

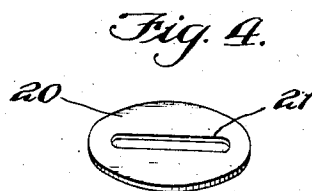
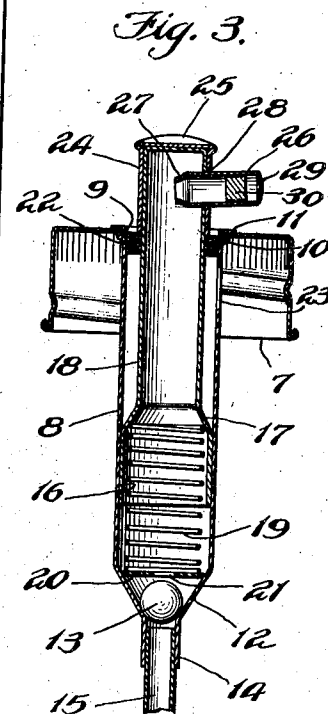
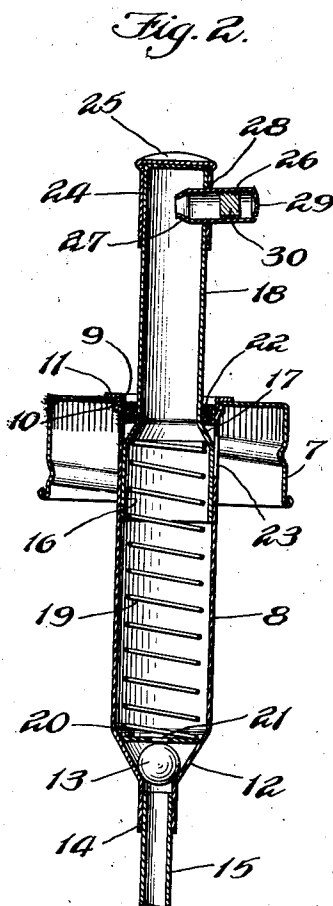
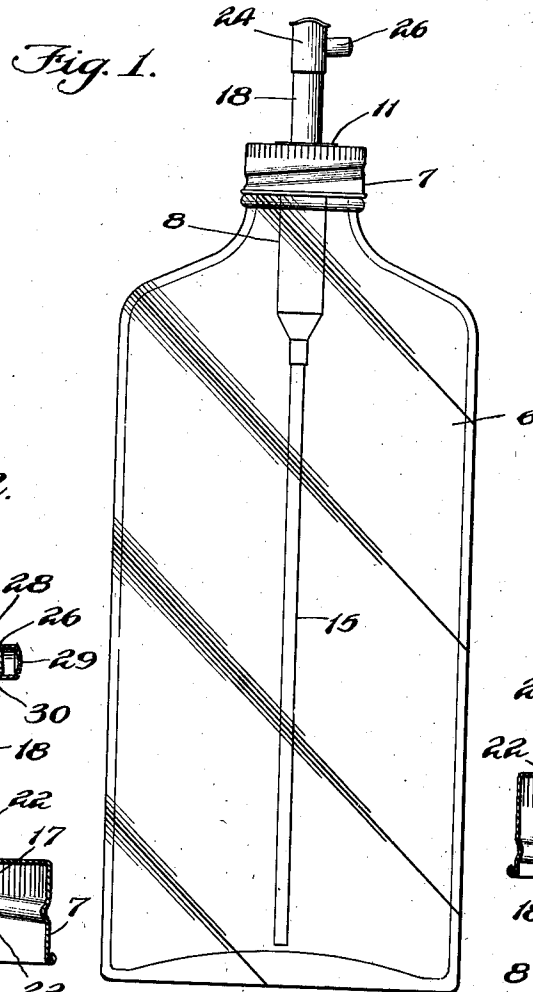
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2,158,318

SPRAYER

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2,158,318

SPRAYER

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2 Claims. (Cl. 299—97)

This invention relates to sprayers which may be adapted for general use but which are particularly intended for use in connection with small receptacles, bottles, or the like, which may be supported and the sprayer operated by one hand.

The principal objects of the invention are to provide an improved sprayer which will be of simple construction and which may be made at a low cost; to provide a sprayer having a minimum number of parts which may be assembled with comparatively little expense or labor; and to provide such other advantages or improvements as will appear from the following description.

In the accompanying drawing,

Figure 1 is a side view of a bottle with my improved sprayer mounted therein;

Figure 2 is an enlarged sectional view of the bottle cap and sprayer with the piston in raised position;

Figure 3 is a similar view with the piston in depressed position; and

Figure 4 is a perspective view of the combined valve stop and spring support.

The bottle or container 5 may be provided with any suitable cap as indicated by the screw cap or closure 7. The cylinder 8 extends through a hole 9 in the cap and is held in position by an underlying bead 10 and a coacting flange 11 as shown in Figure 2. The lower end of the cylinder 30 is tapered or reduced as shown at 12 to provide a valve seat for the valve ball 13. The lower reduced end portion 14 is engaged by an inlet tube 15 which projects into the container and preferably terminates at a point adjacent to the bottom thereof as shown in Figure 1.

A piston 16 has an operating fit in the cylinder 8 and is tapered or reduced as shown at 17 and continues outwardly in a reduced section 18 which serves as a piston rod and also as an outlet pipe. A spring 19 is interposed between the shoulder or reduced portion 17 and a washer 20 at the bottom of the cylinder and serves to urge the piston to normally raised position. The disc or washer 20 engages with the reduced portion 12 and has a slot or irregular opening 21 for the free passage of the liquid. This washer also serves as a stop to limit the upward movement of the valve 13 when it is raised off from its seat.

The piston is limited in its upward or outward movement by a combined guide and packing ring 22 which is secured in the upper end of the cylinder 8 and which is engaged by the shoulder 17 in the piston. A hole 23 at the upper end of the cylinder provides an inlet and outlet for the

passage of air into and out from the upper end of the cylinder.

The upper end of the piston rod has a reinforcing cap or finger piece 24 which is secured thereon with a pressed fit and which has a transverse groove 25 for engagement with the finger. An outlet nozzle 26 has a slightly tapered inner end 27 whereby it may be secured by means of a forced fit in holes 28 in the side of the outlet pipe 18 and cap 24. It will be understood that substantially all of the parts are made of thin drawn metal so that the double wall provides an increased support for the nozzle. The nozzle has an outlet orifice 29 and may be provided with any suitable spraying means such as a threaded insert or distributing member 30 of the type commonly used for such purpose. The outlet nozzle is arranged in alignment with the groove 25.

The operation will be self-evident as the operator holds the container in the hand and presses inwardly on the thumb-piece 24 to operate the pump members, the downward stroke serving to eject the spray material and the upward stroke permitting the filling of the cylinder in the usual manner.

What I claim is:

1. In a sprayer for liquids, a closure member, a cylinder having its upper open end secured to the closure member and depending therefrom, said cylinder having a reduced conical lower portion with an inlet at the apex and serving as a valve seat, a valve ball engaging with said seat, a tube extending downwardly from the inlet, a perforated disc engaging with said conical portion and serving as a stop for the ball, a hollow piston engaging with the cylinder and having a conical upper end with an integrally formed tubular extension, a spring interposed between the reduced portion of the piston and said disc and tending to raise the piston, a channel shaped ring having a forced fit in the upper end of the cylinder, a packing carried by said ring and engaging with the tubular extension, said ring serving to limit the outward movement of the piston, a cap at the outer end of the extension serving as a finger piece, and a discharge nozzle extending laterally from the upper end of the extension and having a forced fit in a hole through said cap and extension.

2. A spraying device of the character set forth, 50 comprising a tubular casing formed of drawn metal and having an integrally formed conical reduced portion at one end providing a valve seat, said conical portion having a tubular extension, a tube connected with said extension, a valve en-

gaging with said seat, a piston formed of drawn metal engaging with the casing and having an integrally formed reduced portion with an outwardly extending cylindrical portion, a spring
5 between the piston and the bottom of the casing, a retaining ring in the upper end of the casing engaging with the tubular extension, a finger

piece at the upper end of the tubular extension, and a discharge nozzle at the outer end of the tubular extension, said casing having an air opening in the side thereof adjacent to the retaining
5 ring for the purposes described.

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