

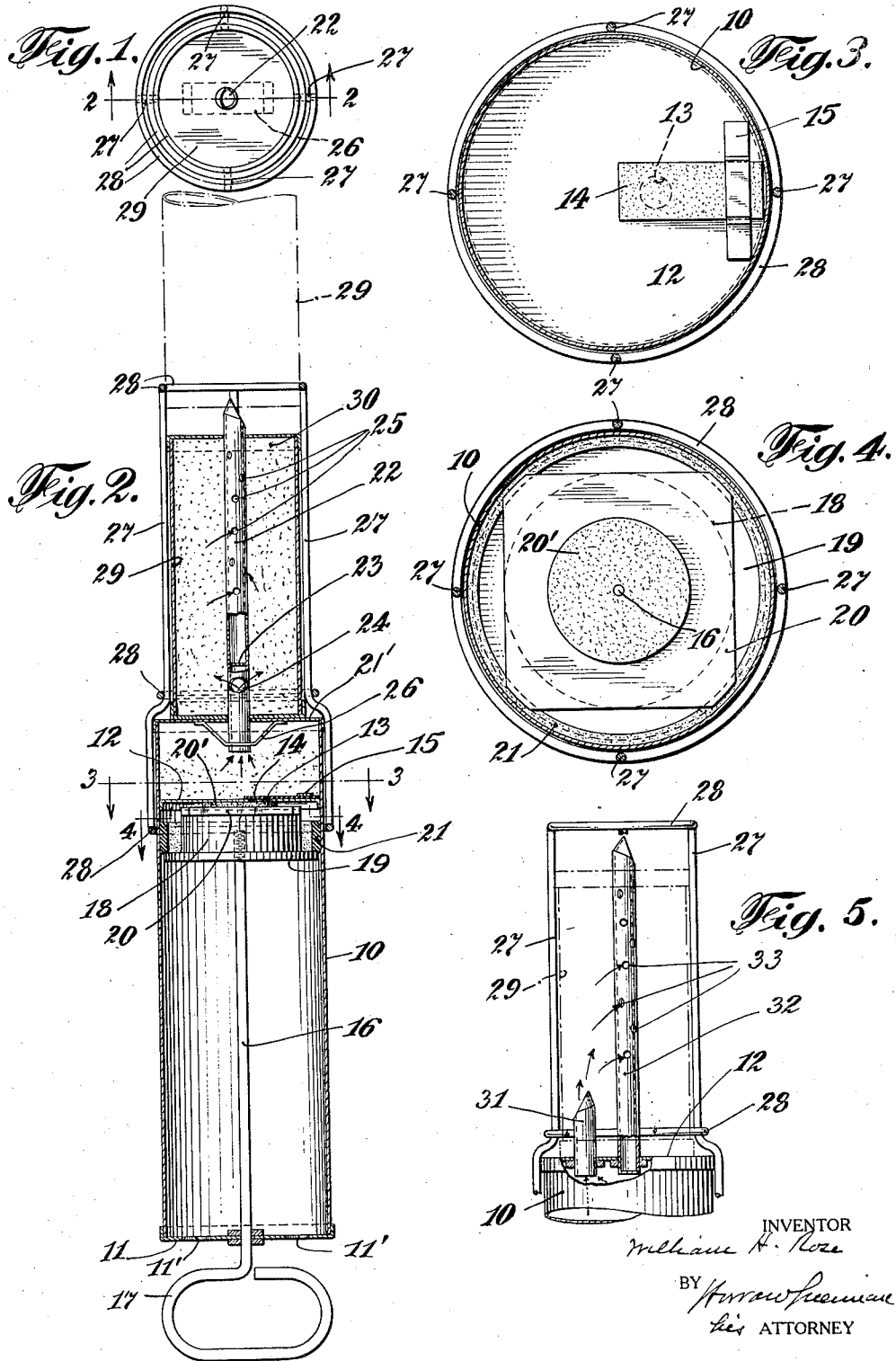
Feb. 24, 1925.

1,527,491

W. H. ROSE

POWDER SPRAYING DEVICE

Filed April 25, 1924



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UNITED STATES PATENT OFFICE.

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POWDER-SPRAYING DEVICE.

Application filed April 25, 1924. Serial No. 708,948.

To all whom it may concern:

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

The object of my device is a powder spraying or dusting device and refers particularly to devices of this character adapted to be used with powder containers.

Many powders, and especially insecticides and fungicides, are sold in cardboard packages or cartons and, as many of these powders are highly poisonous, the inconvenience, loss and danger incident to the transfer of the powders from their original packages to proper spraying mechanism is evident.

The object of my device overcomes all of these objectionable features in that the carton can be used as a portion of the spraying or dusting device and the powder contents thereof can be sprayed or dusted without transfer from the original package and without coming into contact with the operator.

My device is particularly noteworthy because of the simplicity of its operations, thus overcoming the necessity of lengthy directions for use, which are frequently misunderstood, resulting in the failure of the device to function properly.

In the operation of my device, all that is necessary is to impinge the unopened carton upon a projecting element of the device and reciprocate the pump.

The many advantages of the device of my invention will be evident upon a consideration of my specification and accompanying drawings.

In the accompanying drawings illustrating modifications of my device, similar parts are designated by similar numerals.

Figure 1 is a top plan view of one form of the device of my invention.

Figure 2 is a cross-section through the line 2—2 of Figure 1 with a powder container positioned for use.

Figure 3 is a cross-section through the line 3—3 of Figure 2.

Figure 4 is a cross-section through the line 4—4 of Figure 2.

Figure 5 is a side view of a portion of a modified form of my device, partly in section.

The particular form of the device of my invention, shown in the accompanying drawings, comprises a pump cylinder 10 having the head 11. Carried by the cylinder 10, and spaced from the other end thereof is the transverse partition 12 within which is an opening 13. A strip of heavy rubber 14 fastened to the partition 12 by the metallic binder strap 15 covers the opening 13.

Slidable through an opening within the head 11 and within the cylinder 10 is a piston rod 16, the outer end of which is turned into the handle 17.

The piston rod 16 carries a piston comprising a wooden spool 18 having the annular flange 19 and the rectangular flange 20, the edges of which are cut away. Between the flanges 18 and 20 is a rubber ring 21 capable of abutment against the inner face of the cylinder 10. Fixedly attached to the outer face of the piston flange 20 is a rubber bumper disk 20' to prevent the flange 20 from striking the partition 12. The action of this portion of the device is as follows:—

When the piston moves forwardly through the piston chamber formed by the wall 10, the head 11 and the partition 12, a portion of the air within the chamber passes through the open spaces of the flange 20 and behind the rubber washer, or ring, 21 forcing it outwardly against the face of the chamber forming a tight joint, the continued movement of the piston forcing the air through the opening 13, the pressure moving the rubber strip, or valve, 14 outwardly to allow of the escape of the air. When the piston is moved inwardly, the suction closes the valve 14 and air is admitted through the head openings 11', 11' between the flange 19 and the cylinder walls and between the rubber ring 21 and the cylinder walls and the spool 18 into the space between the piston and the partition 20.

The other extremity of the cylinder 10 carries the head 21'. Fixedly positioned through an opening within the head 21' is a discharge tube 22, having a transverse interior wall 23. Below the wall 23 is an open-

ing 24 and above the wall 23 are a plurality of openings 25, 25. The outer end of the tube 22 is pointed for purposes described later.

The brace 26 aids in maintaining the discharge tube in fixed position.

Rigidly carried by the upper portion of the cylinder 10 is a container guide comprising a plurality of upright rods 27, 27, 27 maintained in fixed position with respect to each other by the wire rings 28, 28, 28, the upper one of which is slightly above the extremity of the discharge pipe 22.

In order to place the device in position for operation, a closed imperforate container 29 carrying a powder 30, shown in dot-and-dash lines in Figure 2 is positioned within the upper ring 28, and pushed downwardly upon the discharge tube 22, the length of the tube being such that the extremity of tube 22 extends beyond the container. During this movement, the wires 27, 27, 27 act as guides for the perpendicular movement of the container. The device is then in the position shown in Figure 2.

An inward movement of the pump piston will force air through the opening 13 of the partition 12, thence inwardly and upwardly through the discharge tube 22, thence through the opening 24 into the powder chamber of the container 29. The air then passes inwardly through the openings 25, 25, 25 of the tube 22 and then outwardly through its open end. During this passage of the air, it carries with it and forces the powder 30 from the container 29, thus ejecting it in the form of a spray from the open end of the discharge tube 22.

In the modification of my device, as shown in Figure 5, the upper head 12 of the cylinder 10 carries a tube 31 passing therethrough and a perforated discharge tube 32 closed at the bottom also passing therethrough, the latter having a plurality of openings 33, 33.

In this form of my device, the air is forced from the piston chamber outwardly through the tube 31, thence inwardly into the tube 32 through the openings 33 and thence outwardly through the open end of the discharge pipe 32, during which passage it carries with it, or forces, the powder 30 of the container 29 outwardly through the open end of the tube 22 in the form of a spray.

It will be noted from the above that the only steps necessary in the operation of the device are to force the powder container upon the discharge pipe and reciprocate the pump.

A consideration of my specification and claims indicates its economy of construction, ease of operation and efficiency of results.

I do not limit myself to the size, shape, number, arrangement, or material of parts, as shown and described, as these are given

simply as a means for clearly defining my invention.

What I claim is:—

1. In a powder spraying device, in combination a pumping device, a perforated discharge pipe carried by the pumping device and capable of passing completely through a package of powder impinged thereon and means whereby the action of the pump will force air into the package of powder and outwardly through the discharge pipe carrying powder therewith.

2. In a powder spraying device, in combination a pumping device, a perforated discharge pipe carried by the pumping device and capable of passing completely through a package of powder impinged thereon, guiding means for the proper impinging of a container upon the discharge pipe and means whereby the action of the pump will force air into the package of powder and outwardly through the discharge pipe carrying powder therewith.

3. In a powder spraying device, in combination a pump chamber, a reciprocating piston within the pump chamber, an air chamber, means whereby the movement of the piston will force air into the air chamber, a perforated discharge pipe extending outwardly from the air chamber capable of passing completely through a powder carton, means for passing air into the carton and means for blowing the powder contents of the carton outwardly through the discharge pipe.

4. In a powder spraying device, in combination with a powder container, a pump chamber, a reciprocating piston within the pump chamber, an air chamber, means whereby the movement of the piston will force air into the air chamber, a perforated discharge pipe extending outwardly from the air chamber capable of passing completely through to the powder container and means whereby air forced from the air chamber into the discharge pipe will pass into the powder container impinged thereon, thence into the discharge pipe and then outwardly of the device.

5. In a powder spraying device, in combination a pumping device, a perforated discharge pipe carried by the pumping device and capable of passing completely through a package of powder impinged thereon and means whereby air forced into the discharge pipe through its interior end will blow through its exterior end the contents of a container impinged thereon through the exterior end of the discharge pipe.

6. In a powder spraying device, in combination a pumping device, a perforated discharge pipe carried by the pumping device and capable of passing completely through a package of powder impinged thereon, means whereby air forced into the discharge

pipe through its interior end will blow through its exterior end the contents of a container impinged thereon through the exterior end of the discharge pipe and guiding means for the proper impinging of a container upon the discharge pipe.

7. In a powder spraying device, in combination a pumping device capable of forcing air into a discharge pipe, a perforated discharge pipe carried by the pumping device and capable of passing completely through a carton impinged thereon and a transverse partition within the discharge pipe between perforations.

8. In a powder spraying device, in combination

a pumping device, a perforated discharge pipe fixedly attached to the pumping device and connected with the discharge chamber of said pumping device, the perforations being so positioned that they will be within a carton impinged upon the discharge pipe and means whereby the action of the pump will force air through the discharge pipe into the carton and thence outwardly through the extremity of the discharge pipe.

Signed at New York city, in the county of New York and State of New York, this 24th day of April, 1924.

WILLIAM H. ROSE.