April 29, 1941. J. M. HOTHERSALL 2,239,716

SPRAY NOZZLE

Filed Nov. 19, 1938

Fig. 1

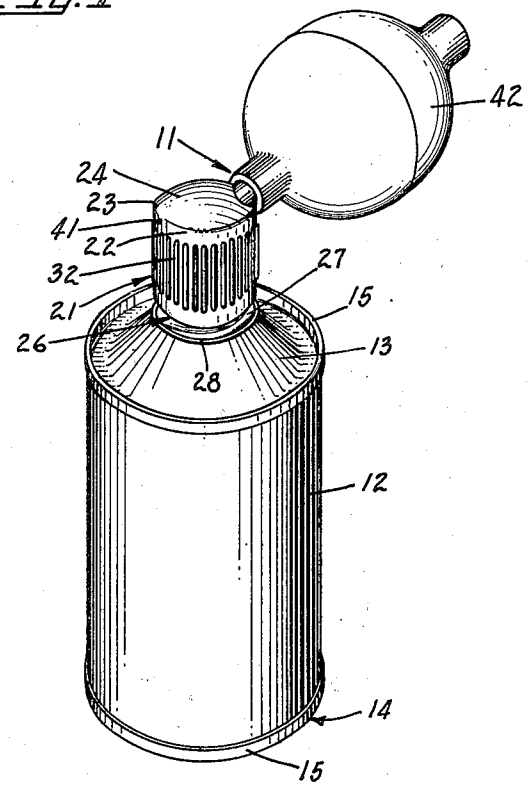
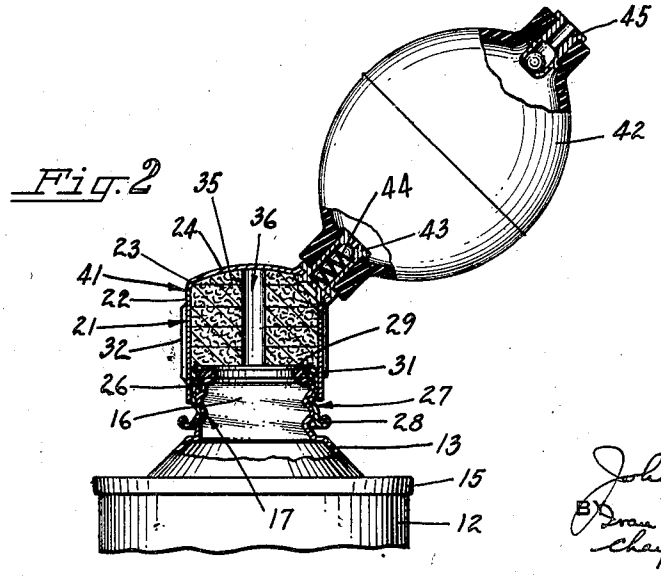


Fig. 2



INVENTOR
John M. Hothersall
BY
Dean W. Thornbrough
Charles H. Shea
ATTORNEYS

Patented Apr. 29, 1941 2,239,716

UNITED STATES PATENT OFFICE

2,239,716

SPRAY NOZZLE

John M. Hothersall, Brooklyn, N. Y., assignor to American Can Company, New York, N. Y., a corporation of New Jersey

Application November 19, 1938, Serial No. 241,431

3 Claims. (Cl. 299—89)

The present invention relates to a spray nozzle for a liquid insecticide can or the like and has particular reference to a removable can cap carrying an absorbent fibrous material from which liquid absorbed by it may be ejected in a continuous fine spray.

An object of the invention is the provision of a spray nozzle for a liquid insecticide can or the like which is simple in construction with no parts to get out of order and cheap to manufacture, the nozzle being readily attached to a can for use and just as easily detached for subsequent use on another can.

Another object is the provision of such a spray nozzle wherein an absorbent material is utilized for absorbing the liquid in the can and for holding it in suspension until sprayed out through an orifice by air passed through the absorbent material, the liquid being ejected in continuous fine spray which will last for many minutes before needing replenishing.

Yet another object is the provision in a liquid spray nozzle can of the character described of a detachable nozzle cap for holding an absorbent material on top of a neck of the can and in position where a charge of the liquid contents of the can may be absorbed and stored preparatory to dispensing it as a spray.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is a perspective view of an insecticide can having attached thereto a spray nozzle embodying the instant invention; and

Fig. 2 is an enlarged combined elevation and section of the upper portion of the can and the nozzle shown in Fig. 1, parts of the can and the nozzle being broken back and shown in section.

As a preferred embodiment of the invention the drawing illustrates a spray nozzle 11 attached to a liquid containing cylindrical sheet metal can 12 having top and bottom closures 13, 14 secured in place by suitable seams 15. The top closure 13 is provided with a neck 16 having screw threads 17 adapted to receive the nozzle 11.

The spray nozzle 11 preferably includes an inverted cup shaped body 21 having a straight vertical side wall section 22 which at its top edge merges into a rounded corner 23 that connects with a curved or dome shaped top wall section 24. At its bottom end the cup body fits over and is secured to an open top screw cap 26 having screw threads 27 formed in its side wall section for cooperation with the screw threads 17 in the can neck 16.

The lower or outer edge of the cap side wall section is provided with a smooth edge curl 28. The upper or inner edge of the cap side wall section is bent inwardly surrounding the opening in the top as a flat flange 29 which carries a sealing gasket 31. Knurled beads 32 in the cap body side wall section 22 provide for easily screwing the nozzle in place on the neck 16 of the can.

The nozzle cap body 21 carries a packing of absorbent fibrous material 35 such as tissue paper, Kotex, cotton or the like for absorbing and momentarily retaining a charge of liquid contents of the can. This absorbent material is preferably in the form of thin washer like layers having a hole 36 punched through the middle. These layers are held in place within the nozzle cap body by the flange 29 on the screw cap 26.

By inverting the can when the nozzle is in place and then righting it or by merely shaking the can vertically liquid contained therein is brought into contact with the absorbent material and is absorbed by it. A goodly quantity of this liquid is held in the material in the same manner as liquid is held by a sponge, for example. It is this absorbed liquid that is ejected as a fine spray.

Ejection of the absorbed liquid is effected by way of a minute hole or discharge orifice 41 which is provided near the top of the nozzle cap body 21 in the curved corner section 23. The liquid is forced out of this orifice by air which is preferably supplied from a rubber hand bulb 42. The bulb is secured to an extension 43 of the nozzle cap body 21 opposite the orifice 41 and preferably at the corner section 23 and this extension contains a check valve 44. The outer end of the bulb is also provided with a second check valve 45 which checks in the opposite direction.

Hence when the bulb 42 is squeezed, air is forced into the absorbent fibrous material which is holding the liquid in suspension, the check valve 45 being closed at such a time. This air forces a part of the suspended liquid out of the small orifice 41 in a spray of finely divided liquid particles. Since the orifice is so small, normal repeated squeezing of the bulb quickly builds up sufficient pressure within the can to insure continuous operation of the spray for as long as there is any remaining liquid suspended in the absorbent material. This is normally many minutes. However, when the liquid in the nozzle cap body becomes exhausted, it is merely neces-

sary to again shake the can sufficiently to further wet the absorbent material.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A spray nozzle for a liquid insecticide can and the like, comprising a cap body adapted to be attached to a can, said cap body including an inwardly extending annular flange, an absorbent fibrous material contained within said cap body and supported at its peripheral portion by said annular flange in open communication with the interior of the can, said fibrous material being adapted to absorb a quantity of the liquid from the can when the can is shaken, a spray discharge orifice in said cap body, and connected to said cap body for pumping air through said absorbent fibrous material thereby blowing the liquid suspended therein out through said orifice in a spray of finely divided liquid particles.

2. A spray nozzle for a liquid insecticide can and the like having a screw neck, comprising a cap body, an open top screw cap secured to said cap body for uniting it with said can neck, an absorbent fibrous material in said cap body which absorbs a quantity of the liquid from the can when the can is shaken, said screw cap including an inwardly projecting annular flange defining its said open top and constituting supporting means for the peripheral portion of said absorbent fibrous material to hold the same in place within said cap body in open communication with said can neck, a spray discharge orifice in said cap body, and means connected to said body member for pumping air through said absorbent fibrous material thereby blowing the liquid suspended therein out through said orifice in a spray of finely divided liquid particles.

3. A spray nozzle for a liquid insecticide can and the like, comprising a cap body adapted to be attached to a can, a plurality of washer-like layers of an absorbent fibrous material packed in said cap body and adapted to absorb and hold in suspension a quantity of the liquid from the can when the can is shaken, a minute spray discharge orifice in said cap body adjacent the top thereof, and a rubber hand bulb having check valves therein connected to said cap body opposite said discharge orifice, said bulb when squeezed being adapted to blow air through said absorbent material and to create a pressure within said can for blowing the liquid suspended in said absorbent material out through said orifice in a continuous spray of finely divided liquid particles.

JOHN M. HOTHERSALL.