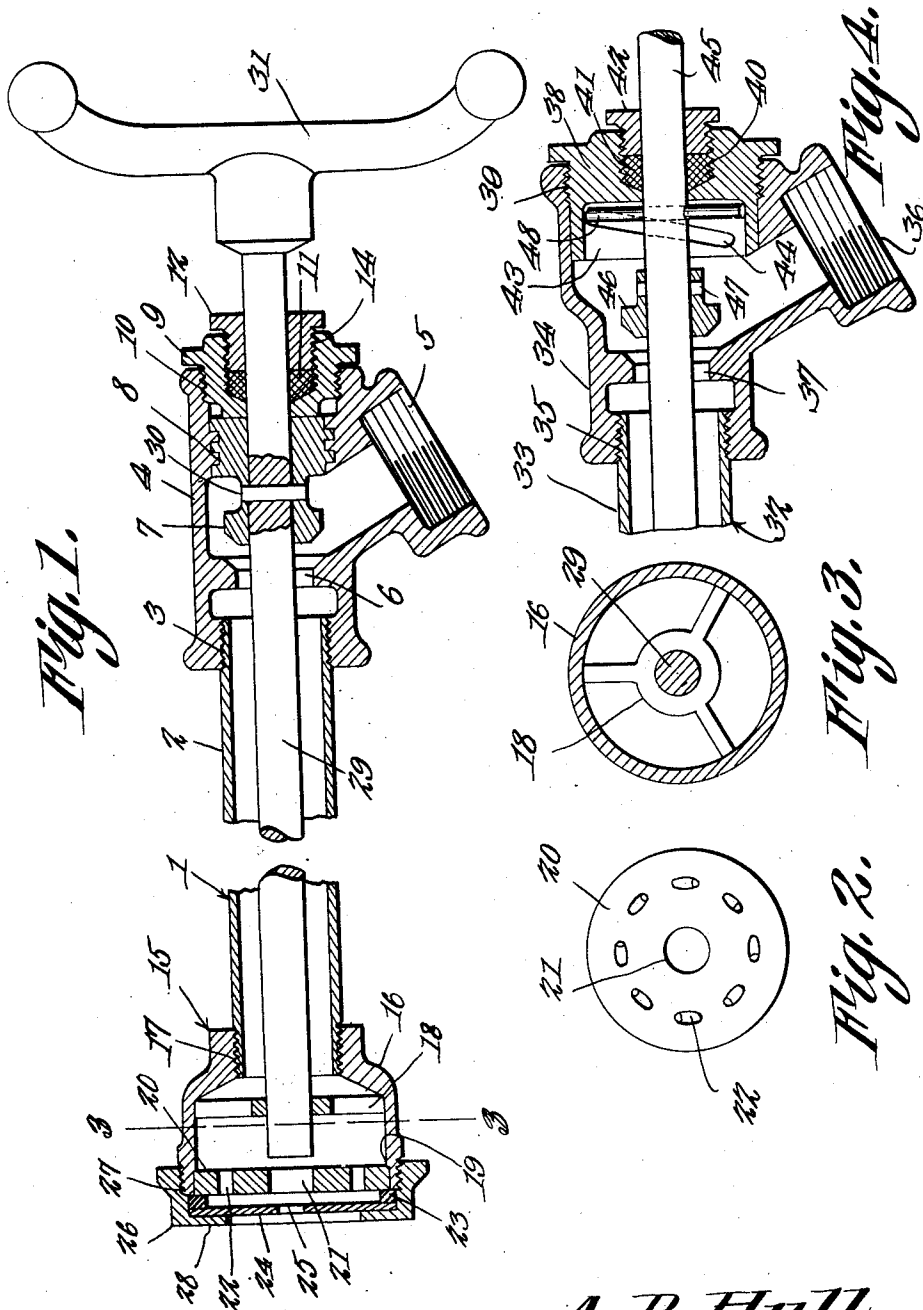


A. B. HULL.
 SPRAY GUN.
 APPLICATION FILED SEPT. 1, 1917.

1,343,780.

Patented June 15, 1920.



Witnesses

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UNITED STATES PATENT OFFICE.

ARTHUR B. HULL, OF GASPORT, NEW YORK.

SPRAY-GUN.

1,343,780.

Specification of Letters Patent. Patented June 15, 1920.

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To all whom it may concern:

Be it known that I, ARTHUR B. HULL, a citizen of the United States, residing at Gasport, in the county of Niagara and State of New York, have invented a new and useful Spray-Gun, of which the following is a specification.

The device forming the subject matter of this application is a nozzle, adapted to be employed for spraying, the structure being of peculiar utility in connection with the spraying of fruit trees, although the device is of general application.

The structure hereinafter described is of that general type which embodies a head having spaced outer and inner disks, the outer disk and the inner disk being provided with alined openings, and there being ports about the opening in the inner disk. The liquid, passing through the opening and the ports in the inner disk moves through the opening in the outer disk, a whirling motion being imparted to the liquid, between the disks, and a spray being produced. The character of the spray is regulated by the amount of liquid which proceeds through the opening in the inner disk.

The invention aims to provide novel means whereby, through the movement of a single plunger, the amount of liquid discharged through the opening in the inner disk may be regulated, and whereby, at the same time, the amount of liquid delivered into the barrel of the structure, at the rear of the inner disk, may be controlled.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 shows in longitudinal section, a spray gun constructed in accordance with the present invention, parts being broken away;

Fig. 2 is an elevation of the inner disk;

Fig. 3 is a cross section on the line 3—3 of Fig. 1;

Fig. 4 is a fragmental longitudinal section, showing a slight modification in the invention, parts appearing in elevation.

In carrying out the invention as disclosed in Figs. 1, 2 and 3, there is provided a barrel 1 which is a composite structure. The barrel 1 comprises a tube 2 and a casing 4 threaded at 3 on the rear end of the tube, the casing having a lateral inlet 5. A seat 6 is located in the casing 4 in advance of the inlet 5. The numeral 7 marks a valve adapted to cooperate with the seat 6. The valve 7 is operatively connected with the casing 4 by means of coarse threads 8. A cap 9 is threaded at 10 into the rear end of the casing 4 and constitutes an abutment for the valve 7. Disposed within the cap 9 is a washer 11 compressed by a screw plug 12 threaded at 14 in the rear end of the cap 9.

The device includes a head, denoted generally by the numeral 15. The head 15, like the barrel 1, is a composite structure and includes a cup 16 which may be threaded at 17 onto the forward end of the tube 2 which constitutes a part of the barrel 1. The cup 16 includes a spider 18. In the forward end of the cup 16 there is fashioned an internal shoulder 19 against which abuts a removable inner disk 20 having a central opening 21 and provided, about the opening, with discharge ports 22, which preferably are inclined circumferentially of the structure. A washer 23 abuts against the outer face of the inner disk 20. An outer disk 24 abuts against the outer face of the washer 23 and is provided with a central aperture 25. The aperture 25 in the outer disk 24 is arranged coaxially with respect to the opening 21 in the inner disk 20, but preferably is somewhat smaller in diameter than the opening 21. At 26 there appears a retainer which may be threaded at 27 upon the cup 16. The retainer 26 includes a flange 28 which engages the outer disk 24, the outer disk, the washer 23 and the inner disk 20 being held in place by the retainer.

Disposed within the barrel 1 and the head 15 above defined is a stem 29 connected by means of a pin 30, or in any other suitable way, with the valve 7, the construction being such that when the stem is rotated, the valve will be rotated also. Mounted on the rear end of the stem 29 and accessible from

the exterior of the barrel 1 is a handle 31. The stem 29 is mounted at its forward end in the spider 18, for rotation and for longitudinal movement. The forward extremity of the stem 29 is adapted to enter the opening 21 in the inner disk 20, to serve as a closure therefor.

In practical operation, the liquid discharged into the tube 2 by way of the inlet 5 passes through the opening 21 in the inner disk 20 and through the discharge ports 22 in the inner disk. The discharge ports 22 give the liquid a whirling motion in the space between the inner disk 20 and the outer disk 24, the liquid ultimately passing through the aperture 25 in the outer disk. The character of the discharge through the aperture 25 in the outer disk 24 is regulated by the amount of liquid which is permitted to pass through the opening 21 in the inner disk 20. If but a small amount of liquid passes through the opening 21, or if no liquid at all passes through, then the discharge through the aperture 25 is in the form of a fine spray. If, however, the discharge through the opening 21 is increased, the spray becomes coarser and approaches in character, a compact stream.

When the stem 29 is rotated by means of the handle 31, the threads 8 impart a longitudinal movement to the valve 7 and consequently to the stem 29, the forward end of the stem 29 being moved toward and away from the opening 21 in the inner disk 20, the forward end of the stem being adapted to enter the opening 21 to cut off completely, the discharge through the said opening. In this way, the nature of the spray emitted through the aperture 25, and the range, may be regulated.

It will be obvious that when the stem 29 is advanced and retracted as above described, the valve 7 will be moved toward and away from the seat 6, and in this way, the amount of liquid delivered into the tube 2 from the inlet 5 will be regulated, simultaneously with the regulation of the amount of liquid discharged through the opening 21 in the inner disk 20. This operation facilitates greatly, the regulation of the spray.

In Fig. 4 of the drawings, a modified

form of the invention has been shown. In Fig. 4, the numeral 32 marks generally, a part of the barrel, the barrel including a tube 33 and a casing 34 threaded or secured otherwise with the tube. The casing 34 is provided with a lateral inlet 36 and an internal seat 37. A closure 38 is threaded into the rear end of the casing 34, as shown at 39. The closure 38 has a recess 40 in which is disposed a washer 41. A plug 42 is threaded into the closure 38 and serves as a means for compressing the washer 41. The closure 38 includes a flange 43 through which extends, laterally, a cam slot 44. The stem appears at 45 and carries a valve 46 co-operating with the seat 37. The valve 46 may be secured to the stem 45 by means of a pin 47. A removable cross pin 48 is inserted through the stem 45 and coacts at one end with the cam slot 44.

The device delineated in Fig. 4 contemplates merely a modification in the interengaging elements on the stem 45 and the barrel 32 whereby the stem will be advanced when the same is rotated.

Having thus described the invention, what is claimed is:—

A spray gun comprising a barrel provided with an inlet; a head on the barrel and including an outer disk having an aperture, and an inner disk having an opening alined with the aperture, the inner disk being supplied with discharge ports located about the opening; a seat in the barrel in advance of the inlet; a stem accessible from the exterior of the barrel and movable longitudinally in the barrel, the forward end of the stem constituting a closure for the opening; a valve on the stem and coacting with the seat, the barrel and the valve being provided with interengaging elements which coöperate to impart a longitudinal movement to the stem when the stem is rotated; and means for securing the valve to the stem.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ARTHUR B. HULL.

Witnesses:

MASON B. LAWTON,
IVY E. SIMPSON.