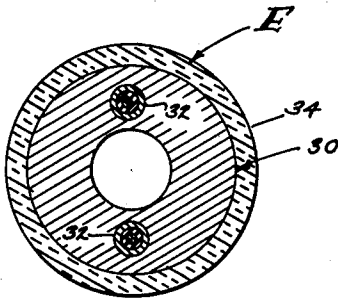


FIG. 3.



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1

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FOGGING GUN FOR INSECTICIDES AND THE LIKE

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This invention relates to a fogging gun for insecticides and the like and it is particularly concerned with thermal processing of fluid discharged from an aerosol reservoir or the like.

Insecticides, for example, have been stored in aerosol containers and have been discharged therefrom through suitable nozzles. The poisons used can be most effective if applied to best advantage, but with prior art applicators full advantage is not realized from the insecticides used. For instance, it is common practice to simply discharge liquid from the aerosol container and the resultant spray is wet and at a reduced temperature. A wet spray is not most effective and is damaging in that it leaves a residue. Obviously, wetting of furniture and clothing, etc. with incompatible chemicals is likely to be damaging, resulting in stains and discoloration. So far as the insecticide effectiveness is concerned, a wet spray is not as effective as a gaseous fog, in that penetration into deep cracks and crevices is very limited when applying a liquid as such.

An object of this invention is to provide a simple, inexpensive and yet effective device for the application of insecticide materials, for example to apply an oil base liquid material by the process of fumigation.

Another object of this invention is to provide a device for processing the discharge of an aerosol container whereby said discharge is changed from a wet spray into gaseous fumes.

It is still another object of this invention to provide a device for processing the discharge of an aerosol container whereby the cooling effect of expansion of the material discharged is counteracted by the application of heat.

It is also an object of this invention to provide a device of the type under consideration wherein the use of an aerosol container is made safe when used in combination with a heat applying means.

The various objects and features of this invention will be fully understood from the following detailed description of the typical preferred form and application thereof, through which description reference is made to the accompanying drawings, in which:

FIG. 1 is a sectional elevational view of the fogging gun with an aerosol container in working position.

FIG. 2 is an enlarged sectional view of the processing means that I provide, removed from the gun.

FIG. 3 is a sectional view taken as indicated by line 3-3 on FIG. 2.

The fogging gun that I provide is particularly suited for the application of insecticide materials supplied as a liquid under pressure, as from an aerosol container A. The container A can vary widely in size, shape and form, and it comprises generally a vessel 10 closed by a valve means 11. A syphon tube 12 extends to the bottom of the vessel 10 and the valve means has a depressible element adapted to be operated for release of liquid from the vessel through the syphon tube. There are many variations of such valve means and a typical arrangement is shown wherein liquid discharges at the top of the vessel 10 surrounding the depressible element of the valve means 11. As shown, the valve means fitting 13 is threaded for mounting of the aerosol container upon the fogging device or gun hereinafter described.

The fogging gun as it is illustrated involves, generally,

2

a frame B, control means C to operate the valve means 11, a spray nozzle D, a spray processing means E, and means F isolating the effect of the means E on the nozzle D from the aerosol container A.

The frame B is intended for convenient manual support and manipulation as circumstances may require, and it carries the aerosol container A and the other associated elements of the structure, elements C through F as hereinafter described. The central body portion 15 of the frame B is vertically disposed with a threaded fitting 16 at its lower end for the reception and support of the container A through its fitting 13. Surrounding the fitting 16 is an insulating shield 17 that overlies the container A and substantially surrounds the same. Projecting laterally from the upper end of the body portion 15 is a handle 18, and underlying the handle is a housing 19 at the rear of the frame. The frame B is characterized by a tubular extension 20 projecting laterally from and oppositely from the handle 18. The said handle 18 and extension 20 are horizontally disposed, the tubular extension 20 opening forwardly for the discharge of fumes. The control means C is provided to operate the valve means 11 above described and involves a stem 21 extending centrally and vertically through the body portion 15. The stem 21 is slidably guided by the frame, with a head 22 at its lowermost end to depress the valve element, and with a button 23 at its uppermost end to be manually depressed, as by a person's thumb or forefinger. In the case illustrated the stem 21 is loose, not biased, and the usual return bias on the valve means 11 is relied upon to close the said valve means 11.

The spray nozzle D is provided to break liquid under pressure into a spray or mist. The nozzle D can vary widely, for example, it can have a single central jet opening adapted to project a fine stream centrally and forwardly through the tubular extension 20. The nozzle D is carried by the body portion 15 and is in communication with the valve means 11 via a tubing 25. As is shown, the tubing 25 enters the fitting 16 to receive liquid from the top of the aerosol container A when the valve means 11 is opened by the depression of button 23. In practice, the depressible head 22 of the stem is sealed by means of a surrounding gland 24. Suitable gaskets and seals can be employed as required and as indicated in the drawings.

The spray processing means E is a heating means adapted to effect gasifying of the fine stream or spray of liquid that is projected by the nozzle D. In accordance with the invention, the means E is a tubular radiator 30 adapted to transfer heat into the liquid material passing therethrough. Various means can be used for applying heat to the radiator 30, preferably an electrical means. The said radiator has substantial body, in cross-section, whereby heat is retained therein, and it is surrounded by a heat insulating sleeve 34. Thus, the escape of radiant heat is from the exposed walls of the central bore 31 that extends through the means E and which opens at the forward end of the extension 20.

In order to heat the radiator 30 one or more electrical heat generating rods 32 are embedded therein, under control of a thermostat 33. By providing a radiator 30 of substantial body, residual heat can be stored therein and radiated over a relatively lengthy time. Thus, the device is more portable and need not be continuously connected to or followed by a power line. The means F isolating the aerosol container from the nozzle and from the effect of the heat radiating from means E is essentially an insulating means that affects the line 25. The line 25 is metal, preferably copper or brass, and therefore it readily conducts heat. Since it is imperative that heat be isolated from aerosol container A, a radiating coil 35 is provided

in the line 25, and/or a heat absorber 45 is provided therein.

The coil 35 is simply adapted to transfer heat into the surrounding atmosphere, while the absorber 45 is adapted to transfer heat into a medium for storing of the same. The absorber 45 is shown in the form of a reservoir of liquid through which a portion of the line 25 passes for heat transfer.

From the foregoing it will be seen that the fogging device herein disclosed is relatively simple. Operation is initiated by powering the means E through a power cord 38. The power cord 38 can be left connected and heat controlled by the thermostat, or it can be disconnected and residual heat relied upon for operation over a limited period of time. When the button 23 is depressed liquid passes through line 25 and is spread forth by the nozzle D. The fine stream of spray entering the bore 31 absorbs heat which is radiated in great quantity from the body of the radiator 30. As a result, the discharging material expands into a rarefied gaseous state and consequently disperses intimately and effectively into the surrounding atmosphere, to enter deeply into interstices where vermin and the like withdraw for protection.

Having described only a typical preferred form and application of my invention, I do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to myself any modifications or variations that may appear to those skilled in the art and fall within the scope of the following claims.

Having described my invention, I claim:

1. A portable gun of the character described for the discharge of gaseous fluid, and including:

(a) a frame for manual support and having a coupling fitting with a manually operable stem entering therein,

(b) an aerosol container with a coupling for engagement with the coupling fitting on the frame and with valve means within the coupling and engaged by the stem to control release of fluid therefrom,

(c) a nozzle on the frame and communicating with said valve means for the discharge of said fluid as a spray,

(d) and tubular means carried by and projecting from the frame and surrounding the nozzle and radiating heat to be absorbed by said spray,

(e) whereby said fluid spray is expanded into a gaseous state for discharge.

2. A portable gun of the character described for the discharge of gaseous fluid, and including:

(a) a frame for manual support and having a coupling fitting and a manually operable stem terminating within said fitting,

(b) an aerosol container with a coupling for engagement with the coupling fitting on the frame and with valve means having a stem exposed within said coupling engagement and engaged by the first mentioned stem to control release of fluid from the container,

(c) a nozzle on the frame and communicating with said valve means for discharge of said fluid as a spray,

(d) and tubular means carried by and projecting from the frame and surrounding the nozzle and radiating heat to be absorbed by said spray,

(e) whereby said fluid spray is expanded into a gaseous state for discharge.

3. A portable gun of the character described for the discharge of gaseous fluid, and including:

(a) a frame for manual support and having a coupling

fitting and a manually operable stem terminating within said fitting and projecting through a seal,

(b) an aerosol container with a coupling for engagement with the coupling fitting on the frame and with valve means having a stem exposed within said coupling engagement and engaged by the first mentioned stem to control release of fluid from the container,

(c) a nozzle on the frame and communicating with said valve means for discharge of said fluid as a spray,

(d) and tubular means carried by and projecting from the frame and surrounding the nozzle and radiating heat to be absorbed by said spray,

(e) whereby said fluid spray is expanded into a gaseous state for discharge.

4. A gun of the character described for discharge of gaseous fluid and including:

(a) a frame having a coupling fitting,

(b) an aerosol container with a coupling for engagement with the coupling fitting on the frame and with valve means to control release of fluid therefrom,

(c) a nozzle on the frame and a fluid connection from the coupling in the frame and to the nozzle for discharge of said fluid as a spray,

(d) a tubular body carried by and projecting from the frame and surrounding said nozzle and open at one end,

(e) means supplying heat to said body whereby heat is radiated from the body and absorbed by said spray to expand the same into a gaseous state for discharge at the open end of the body,

(f) and heat absorbing means in the connection between the aerosol container couplings and the nozzle.

5. A gun of the character described for discharge of gaseous fluid and including:

(a) a frame having a coupling fitting,

(b) an aerosol container with a coupling for engagement with the coupling fitting on the frame and with valve means to control release of fluid therefrom,

(c) a nozzle on the frame and a fluid connection from the coupling in the frame and to the nozzle for discharge of said fluid as a spray,

(d) a tubular body carried by and projecting from the frame and surrounding said nozzle and open at one end,

(e) means supplying heat to said body whereby heat is radiated from the body and absorbed by said spray to expand the same into a gaseous state for discharge at the open end of the body,

(f) and heat absorbing means in the connection between the aerosol container couplings and the nozzle and comprising a reservoir into which heat is transferred.

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