May 10, 1938. W. H. ROSE 2,116,716

DUST GUN

Filed July 20, 1935 2 Sheets-Sheet 1

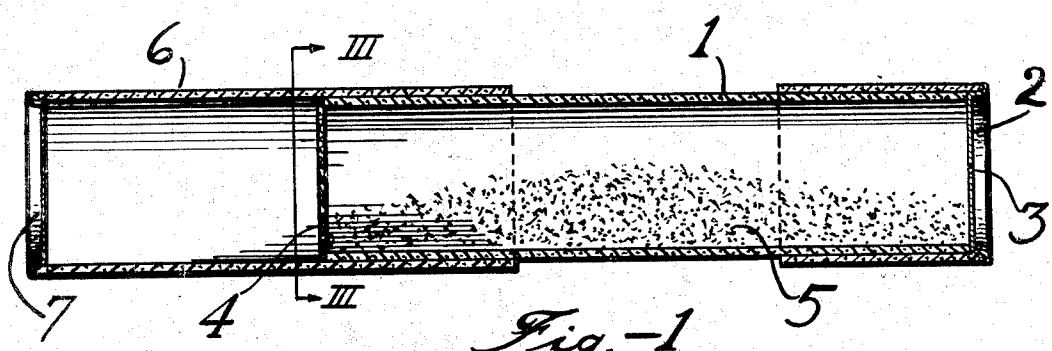

Fig.-1

Fig.-2

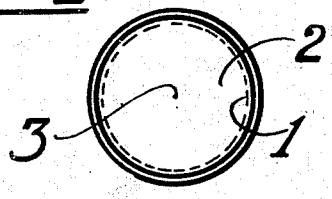

Fig.-3

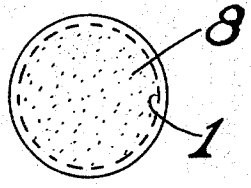

Fig.-4

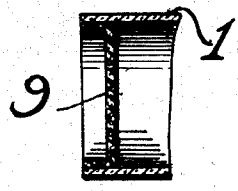

Fig.-6

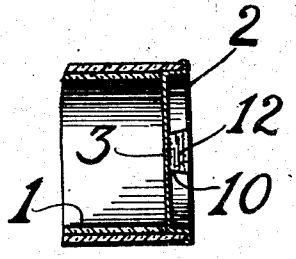

Fig.-7

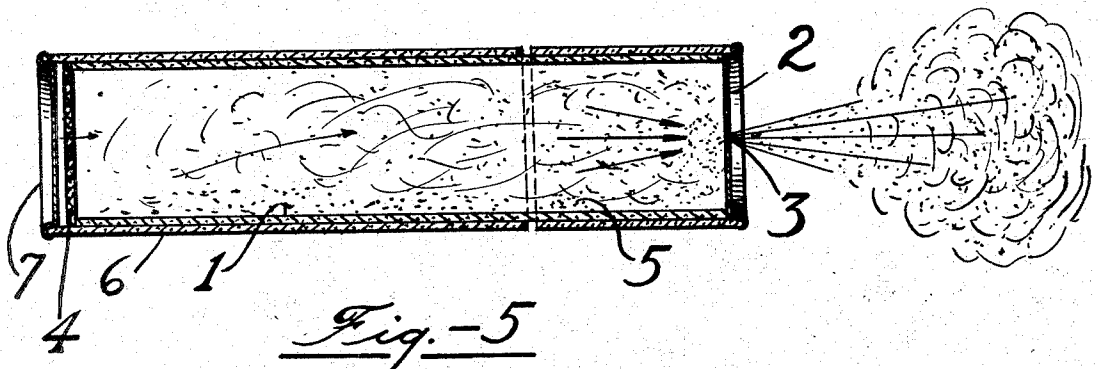

Fig.-5

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DUST GUN

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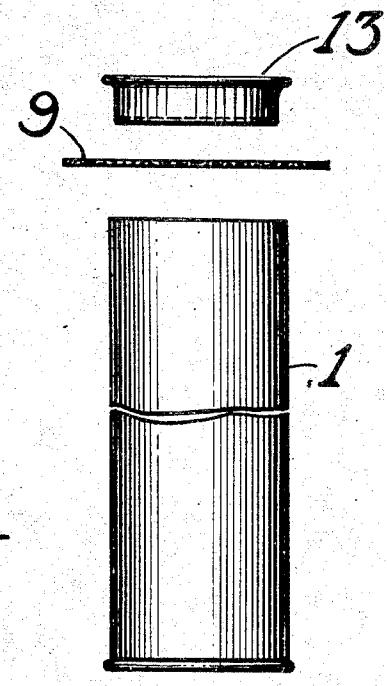

Fig.—9

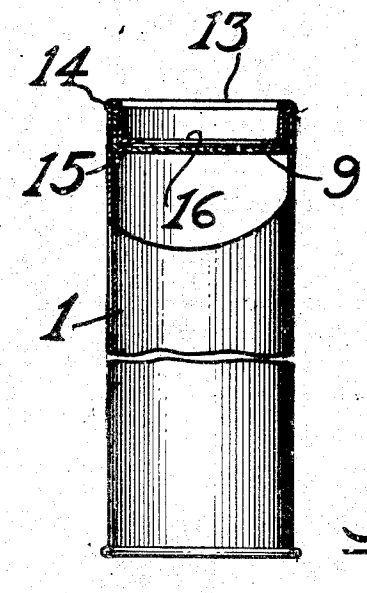

Fig.—10

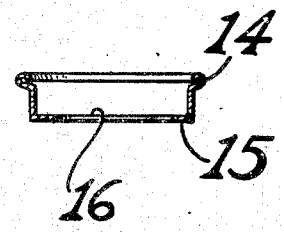

Fig.—8

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UNITED STATES PATENT OFFICE

2,116,716

DUST GUN

William H. Rose, Jersey City, N. J., assignor to Stanco Incorporated, a corporation of Delaware

Application July 20, 1935, Serial No. 32,341

3 Claims. (Cl. 43—147)

This invention relates to improvements in means for distributing powder in a diffused form. The invention is particularly intended for the dissemination of insecticidal powders or dusts but may be used for any other purpose where finely divided solid material is to be applied.

A principal object of the invention is to provide a simplified and efficient dust gun or duster which does not involve any valve means and in which there is only one moving part during operation. Preferably two telescoping sections are provided, one of which contains the powder and the other of which serves as a pump chamber for providing air under pressure.

Another object of the invention is to provide a device of the kind shown in my co-pending application, Serial No. 1,488, filed January 12, 1935, and in my co-pending application, Serial No. 2,994, filed January 23, 1935, of which this is a continuation in part, in which certain of the elements have been simplified.

A further object of the invention is to arrange for the distribution of the powder by direct discharge through an opening in the end of a powder cartridge, without the interposition of perforated tubes, baffles or the like. Air forced in a multitude of very fine streams through a material which is pervious to air but impervious to powder, is used to force the powder through the opening.

A further object of the invention is to provide a dust gun which can be made of small size, say about six inches long and one inch in diameter, at a minimum cost, for use in the home or in small gardens.

Other objects and advantages will be apparent as the description proceeds.

The invention will be fully understood from the following description, read in connection with the accompanying drawings, in which

Fig. 1 is a vertical section through a preferred form of dust gun;

Fig. 2 is a plan view of the left-hand end of the dust gun;

Fig. 3 is a section on line 3—3 showing a textile material closure;

Fig. 4 is a plan view of an alternative form of pervious closure;

Fig. 5 is a view similar to Fig. 1, showing the device in telescoped position;

Fig. 6 is a fragmentary sectional view, showing another way of securing the textile closure of Figs. 1 and 3;

Fig. 7 is a fragmentary sectional view of the discharge end of the gun, showing a modified form of closure;

Fig. 8 is a vertical section through a cap adapted to hold the textile closure in place;

Fig. 9 is a side elevation showing the cap, the felt disk and the powder container arranged for assembly; and

Fig. 10 is a vertical section showing these parts assembled.

Referring first to Figs. 1–3, reference numeral 1 indicates a casing preferably made of paper, strawboard, or the like. The outer end of this casing is closed by a thin metal disk 2 crimped at the margin so as to form an air-tight joint with the wall of the casing. A small perforation 3 is in the end of the closure 2. The other end of the casing 1 is closed by an air-pervious, dust-impervious material, preferably a textile material such as felt, designated 4. This is secured on the end of casing 1 by gluing the felt or the like around the end of the casing. The construction just described is referred to as a powder cartridge. It contains the insecticidal dust 5 or other powder.

A cylindrical member 6 is adapted to receive the inner end of casing 1. This cylinder is closed at the outer end by a thin sheet of metal 7 crimped over the edges as described above, or is otherwise suitably closed. The cartridge is of such diameter as to telescope with a reasonably tight fit into the cylinder 6. The engagement between these two parts should be sufficient to hold them together frictionally and to allow sufficient air pressure to build up when the two parts are moved inwardly with respect to each other.

An alternative form of closure for the inner end of the cartridge is shown in Fig. 4. This represents a thin disk 8 of a porous ceramic material or the like which will allow air to pass through in very numerous fine streams but is not sufficiently porous to let powder pass outward into the cylinder 6.

The textile material may be affixed to the end of the cartridge by forming the material into a cup-shaped member 9, the margins of which are secured to the casing wall, as shown in Fig. 6.

It is sometimes desirable to form a depression 10 in the closure 2 (Fig. 7). The depression can be filled or partly filled with a suitable plastic 12, such as wax, or rubber cement or the like, which can be readily broken or removed to expose the perforation 3.

In the modified form of the device shown in Figs. 8, 9, and 10, a cap 13 having a rounded flange 14 at the top and an inturned shoulder 15 at the bottom defining a central opening 16 is used to hold the fabric disk or the like in place.

As shown best in Fig. 9, this cap is of such a diameter as to fit rather snugly into the top of the powder container 1. When the felt disk is laid over the top of the container and the cap is pushed in, the felt is forced tightly against the inside of the container. This forms a convenient and rigid mounting for the felt. The openings through the cap are of sufficient size not to impede the flow of the air to any substantial extent.

It is generally desirable to glue the textile disk 4 or 9, or the ceramic disk 8, on the end of the cartridge, insert the cap 13 with its felt disk, or otherwise suitably close the cartridge before charging it with the powder. The filled cartridge can then be run through a capping machine, which affixes the metal disk 2. The perforation 3 may be made before the device is sold and covered with a slip of paper or other easily frangible means, to be broken by the purchaser when he is ready to use the sprayer. Alternatively the cover 2 may be only partly punched and directions supplied for the user completing the opening, or protected as described in connection with Fig. 7.

It is not intended to limit the invention to any particular materials. Strawboard and the like have been referred to as being cheap and practical. It should be moisture proofed by impregnation with wax, pitch, or the like for best results. Metal or other materials may be used for the cartridge or cylinder.

The dust gun described is operated by forcing the cartridge and cylinder inwardly with respect to each other. This compresses the air in the cylinder, forces it in a multitude of fine streams through the fabric or ceramic closure on the end of the cartridge and expels the dust through the discharge opening.

Various changes and alternative arrangements may be made within the scope of the appended claims in which it is my intention to claim all novelty inherent in the invention as broadly as the prior art permits.

I claim:

1. In a dust gun, in combination, a dusting material cartridge consisting of a casing; a closure for one end-portion of said casing having an opening therein; the other end-portion of said casing being open, and a disc of air-pervious material forming a closure for said open end-portion, said air-pervious material being non-pervious to the material within said cartridge during its employment in a powder gun and means adapted to force air through said air-pervious material and thence through said cartridge.

2. In a dust gun, in combination, a dusting material cartridge consisting of a casing; a closure for one end-portion of said casing having an opening therein; the other end-portion of said casing being open, and a felt air-pervious member forming a closure for said open end-portion, said air-pervious member being non-pervious to the material within said cartridge during its employment in a powder gun and means adapted to force air through said felt air-pervious member and thence through said cartridge.

3. In a dust gun, in combination, a dusting material cartridge consisting of a casing; a closure for one end-portion of said casing having an opening therein; the other end-portion of said casing being open, and a ceramic air-pervious closure for said open end-portion, said air-pervious closure being non-pervious to the material within said cartridge during its employment in a powder gun and means adapted to force air through said air-pervious closure and thence through said cartridge.

WILLIAM H. ROSE.