May 13, 1952 W. B. KOCHNER 2,596,415

SPRAYING DEVICE

Filed Feb. 21, 1949

Fig. 1

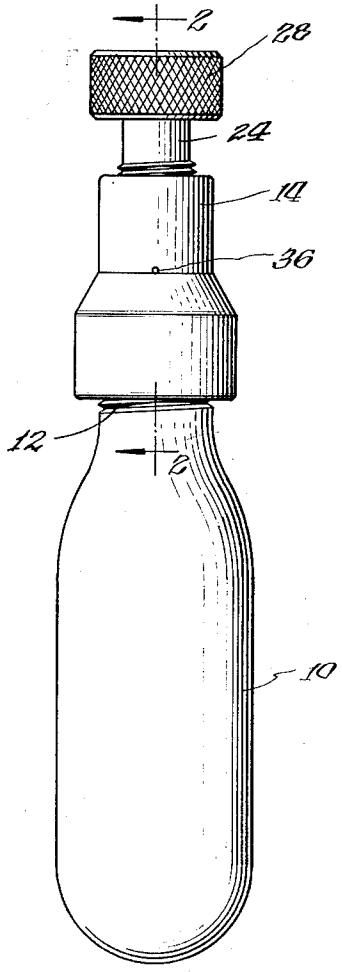


Fig. 2

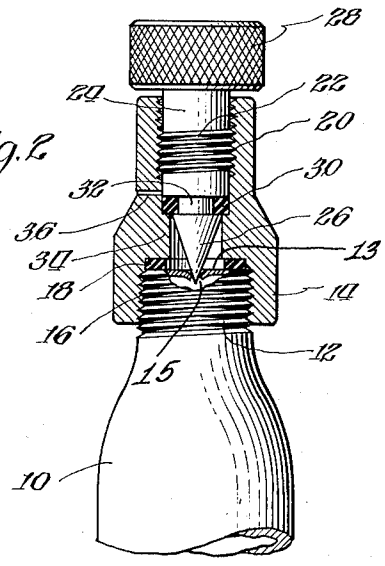


Fig. 3

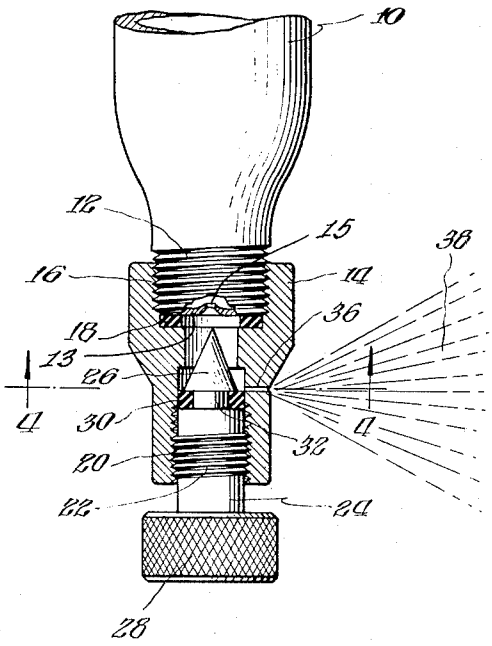
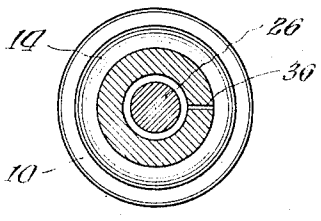


Fig. 4



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2,596,415

UNITED STATES PATENT OFFICE

2,596,415

SPRAYING DEVICE

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1 Claim. (Cl. 299—95)

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This invention relates to a spraying device wherein an attachment is provided for a bulb containing a liquid to be sprayed from the bulb and a gas under pressure to effect the spraying operation.

One object of the invention is to provide an attachment which is very simple in that it has few parts and is therefore inexpensive to manufacture.

Another object is to provide an attachment which can be screwed onto the threaded neck of a fluid pressure bulb and has therein a means to both puncture the bulb and serve as a valve for controlling the flow of liquid from the bulb.

Still another object is to provide a body member adapted to be screwed onto the threaded neck of a bulb containing liquid under pressure and having threaded therein a pointed element for puncturing the bulb when a knob on the outer end of the pointed element is turned in one direction, a gasket being provided outwardly of the pointed end of the element for holding the liquid until the element and the gasket carried thereby are screwed out to a position for uncovering a discharge orifice.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim and illustrated in the accompanying drawings wherein:

Figure 1 is an elevation of my spraying device attached to a fluid pressure bulb;

Figure 2 is a sectional view on the line 2—2 of Figure 1, showing the attachment being operated for puncturing the bulb;

Figure 3 is a similar sectional view showing the attachment adjusted for permitting the discharge of the spray therefrom; and

Figure 4 is a sectional view on the line 4—4 of Figure 3.

On the accompanying drawing, I have used the reference numeral 10 to indicate a bulb such as one of the Sparklet type having an externally threaded neck 12. The upper end of the bulb is closed as at 13 in the usual manner.

My spraying device comprises an attachment consisting of a body member 14 having an internally threaded part 16 to coact with the threads 12, a gasket 18 being provided to seal the connection between the body 14 and the threaded neck of the bulb. The body 14 is also provided with internal screw threads 20 in which the threads 22 of a stem 24 are threaded. The inner

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end of the stem is pointed as at 26 and the outer end is provided with a knurled knob 28. A gasket 30 is mounted in a groove 32 around the stem 24.

Within the body member 14 a shoulder 34 is provided for the gasket 30 to seat against when the parts are in the position of Figure 2. The body 14 is also provided with a discharge orifice 36 of small size so as to produce a spray when liquid under high pressure is discharged therethrough.

The bulb 10 is adapted to contain a liquid such as insecticide, perfume or the like to be sprayed and a charge of gas such as CO_2 under pressure for expelling the liquid when desired. The spraying device is adapted to first be connected with the bulb 10 as shown in Figure 1 and the point 26 is then utilized to puncture the upper wall 14 of the bulb as shown at 15 in Figure 2. This of course is accomplished by screwing the knob 28 inwardly.

After puncture of the bulb wall 13 is effected the knob is turned on down to a position with the gasket 30 compressed against the seat 34 to seal the parts as in Figure 2, and the bulb may be left in this condition indefinitely without leakage.

When it is desirable to use the spraying device for spraying the liquid from the bulb the parts are inverted as in Figure 3 and the knob 28 may then be screwed outwardly until the gasket 30 uncovers the orifice 36 whereupon the liquid will be sprayed out in the form of an aerosol as illustrated at 38 in this figure. The degree of spray may be regulated as desired by the amount the orifice 36 is uncovered by the gasket 30. All of the liquid may be discharged or any part thereof in which case the gasket 30 is again seated on the shoulder 34 for sealing the remaining contents of the bulb against escape.

The spraying device as disclosed is obviously very simple and inexpensive to manufacture so as to provide an inexpensive unit for use in connection with bulbs containing various liquids under pressure to be sprayed therefrom. Its operation is simple and efficient and the device may be reused a great number of times.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claim any modified forms of structure or use of mechanical equivalents which may be reasonably included within its scope.

I claim as my invention:

A spraying device comprising an annular body

member, a stem movably axially therein, said annular body member having formed internally at one end thereof means for connecting therewithin the neck of a liquid containing pressure bulb having a puncturable diaphragm across the top thereof, a stop member within said annular body located inwardly of said connecting means, said stop member presenting an annular seat adapted to have positioned adjacent therewith the puncturable diaphragm of said pressure bulb, the inner end of said stem being pointed for puncturing said diaphragm, said stem carrying a gasket of finite thickness spaced from the inner pointed end of said stem, portions of the stem overlapping portions of the gasket on both sides of the gasket, whereby the gasket is fixed axially on the stem, said body member having a shoulder spaced axially from said stop member and between said stop member and said gasket and adapted to have said gasket seal thereagainst, said body member having a discharge orifice spaced axially from said stop member and spaced in the same direction axially beyond said

shoulder a distance at least as great as the thickness of said gasket, the spacing of said discharge orifice from said annular seat of the stop member being greater than the spacing of the innermost portion of the gasket from the inner pointed end of said stem, whereby said discharge orifice is covered by said gasket at the beginning of a puncturing operation of said diaphragm and thereby sealed off from communication with the bulb until subsequently uncovered by outward movement of said stem to permit the discharge of liquid from said bulb.

WILLIAM B. KOCHNER.

REFERENCES CITED

The following references are of record in the file of this patent:

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