C. BROWN.

POWDER DISTRIBUTER.

APPLICATION FILED AUG. 22, 1919.

1,422,253.

Patented July 11, 1922.

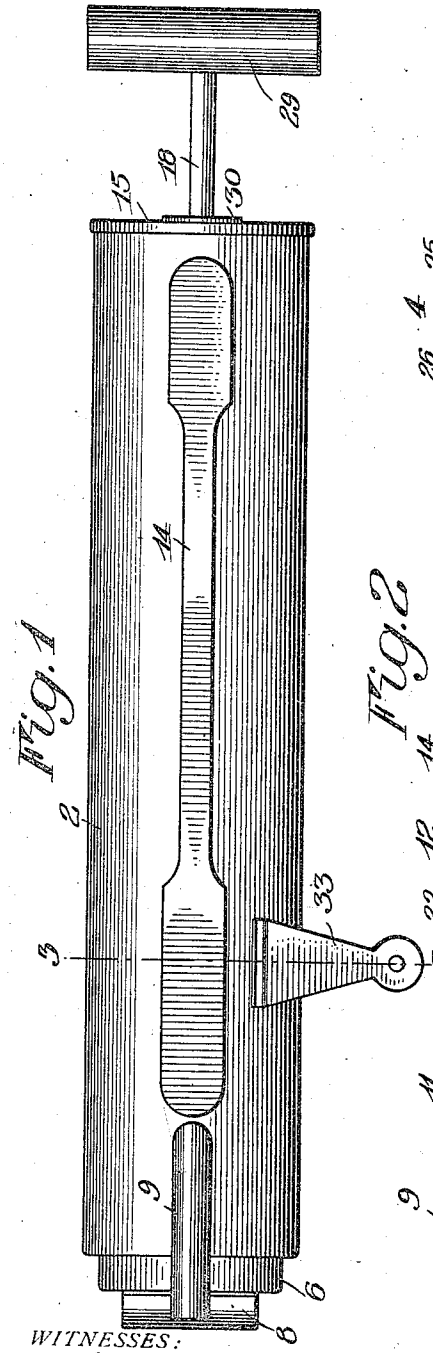


Fig. 1

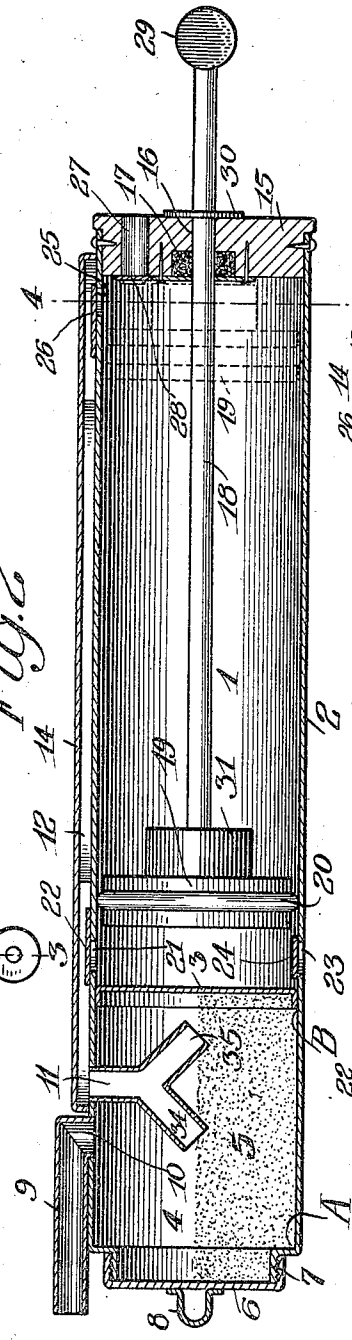


Fig. 2

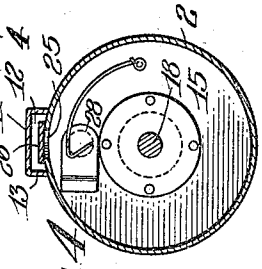


Fig. 4

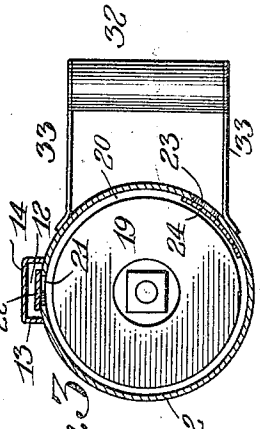


Fig. 3

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POWDER DISTRIBUTOR.

1,422,253. Specification of Letters Patent. Patented July 11, 1922.

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To all whom it may concern:

Be it known that I, COLIN BROWN, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Powder Distributors; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference numerals marked thereon.

My present invention relates to powder distributors and more particularly to hand operated devices of this nature such as are used for projecting powdered insecticides upon plants and it has for its object to provide a simple, cheap and convenient device of this nature embodying a powder holding means and an air compressing means which will project a substantially continuous stream of powder and will continue to operate effectively even when the supply of powdered material has run very low or shifts about in its chamber with the operator's changes in position. To these and other ends the invention resides in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a top view of a distributor constructed in accordance with and illustrating one embodiment of my invention;

Figure 2 is a longitudinal central vertical section therethrough;

Figure 3 is a section on the line 3—3 of Figure 1, and

Figure 4 is a section on the line 4—4 of Figure 2.

Similar reference numerals throughout the several views indicate the same parts.

In the practice of my invention, as shown in the present embodiment thereof, I provide an air compressing chamber or cylinder 1 in a tubular casing 2 provided interiorly with a partition 3 dividing the casing off into a powder chamber 4 in continuation of the chamber 1. The powder chamber 4 is filled with powder as indicated at 5, through the removal of a cap 6 threaded on a collar 7 at the end of the casing and provided with a finger-piece 8 for turning it. At the top an elbow pipe 9 communicates with the interior of the chamber 4 and projects forwardly to constitute the discharge nozzle of the device. At a point adjacent to the opening 10 into this nozzle is secured a nozzle 11 in the interior of the powder chamber. This nozzle is connected with an air conduit 12 comprising an elongated passage extending the length of the air chamber 1 and formed, in the present instance, by side pieces 13 and a top piece 14 secured against the exterior of the casing 2 a wall of which forms one wall of the conduit.

The opposite or rear end of the air chamber 1 is closed by a head 15 having a slide bearing 16 protected by a gland 17 to receive the rod 18 of a piston compressor 19 adapted to reciprocate in the cylinder and suitably packed at 20. On the forward side of the piston and near the forward end of the chamber 1 is a port 21 leading from the latter into the conduit 12 and sealed against back flow by a suitable flap valve 22, while a similarly situated port 23 covered by a similar valve 24 to prevent outflow from the chamber, communicates with the atmosphere. At the rear end of the chamber 1 on the other side of the piston, is a port 25 also leading into the conduit 12 and sealed against back flow by a flap valve 26. Another intake port 27 on the rear side of the piston, through which outflow is prevented by a flap valve 28, is located in the cylinder head 15. The piston, when reciprocated by a handle 29 on the rod 18, is prevented from covering the ports 21 and 23 and interfering with their valves by a stop 30 fixed to the rod 18 while its reverse movement is limited with respect to the ports 25 and 27 by a block 31 on the piston cooperating with the cylinder head 15, as shown in dotted lines in Figure 2. Incidentally, this block also serves to keep the gland 17 or the packing material therein compressed against the piston rod through its occasional impingements thereon.

In operation, the operator supports the device with his left hand by means of a handle 32 attached to one side of the casing 2 by brackets 33 and reciprocates the handle 29 with the other hand. On the out stroke of the piston from the position shown in the drawings, the air compressed in the chamber 1 escapes through the port 25 and valve 26 into conduit 12. Intake valve 28 automatically closes as does valve 22, while valve 24 opens under atmospheric pressure to fill the vacuum behind the piston. The com-

pressed air travels through passage 12 to the nozzle 11 from which it is discharged with sufficient velocity to agitate and hold in suspension the particles of the powder 5 which issue with the air from the relatively commodious nozzle 9 and are discharged against the plant or other surfaces being treated. The flow of air into the powder chamber is interrupted only for an instant at the reversing point of the piston 19 for on its inward or return stroke, intake valve 28 opens, valve 26 closes as does valve 24, and valve 22 opens the port 21 from the air chamber into the conduit 12.

The powder chamber 4, as before described, is cylindrical so that it comprises only two circular corner angles A and B and I prefer to form the nozzle 11 in the Y-shaped form shown and to dispose it in the plane of the axis of the chamber so that the two mouths of the nozzle 34 and 35 are directed, respectively, toward these angles A and B. This insures dislodgement and agitation of the powder contents no matter how small the body thereof may be and prevents the powder from caking in these corners, particularly when the distributor is held at an angle causing the powder to run to one end or the other.

The intake port 23 is the only one that is exposed in any serious degree against deposits of foreign matter from the exterior that might cause it to function improperly and I therefore utilize the handle and its brackets 33 to protect this port. As shown in the present embodiment, the lower bracket arm 33 is attached to the casing 2 in proximity to the port 23 and acts as a guard therefor.

I claim as my invention:

1. In a powder distributor, the combination with a casing embodying a powder chamber provided with a discharge nozzle and an air chamber provided with a valve controlled intake port opening exteriorly of the casing, a conduit connecting the two chambers and a compressor in the air chamber, of a handle on the side of the casing spanning the intake port and having a bracket portion adjacent the latter acting as a guard therefor.

2. In a powder distributor, the combination with a cylindrical powder chamber provided with a discharge nozzle, an air chamber, a compressor in the latter and a conduit connecting the two chambers, of a Y-shaped nozzle in the powder chamber connected with the conduit and disposed in the plane of the axis of the chamber to direct its discharge into the bottom corners thereof.

3. In a powder distributor, the combination with a powder chamber, of an air chamber, a discharge nozzle on the powder chamber, a compressor in the air chamber, a conduit joining the powder chamber with the air chamber, and a Y shaped nozzle within the powder chamber connected to the conduit and having two discharge orifices adapted to discharge concentrated jets of air against the lower portions of the opposite end walls.

4. In a powder distributor, the combination with a casing enclosing a powder chamber and an air chamber, of a discharge nozzle on the powder chamber, a piston in the air chamber, a conduit joining the powder chamber with the air chamber, a Y shaped nozzle within the powder chamber connected to the conduit and adapted to discharge jets of air against the lower portions of the opposite end walls, a valve on each side of the piston closing the ports between the air chamber and conduit, each of said valves being adapted to prevent back flow from the conduit into the air chamber, valve control intake ports for the air chamber also on each side of said piston, and a handle on the casing adjacent an end thereof and having a bracket portion acting as a guard for one of the intake ports.

COLIN BROWN.