H. S. SHOULDERS.

SPRAYER.

APPLICATION FILED DEC. 31, 1917.

1,278,768.

Patented Sept. 10, 1918.

2 SHEETS—SHEET 1.

FIG. 1.

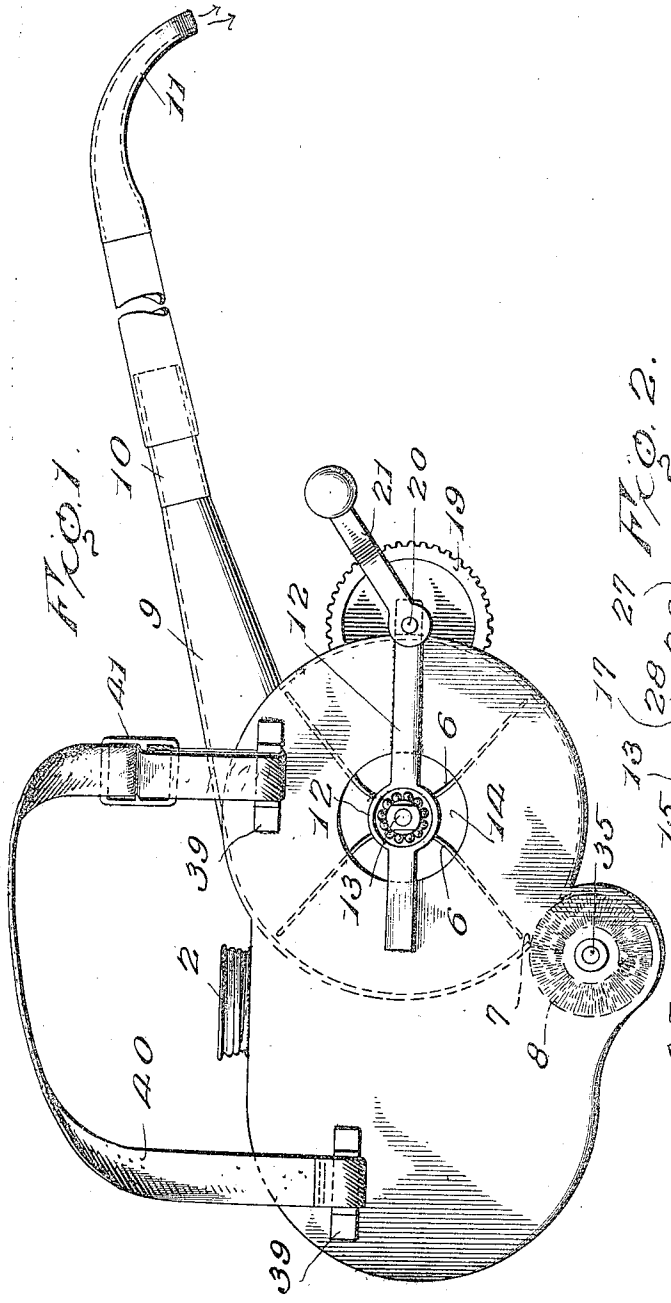
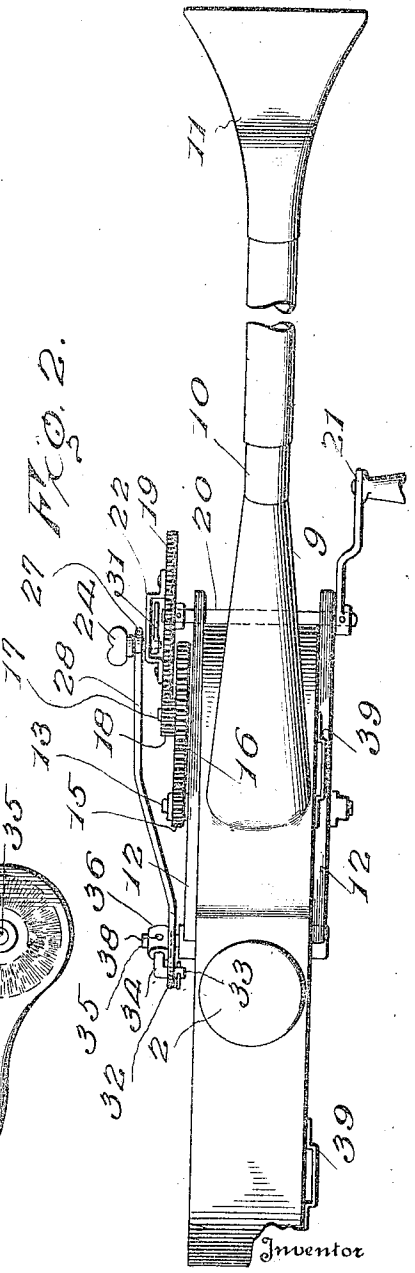


FIG. 2.



Inventor

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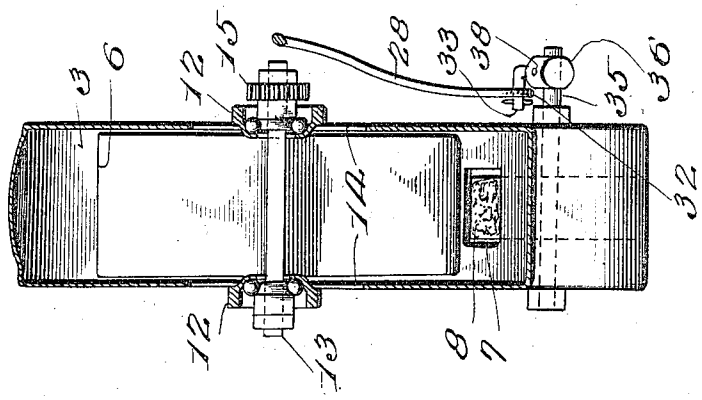
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2 SHEETS—SHEET 2.

FIG. 4.



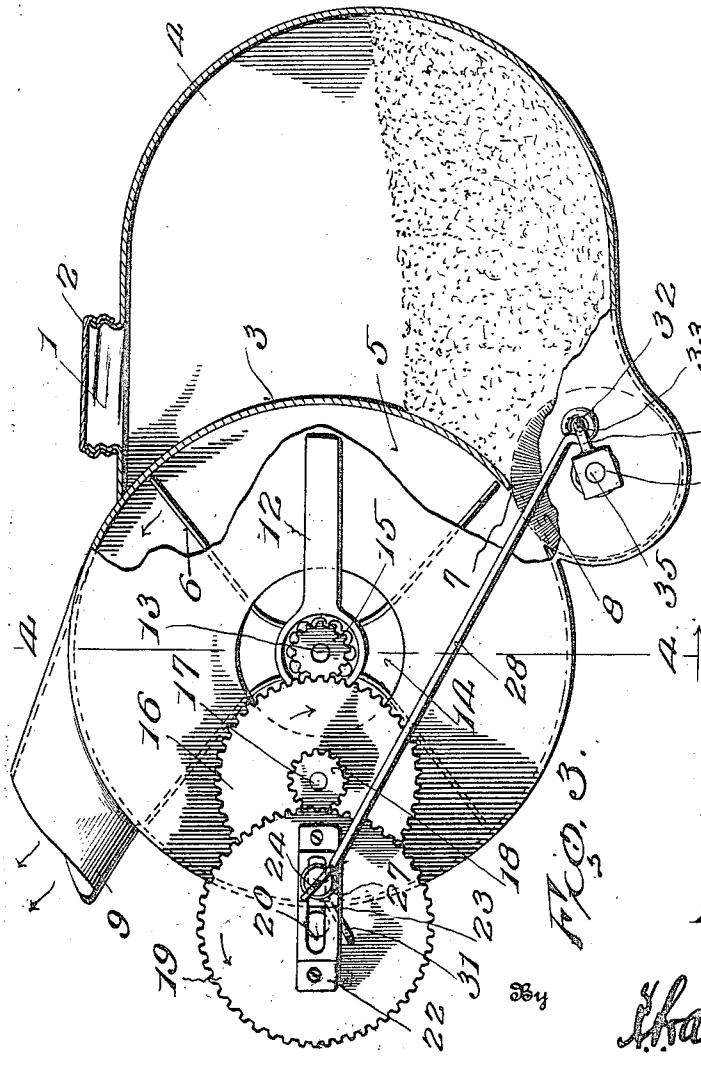


FIG. 3.

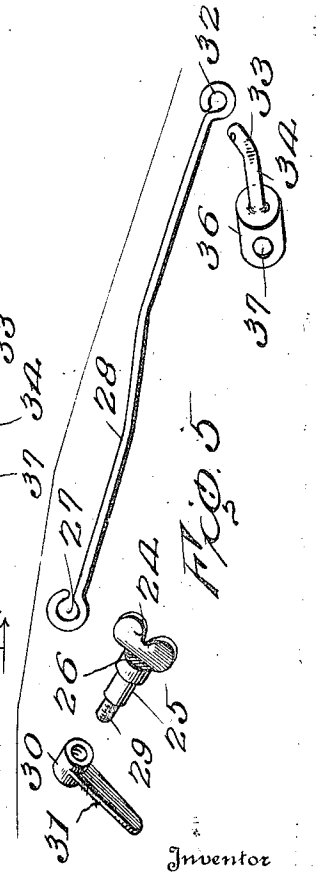


FIG. 5.

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UNITED STATES PATENT OFFICE.

HEDDY S. SHOULDERS, OF SPRINGFIELD, TENNESSEE.

SPRAYER.

1,278,768. Specification of Letters Patent. Patented Sept. 10, 1918.

Application filed December 31, 1917. Serial No. 209,655.

To all whom it may concern:

Be it known that I, HEDDY S. SHOULDERS, a citizen of the United States, residing at Springfield, in the county of Robertson and State of Tennessee, have invented certain new and useful Improvements in Sprayers, of which the following is a specification.

This invention relates to sprayers and has special reference to devices for spraying plants with a dry powder. One object of the invention is to provide a device in which the powder will be prevented from caking or solidifying and will also be prevented from settling upon the clothes or person of the user and a further object of the invention is to provide a light portable device which may be easily operated and by which the powder will be effectually distributed upon the infested plants.

The several stated objects of the invention and other objects which will incidentally appear are obtained in such a device as is illustrated in the accompanying drawings, in which

Figure 1 is a side elevation of a sprayer constructed in accordance with my invention;

Fig. 2 is a plan view of the same;

Fig. 3 is an enlarged view partly in side elevation and partly in longitudinal section;

Fig. 4 is a transverse section on the line 4—4 of Fig. 3;

Fig. 5 is a detail group perspective view of the devices used to connect the driving shaft with the agitator shaft.

In carrying out my invention, I employ a casing which is substantially elliptical in outline and is provided in its upper side with a filling opening 1 normally closed by a cap 2. The casing is divided by an interior partition 3 into a powder-containing chamber 4 and a fan chamber 5, the front end of the casing being semi-circular so that, with the partition 3, a circular chamber is provided in which the fan 6 may rotate. An opening 7 is provided in the partition 3 at the lower end thereof and an agitator 8 is disposed within the powder chamber 4 adjacent said opening so as to extend into the same and thereby prevent the powder clogging the passage from the powder chamber to the fan. A delivery spout 9 extends from the fan chamber and tapers so as to merge into a cylindrical extension 10 which is equipped at its outer free end with a nozzle 11 which is curved downwardly from the extension, as shown in Fig. 1, and is also contracted in its vertical dimension but expanded in its transverse dimension so that a long narrow outlet will be provided and the powder permitted to scatter in a manner which will obtain the best results and cover the greatest expanse of the plant surface.

Upon the sides of the fan casing I secure supporting arms or braces 12 in which the fan shaft 13 is journaled, said shaft extending through the fan casing in the sides of which inlet openings 14 are provided. The fan 6 consists of a plurality of radial blades which are secured to the fan shaft 13, as shown in Figs. 3 and 4, and are imperforate so that as they travel past the opening 7 they will create a strong suction and draw some of the powder into the fan casing and then drive it around into and through the discharge pipe and delivery nozzle. Upon one end of the fan shaft 13, I secure a pinion 15 which meshes with a gear 16 carried by a stub shaft 17 mounted upon the side of the fan casing. A pinion 18 is also carried by the stub shaft 17 and this pinion meshes with a gear wheel 19 which is secured upon the driving shaft 20. The said shaft 20 is journaled in bearings provided by the forward ends of the braces 12 and at the end opposite the gear wheel 19 is equipped with a crank or other handle 21, it being noted that the driving shaft is at the front and beyond the fan casing so that while the operating crank or handle is brought into the position most convenient to the operator it is not necessary to pierce the fan casing and thereby interfere with the successful operation of the fan.

Disposed radially against and secured to the outer face of the gear wheel 19 is a bracket 22 which is longitudinally slotted, as shown at 23, and receives a wrist pin which is illustrated as a thumb screw 24. This thumb screw is provided with an unthreaded portion 25 adapted to engage the walls of the slot 23 and also with a second unthreaded portion 26 which receives an eye 27 at the forward end of a pitman 28. The threaded extremity 29 of the thumb screw is engaged in a nut 30 which is disposed between the bracket 22 and the side of the gear wheel 19 so that when the screw is turned home it will be firmly secured at the desired point of the bracket but the con-

necting rod may have relative rotary movement. In order that the nut may be held against turning while the screw is being engaged therein, I provide the same with a handle or wing 31 which may be readily grasped by the finger of the user so that the nut will remain stationary until the desired adjustment has been effected. The rear end of the pitman 28 is provided with an eye 32 which is engaged over the end 33 of a hook or crank pin 34 which radiates from the agitator shaft 35. The pin is provided with an enlarged base 36 having a diametrical opening 37 to receive the end of the agitator shaft and a set screw or equivalent device 38 may be inserted radially in the said body 36 to bear upon the shaft 35 and thereby secure the pin or hook on the said shaft.

Upon the same side of the casing as the operating crank, I provide loops 39 in which the ends of a shoulder strap 40 may be secured and it will be readily understood that this strap is adapted to pass over the shoulder of the user so that his left arm will be free to steady the device and direct the discharge nozzle as may be desired while the operating crank or handle 21 may be easily manipulated by his right hand.

The use of the device is thought to be obvious. Powder, such as lime or other material, is placed in the compartment 4 through the filling opening and the cap 2 then placed in position. The operator then adjusts the strap 40 to his left shoulder and to facilitate the proper adjustment of the said strap a buckle 41 is provided therein. The operator then walks along the row of plants and as he progresses will turn the crank 21 which will set the device in motion and cause the fan to rotate at a high speed so that the powder will be drawn into the fan casing in small quantities and blown out through the delivery nozzle in a fine cloud. The agitator, which is preferably in the form of a circular brush of straw or other stiff fibers, will be oscillated simultaneously with the rotation of the fan and will consequently serve to keep the powder loose in the lower end of the compartment 4 and will prevent its clogging the opening between said compartment and the fan chamber. The extent of movement of the agitator may be readily adjusted to obtain the best results by shifting the thumb screw 24 along the slot 23 and securing it close to or farther from the driving shaft 20 as will be readily understood. The device is exceedingly simple in its construction and compact in the arrangement of its parts. It may be produced at a very low cost and will be found highly efficient in use for the purposes for which it is designed.

Having thus described the invention, what is claimed as new is:

In a device for the purpose set forth, the combination of a fan casing, a receptacle on the rear wall of the fan casing, a fan within the fan casing, an agitator within the receptacle extending into the fan casing, said agitator having a shaft provided with a crank exteriorly of the receptacle, means for rotating the fan including a driving gear mounted on the fan casing, a bracket secured on the outer face of said gear and having its body portion spaced from the gear and provided with a slot extending radially of the gear, a wrist pin extending through said slot and having an annular shoulder bearing against the outer face of said bracket, a securing nut fitted on the inner end of said pin and engaging the inner face of the bracket, and a pitman having one end fitted on said pin and its other end fitted on the crank of the agitator shaft.

In testimony whereof I affix my signature.

HEDDY S. SHOULDERS. [L. S.]