

May 17, 1938.

W. H. ROSE

2,117,362

DUST GUN CARTRIDGE WITH AIR DEFLECTOR

Filed Nov. 11, 1935

2 Sheets-Sheet 1

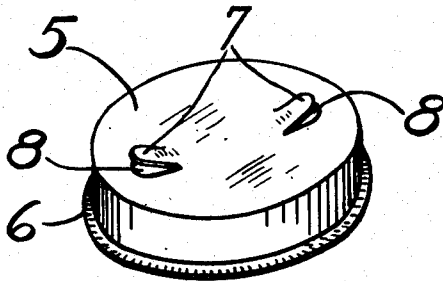


Fig.-4

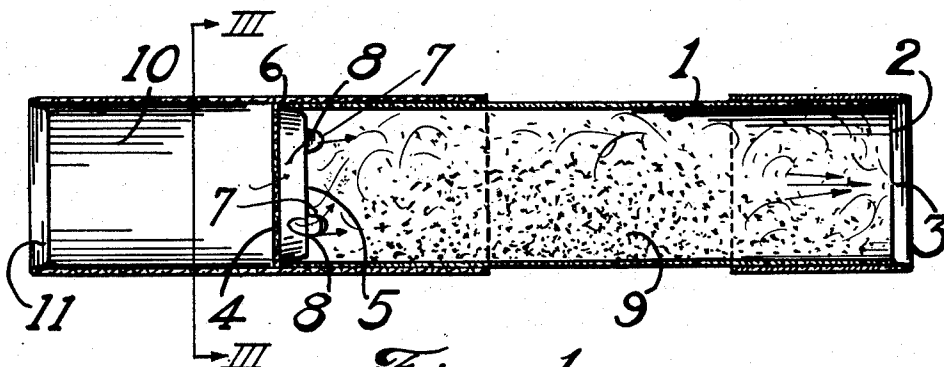


Fig.-1

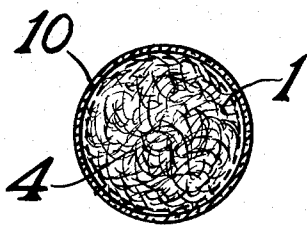


Fig.-3

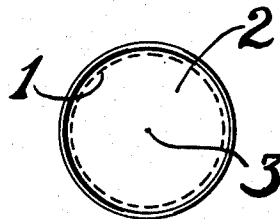


Fig.-2

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2 Sheets-Sheet 2

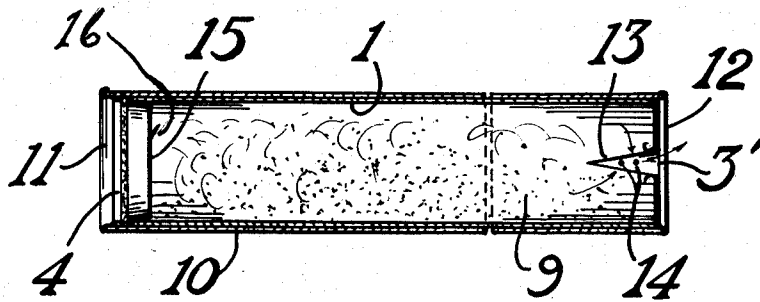


Fig. -5

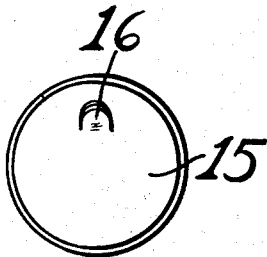


Fig. -6

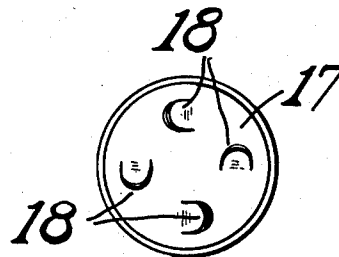


Fig. -7

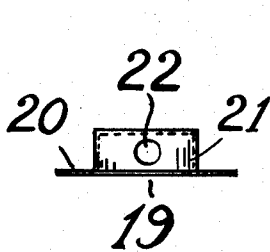


Fig. -9

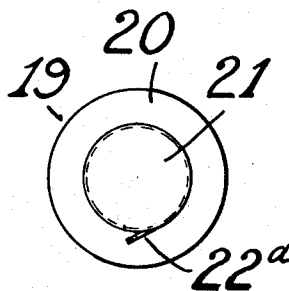


Fig. -8

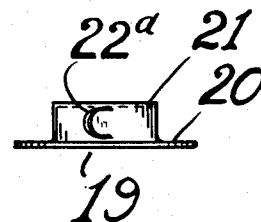


Fig. -10

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UNITED STATES PATENT OFFICE

2,117,362

DUST GUN CARTRIDGE WITH AIR
DEFLECTORWilliam H. Rose, Jersey City, N. J., assignor to
Stanco Inc.

Application November 11, 1935, Serial No. 49,184

10 Claims. (Cl. 43-147)

This invention relates to improvements in means for distributing air entering a powder cartridge of a dust gun for insecticides or other powder to be disseminated, especially devices of the type having the powder cartridge closed by felt or the like, which is pervious to air but substantially impervious to finely divided solids. Dust guns of this kind are described and claimed in my co-pending U. S. applications Serial Nos. 1428, filed Jan. 12, 1935, and 32,341, filed July 20, 1935.

The dust guns covered by those applications will operate satisfactorily but I have now found that better results are obtained especially with guns of rather large diameter when special means are provided for deflecting the air forced by the plunger of the gun through the pervious closure. Such means provide turbulence in the powder cartridge. They cause the air to pick up the powder, insuring a satisfactory discharge even when the amount of powder in the cartridge is small.

A particular object of the invention is to provide an efficient air deflector of convenient form, preferably a shallow cup of cardboard, sheet metal, or other suitable material secured beneath the felt disk and lying within the powder cartridge. Portions of the cup bottom are struck up to form air openings directed toward the walls of the powder cartridge.

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 right-hand end of the dust gun;

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

Fig. 4 is an enlarged perspective of the air deflecting member;

Fig. 5 is a view similar to Fig. 1, showing the device in telescoped position and provided with a perforating member;

Fig. 6 is a plan view of an alternative form of air deflector;

Fig. 7 is a similar view of another form;

Fig. 8 is a plan view of a deflector in the form of a turret-like member.

Fig. 9 is a side elevation of the device shown in Fig. 8; and

Fig. 10 is a side elevation of a similar construction in which the perforation for discharge

of air is formed by striking up a portion of the turret wall.

Referring first to Figs. 1-4, 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.

The air deflector is a cup-shaped member 5, having a marginal flange 6 adapted to rest against the end of the casing, and struck-up portions on its bottom. Openings 8 so provided cause the air to flow outward and to strike against the powder 9, agitating it and carrying it along to the discharge opening 3. Only two of the openings 8 are shown, arranged near the edge of the cup bottom, but it will be understood that additional openings may be made if desired. They may be of any suitable shape and the struck-up portions may be turned in any direction which will produce the desired agitation of the powder.

The air deflector and the felt are secured on the end of casing 1 by crimping the cup in position and then gluing the felt or the like around the margin, or in other suitable ways, as described in Serial No. 32,341 referred to above.

The air pressure cylinder 10 is adapted to receive the inner end of casing 1. This cylinder is closed at the outer end by a thin sheet of metal 11 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 10. 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.

In Fig. 5 the device illustrated is in general similar to that just described but there is provided a different type of cylinder closure 12. In this closure there is a conical member 13 secured to the bottom of the closure by soldering or the like and having perforations 14. The purpose of the conical member is to pierce the end of the cartridge when the device is to be put into use. It is assembled by removing the end of the cylinder, slipping the cartridge into place and forcing the end of the cylinder back in such manner as to pierce the end of the cartridge. The powder can then be expelled through the

openings 14 in the conical member and the opening 3' in the closure 12.

In Fig. 5 there is also shown a slightly different type of air deflector 15 which has only one struck-up portion 16. This is also shown in more detail in Fig. 6.

In Fig. 7 the deflector is in the form of a disk 17 having the series of struck-up portions 18 directed at right angles to each other as they proceed around the disk. Four of these openings are shown but more may be provided.

In Figs. 8, 9, and 10 the turret-like deflector 19 consists of a flange 20 and a cylinder 21. In the wall of the cylinder is an opening 22, which can be a simple perforation of the wall as shown in Fig. 9, or a partly open orifice 22a, as shown in Fig. 10.

It will be understood that these various forms of air deflectors are designed to direct the air in a whirling or similar manner and that various other configurations of the openings might be adopted.

The dust gun described is operated in the usual manner by telescoping the cartridge and cylinder. This compresses the air in the cylinder and forces it in a multitude of fine streams through the fabric closure on the end of the cartridge. The deflector 5 directs the air against the powder and it is expelled through the discharge opening 3.

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. A powder gun cartridge, comprising a closure pervious to air but substantially impervious to finely divided solid material, and an air deflector arranged beneath the closure.

2. A powder gun cartridge according to claim 1 in which the air deflector is in the form of a cup having air deflecting openings in its bottom.

3. Apparatus according to claim 1, in which the air deflector is in the form of a cup having a

single air deflecting opening defined by a struck-up portion directed toward the margin of the cup.

4. Apparatus according to claim 1, in which the air deflector is in the form of a cup having a series of openings defined by struck-up portions each arranged at an angle with respect to the adjacent opening.

5. Apparatus according to claim 1, in which the air deflector is in the form of a turret-like member having an opening in its wall.

6. A powder gun cartridge, comprising a cylinder having at one end a small powder discharge opening, at the other end a textile fabric closure pervious to air but substantially impervious to powder, and an air deflector in the form of a perforated cup having a marginal flange adapted to fit over the end of the cartridge.

7. Apparatus according to claim 6, in which the cup bottom has portions struck up to form partly open orifices and the struck-up portions are directed toward the wall of the cartridge so as to deflect the air in that direction.

8. An air deflector for a powder can, comprising a cup having struck-up portions in its bottom so arranged as to deflect air toward the margin of the cup.

9. In combination with a powder gun barrel, a powder dispensing cartridge comprising a casing adapted to contain powder, a closure forming one end of said casing and having an opening therein for the direct discharge of powder, means pervious to air under pressure but impervious to powder disposed at the other end of the casing, said casing being shaped for telescopic engagement with the powder gun barrel, and an air deflector arranged to direct the stream of air against the powder.

10. Apparatus according to claim 9, in which the deflector is in the form of a cup having a marginal flange received beneath the air-pervious means, and having struck-up portions in its bottom.

WILLIAM H. ROSE.