

W. H. ROSE.
 DRY SPRAYING MACHINE.
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1,300,654.

Patented Apr. 15, 1919.

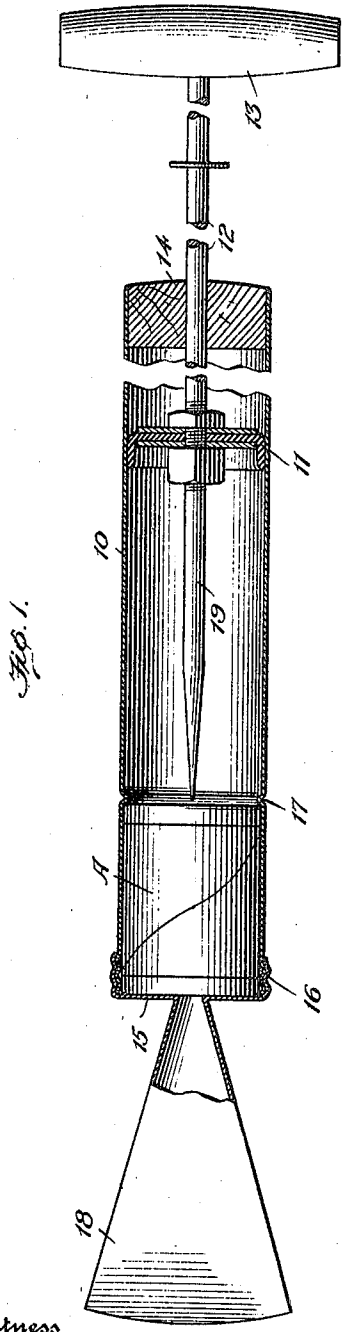


Fig. 1.

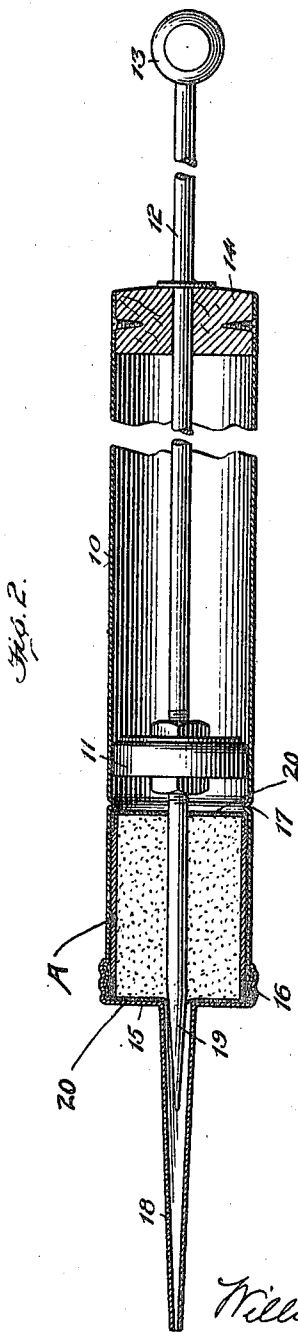


Fig. 2.

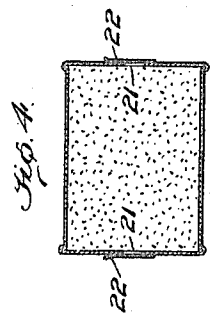


Fig. 4.

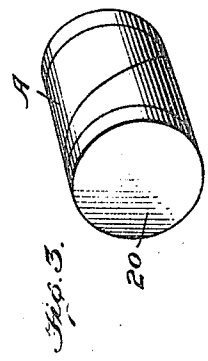


Fig. 3.

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DRY-SPRAYING MACHINE.

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To all whom it may concern:

Be it known that I, WILLIAM H. ROSE, a citizen of the United States, and residing at Jersey City, Hudson county, State of New Jersey, have invented certain new and useful Improvements in Dry-Spraying Machines, of which the following is a specification.

Spray material, such as Paris green, sulfur and arsenate of lead, have heretofore been applied to trees and plants in both liquid and dry condition. In using such materials dry they are usually pulverized to such a degree that they may be blown with air pressure through suitable nozzles and thus distributed over the plants or trees to be treated. The powdered material, or dust, is usually sold in bulk, or in packages, which must be opened and the blowers or "guns" for applying the material are provided with receptacles to receive the powder. Most of these spray materials are poisonous and are disagreeable, and also more or less dangerous to handle.

One of the objects of my invention is to provide a spray gun or blower adapted to receive a sealed package of the spray material and to perforate the package and discharge the contents after the package has been placed in the device. Another object is to provide a sealed package which may be suitably perforated and which may be placed in a compartment of the gun or blower before being opened and discharged therefrom without the necessity of handling it after its contents have been exposed.

One embodiment of my invention is illustrated in the accompanying drawing in which:—

Figure 1 is a longitudinal view partly in section showing an air pump or blower with a sealed package of spray material in its forward end;

Fig. 2 is a sectional view of the same illustrating the operation of the device for perforating the package to permit of the discharge of its contents;

Fig. 3 is a perspective view of one form of package adapted to the particular gun or blower illustrated; and

Fig. 4 is a sectional view of another form of package.

Referring to the drawings, 10 indicates a pump cylinder having a piston 11 of ordinary construction, a piston rod 12, a handle 13, and a head 14 in which the piston rod

is guided. These parts may be of any suitable construction and, as shown, are of the usual form employed in single barrel air pumps for inflating tires.

The forward end 15 of the pump is removable to permit of the insertion of a package A of spray material. As shown, the end 15 is in the form of a screw cap having threads 16 fitting corresponding threads on the forward end of the barrel. Any suitable stop, such as the rib 17 may be used to hold the package A in the forward end of the barrel. The cap or head 15 is provided with a suitable spray nozzle 18 which is preferably fan-shaped, as shown, the discharge opening being long and very narrow.

On the forward end of the piston 11 is a spike or piercing device 19, which may be a continuation of the piston rod 12, as shown. This spike is preferably pointed at its end and is adapted, when the piston is moved forward, to pierce both ends of the package A, as shown in Fig. 2. The package is preferably sealed so that it may be handled without touching or coming in contact with its contents, and its ends 20 are preferably of material which may be easily perforated. If metal or any tough material is used for the ends of the container, suitable openings therein may be formed in the manufacture of the package and sealed with paper or other material which may be easily perforated or removed. Thus in Fig. 4 there is shown a container B having openings 21 in its ends which are normally covered by detachable seals 22.

The operation of the invention is as follows: The package of pulverized spray material is placed in the position shown in the drawing by removing and replacing the cap 15. The piston is then moved forward to the position shown in Fig. 2, which perforates both ends of the package. When the piston is withdrawn a channel is left through the center of the package and when the piston is moved forward again air blows through this channel, carrying a portion of the dust or powder with it into the nozzle, from which it may be sprayed on plants or vines, or on other objects to be treated. The piston is then moved backward and forward in the usual manner and the air eddying through the package will continue to discharge the contents through the nozzle until the package is exhausted. It is impossible

for the opening through a package to clog as it is re-opened on every forward movement of the piston. It will be understood that a long-barreled pump is preferable and
 5 that the perforation of the package or the clearing of the channel in the package takes place only at the end of the forward movement of the pump piston. When a package is exhausted the cap 15 is removed and the
 10 empty case of the package may be shaken out of the pump without handling it. Another package may then be placed in the pump and the operations above described repeated.

15 The above described apparatus is a form of the invention which I have found to work satisfactorily, but it will be evident that my invention may be embodied in various other forms and that the following claims are not
 20 necessarily limited to the device illustrated and described. I believe myself to be the first to discharge dry spray materials from original packages thereof and the first to
 25 provide means for perforating packages and discharging the contents thereof, in a spraying device.

What I claim is:

1. In an apparatus for spraying powdered material, the combination with a
 30 closed package of such material, of means for holding the package, other means for opening the package at two points, and means for blowing air through said openings and through the package.

35 2. In an apparatus for spraying pulverized material, the combination of a package of such material, a holder for the package, a

nozzle communicating with said holder, means for perforating the package through
 40 opposite sides, one of the perforations being adjacent the nozzle, and means for blowing air through said package to discharge material from said nozzle.

3. In an apparatus for spraying powdered material, the combination with a package
 45 of such material, of a holder for such package, a nozzle connected with the holder, a reciprocating device for repeatedly piercing the package in line with the nozzle, and
 50 means for blowing air through said package whereby the contents are discharged through the nozzle.

4. In an apparatus for spraying pulverized material, a pump barrel having a nozzle
 55 on its forward end, a piston and piston rod operating in said barrel, and a spike extending longitudinally of the barrel and connected with the piston in front of the same, said spike being adapted to pierce a package
 60 of material at each reciprocation of the piston, for the purpose set forth.

5. In an apparatus for spraying powdered material, the combination with a pump
 65 barrel having a piston and piston rod therein, of a removable cap on the forward end of the barrel, a chamber in the forward end adapted to receive a package of spray material, a stop for limiting the inward movement of said package, and means for perforating
 70 the package whereby the spray material may be discharged.

In testimony whereof I affix my signature.

WILLIAM H. ROSE.