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LIQUID SPRAY DISPENSER

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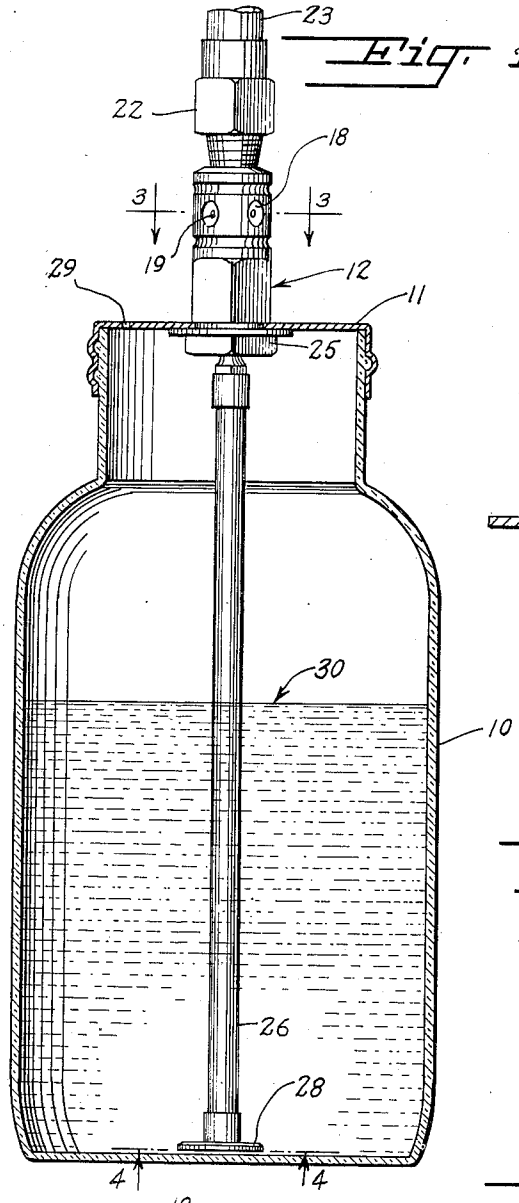



Fig. 1

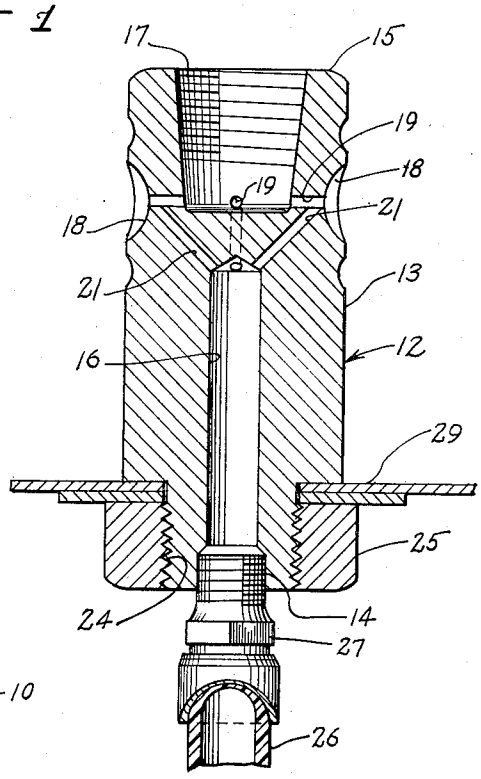



Fig. 2

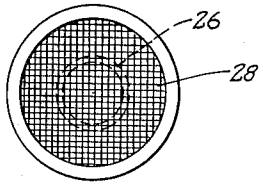



Fig. 4

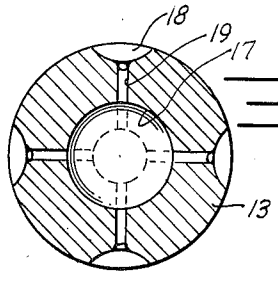



Fig. 3

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# LIQUID SPRAY DISPENSER

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2 Claims. (Cl. 299—86)

The present invention relates to a liquid spray dispenser of the type used to produce a fog or fine spray of a fluid insecticide.

The primary object of the present invention is to provide a liquid spray dispenser which uses a minimum amount of liquid and requires air at only a moderate pressure for operation.

Another object of the present invention is to provide a liquid spray dispenser that is light weight and easily portable and one of such construction that it may be suspended from the end of an air hose in any place desired.

A further object of the present invention is to provide a liquid spray dispenser of simple construction, one economically manufactured and assembled, and one very effective in action.

These and other objects and advantages of the present invention will be fully apparent from the following description when taken in connection with the annexed drawings, in which:

Figure 1 is a side view in elevation partially in cross-section showing the fluid spray dispenser of the present invention installed on the end of an air hose,

Figure 2 is an enlarged elevational view in cross-section,

Figure 3 is a vertical view greatly enlarged in cross-section on line 3—3 of Figure 1, and

Figure 4 is a vertical view greatly enlarged on line 4—4 of Figure 1.

Referring in greater detail to the drawings in which like numerals indicate like parts throughout the several views the liquid spray dispenser of the present dispenser consists in a receptacle **10** having an open top with a cap or closure **11** extending over the open top and closing it. A spray-forming device, indicated generally by the reference numeral **12**, is mounted in the opening in the closure **11** and includes an upright body **13** having its lower end **14** extending into the receptacle **10** and having its upper end **15** exteriorly of the receptacle.

The body **13** is provided with a first bore **16** extending upwardly from the lower end **14** and terminating at a point spaced from the upper end **15** of the body. A second bore **17** extends from the upper end **15** of the body inwardly to a point spaced from the terminating point of the first bore.

The side wall of the body **13** is provided with conically shaped recesses **18**, here shown as four in number, each extending inwardly and connected to the lower end of the second bore **17** by a passage **19**. Other passages **21** extend upwardly at an angle and connect the first bore **16** to each of the passages **19** at a point adjacent to the apex of the associated recess **18** and adjacent the point of connection of the passage **19** with the recess **18**.

The upper end of the second bore **16** is provided with internal threads to connect it to a nipple **22** on the end of an air hose **23**, as shown in Figure 1.

The lower end **14** of the body **13** is threaded externally, as indicated by the reference numeral **24**, to receive a nut **25** for securing it to the closure **11**. A flexible conduit **26** is disposed within the receptacle **10** and has its upper end provided with a connector **27** threadedly received in the first bore **16** and its lower end provided with a strainer assembly **28** and positioned adjacent to and spaced above the bottom of the receptacle **10**.



The closure **11** is provided with a small orifice **29**, as seen in Figure 1, so that as fluid, indicated by the reference numeral **30** in Figure 1, is dispensed from each of the recesses **18**, air may enter through the orifice **29** to prevent a vacuum forming within the receptacle **10**.

In use, air under pressure of between 15 to 30 pounds per square inch is introduced to the upper end of the body **13** through the second bore **17** and issues from the recesses **18** by way of the passages **19**, drawing with it fluid flowing upwardly through the flexible conduit **26** into the first bore **16** and thence into the passages **21**, a partial vacuum forming at the junction of the passages **19** with the passages **21**. It is to be noted that the air in the passage **19** and the liquid in the adjacent passage **21** contact each other at the shallow point of the associated recess **18**, resulting in the formation of a spray wholly within the recess. By this arrangement the issuing streams of air and liquid from the passages **19** and **21**, respectively, commingle and admix with each other and in controlled proportions.

Preferably, the body **13** is fabricated of brass or other material which will not corrode easily and the flexible conduit **26** is fabricated of a plastic or other inert material which will not react with the fluid to be sprayed.

When used to produce a fog of liquid insecticide in a dairy barn, the liquid spray dispenser may be provided with air under pressure using the compressor portion of the milking machine assembly or any other source of air under pressure available.

What is claimed is:

1. A liquid spray dispenser comprising a receptacle having an open top for a liquid to be sprayed, a closure closing said open top of said receptacle, said closure having an opening therein, a spray-forming device mounted in the opening in said closure, said device including an upright body supported intermediate its ends in the closure opening with its lower end extending into said receptacle and its upper end positioned exteriorly thereof, said body having a first bore extending inwardly from said lower end and terminating at a point spaced from the upper end thereof, a flexible conduit positioned within the receptacle and having one end connected in communication with said first bore and having its other end adjacent to and spaced above the bottom of said receptacle, there being a second bore in said body extending inwardly from its upper end and terminating a point spaced from the terminating point of said first bore, said second bore being of a larger diameter than said first bore, said second bore being adapted to be connected to a source of air pressure, said body having a plurality of recesses arranged in spaced relation and extending inwardly from the side wall thereof, said recesses all lying in the same plane, said body being provided with a passage connecting each of said recesses to the lower end of said second bore, said body being further provided with a plurality of passages each connecting the termination point of said first bore with the adjacent one of said second bores at a point adjacent the point of connection of said second bore with the associated recess, each of said second-named passages being arranged at an angle to the vertical, said closure also having an opening for the admission of outside air into said receptacle.

2. A liquid spray dispenser comprising a receptacle having an open top for a liquid to be sprayed, a closure closing said open top of said receptacle, said closure having an opening therein, a spray-forming device mounted in the opening in said closure, said device including an upright body supported intermediate its ends in the closure opening with its lower end extending into said receptacle and its upper end positioned exteriorly thereof, said body having a first bore extending inwardly from said lower

end and terminating at a point spaced from the upper end thereof, a flexible conduit positioned within the receptacle and having one end connected in communication with said first bore and having its other end adjacent to and spaced above the bottom of said receptacle, there being a second bore in said body extending inwardly from its upper end and terminating at a point spaced from the terminating point of said first bore, said second bore being of a larger diameter than said first bore, said second bore being adapted to be connected to a source of air pressure, said body having a plurality of conically shaped recesses arranged in spaced relation and extending inwardly from the side wall thereof, said recesses all lying in the same plane, said body being provided with a passage connecting each of said recesses to the lower end



of said second bore, said body being further provided with a plurality of passages each connecting the termination point of said first bore with the adjacent one of said second bores at a point adjacent to the apex of the associated recess, each of said second-named passages being arranged at an angle to the vertical, said closure also having an opening for the admission of outside air into said receptacle.

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