Sept. 16, 1952 R. D. CHISHOLM ET AL 2,610,433

INSECTICIDE DISPENSER

Filed April 29, 1947

Fig. 1.

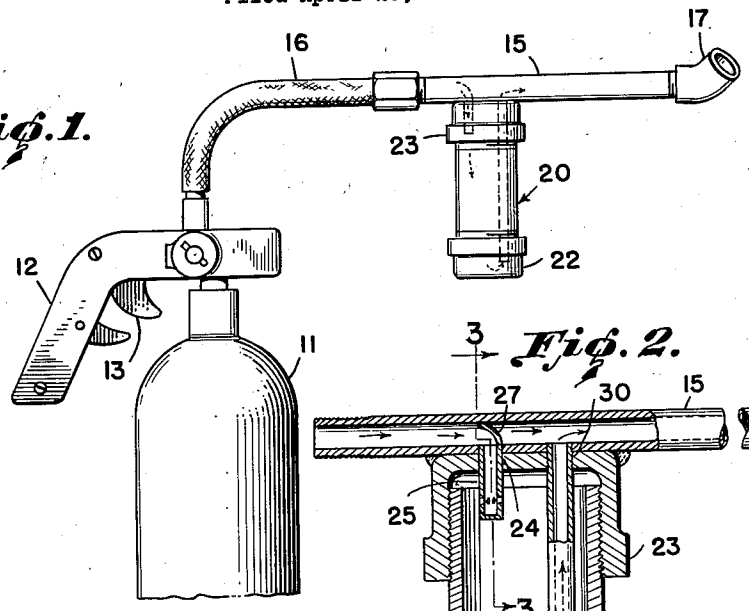


Fig. 2.

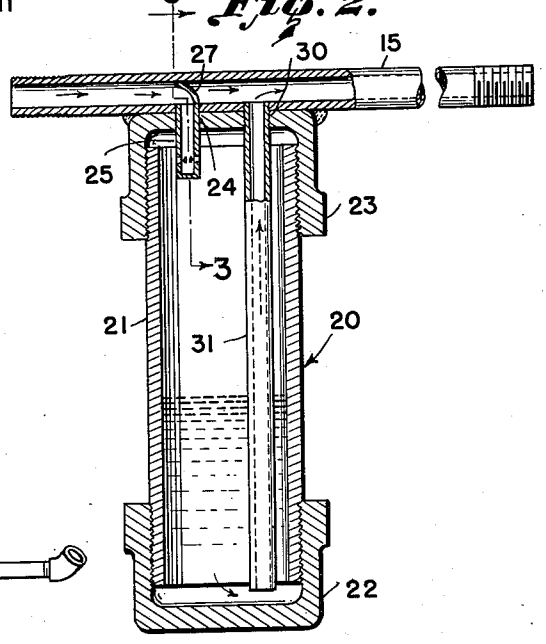


Fig. 4.

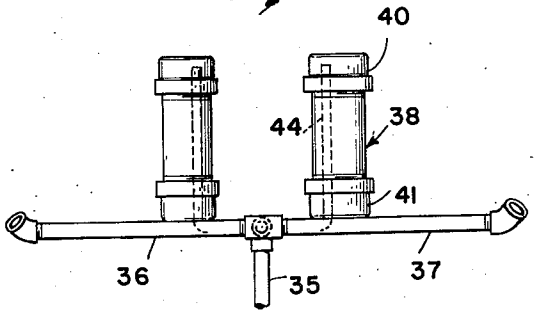


Fig. 5.

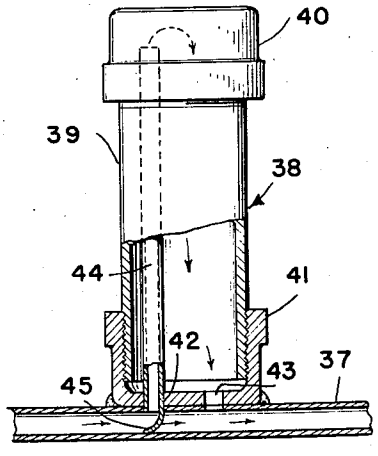
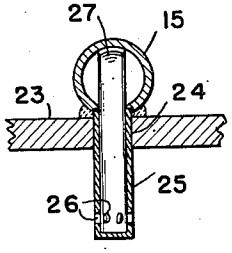


Fig. 3.



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INSECTICIDE DISPERSER

Robert D. Chisholm, Moorestown, and William C. Fest, Rancocas Heights, N. J., dedicated to the free use of the People in the territory of the United States

Application April 29, 1947, Serial No. 744,612

2 Claims. (Cl. 43—147)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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This application is made under the act of March 3, 1883, as amended by the act of April 30, 1928, and the invention herein described, if patented, may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment to us of any royalty thereon.

We hereby dedicate the invention herein described to the free use of the people in the territory of the United States to take effect on the granting of a patent to us.

This invention relates to devices for dispersing insecticides, and has among its objects the provision of a device of this kind which is simple to manufacture and which may be used rapidly to disperse a controlled amount of insecticide throughout a large region, giving a finely divided dispersion of the material and with uniform coverage thereof.

In general, according to the invention, means is provided for releasing a relatively large volume of gas from a high-pressure source through a tube, thus to give a high velocity of gas flow. A container is provided for holding a quantity of the insecticide material to be dispersed, and part of the gas flowing through the tube is deflected into the container above the insecticide material therein, thus to create pressure on it. A relatively large opening leads from the container from near its bottom and empties into the tube at a point beyond that from which the gas is deflected into the container. The gas pressure developed in the container quickly forces the insecticide material, which is free flowing (a liquid or powder), through the opening into the stream of gas passing through the tube, and the material in finely divided form is uniformly dispersed with the stream of discharged gas throughout a relatively large region.

For a detail description of the invention, reference is made to the accompanying drawing, in which

Figure 1 is an elevation of one form of the disperser designed primarily for dispersing a liquid;

Figure 2 is a central section taken in the plane of the paper showing a part of the disperser of Figure 1;

Figure 3 is a partial section on the line 3—3 of Figure 2;

Figure 4 is a partial elevation of a modified form of the disperser showing two containers and designed especially for dispersing a free-flowing powder; and

Figure 5 is a detail, partially in section, showing one of the containers of Figure 4.

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In the drawing, 11 represents a cylinder of high-pressure gas, a small cylinder of compressed carbon dioxide or of dichlorodifluoromethane (fire extinguisher type) being satisfactory for the purpose. The cylinder is provided with a handle 12 and trigger valve 13 for release of the gas in a well-known manner.

The dispersing device is provided with a rigid tube 15 through which the released gas passes, this tube being connected to the outlet from the cylinder 11 by means of a flexible tube 16. The free end of tube 15 may be provided with an angled portion such as a 45° elbow 17, if desired.

Container 20 is provided for holding the insecticide material. As shown, this container is in the form of a pipe nipple 21 closed at the bottom with a cap 22 and at the top with a cap 23. Cap 23 is welded directly to the tube 15, as illustrated.

Aperture 24 leads through the wall of tube 15 and through cap 23 into the container. A pipe 25 is secured in this aperture and projects downwardly into the container a short distance, terminating near the top thereof. Pipe 25 is closed at its bottom end and is provided in its side wall with outlet apertures 26. At its upper end the pipe 25 is provided with a fixed tab 27 of lesser size than the tube 15 and projecting upwardly therein. This tab is of a size to cover approximately one-half the cross-sectional area of tube 15, pipe 25 corresponding in area to about one-half that of tube 15. The tab deflects a portion of the gas from the tube 15 through the pipe and into the container and by-passes the balance of the gas through the tube.

Opening 30 also is provided leading from tube 15 and through cap 23 into the container. A pipe 31 for passage of liquid is secured in this opening and extends downwardly into the container terminating near its bottom. Pipe 31 corresponds in area approximately to that of pipe 25.

In use, a measured amount of a liquid insecticide material is placed in container 20. This may be accomplished by merely demounting the nipple 21 from cap 23. With the insecticide material in place, operation of trigger valve 13 ejects a large volume of high velocity gas through tube 15 while simultaneously a high pressure of gas is obtained in the container on the liquid therein due to deflection of a portion of the gas by the deflector 27. This results in a rapid expelling of the insecticide material from the container through pipe 31 and into the gas stream flowing through tube 15. With a small size device, 21 may be a 1" by 3" nipple, in which case one-half

ounce of liquid may be quickly dispersed with one or two short blasts of gas release.

The form shown in Figures 4 and 5 is generally quite similar to that previously described. In this form, tube **35** leads from the gas pressure cylinder (not shown) and communicates with two divergent tubes **36** and **37**, each of which is provided with an upright closed container such as shown at **38** attached at its bottom portion to the tube, thus to provide a double disperser. The containers are similar, and only one will be described in detail.

The container **38** is provided with a nipple **39** closed at its top with cap **40** and at its lower end with cap **41**, in this form the lower nipple **41** being welded to tube **37**. Aperture **42** and opening **43** correspond to aperture **24** and opening **30**, respectively, in Figure 2. In the present form a pipe **44** is mounted in aperture **42** and extends upwardly into the container terminating near its upper end, deflector **45** being provided for the purpose previously described in reference to deflector **27**. Opening **43** leads directly from the container and empties into tube **37**.

In using this form of the device, the cover cap **40** is removed, a measured quantity of insecticide dust is placed in the container, and the cover is replaced. Operation of the trigger valve results in rapid expulsion of the dust from the container in a manner similar to that previously described in reference to the first-mentioned form.

Having thus described the invention, what is claimed is:

1. An insecticide disperser comprising a tube, means for releasing gas from a high-pressure source through the tube, an upright closed container for holding a quantity of free-flowing insecticide dust attached at its bottom portion to the tube, an aperture establishing communication between the tube and container and a fixed tab of lesser size than the tube, and positioned therein for deflecting a portion of the gas from the tube through the aperture and into the container, and by-passing the balance of the gas through the tube, and an opening for passage of dust leading from the container near the bottom thereof and emptying into the tube at a point beyond the fixed tab, whereby as gas is released through the tube a portion of it is deflected into the container to create pressure on the dust therein and force it through the opening into the stream of gas passing through the tube.

2. An insecticide disperser comprising a tube, means for releasing gas from a high-pressure source through the tube, an upright closed container for holding a quantity of free-flowing insecticide dust attached at its bottom portion to the tube, an aperture having a pipe communicating therewith and projecting upwardly into the container terminating near the upper end thereof establishing communication between the tube and container and a deflector positioned in the tube for deflecting a portion of the gas from the tube through the aperture and pipe and into the container, and an opening for passage of dust leading from the container near the bottom thereof and emptying into the tube at a point beyond the deflector, whereby as gas is released through the tube a portion of it is deflected into the container to create pressure on the dust therein and force it through the opening into the stream of gas passing through the tube.

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