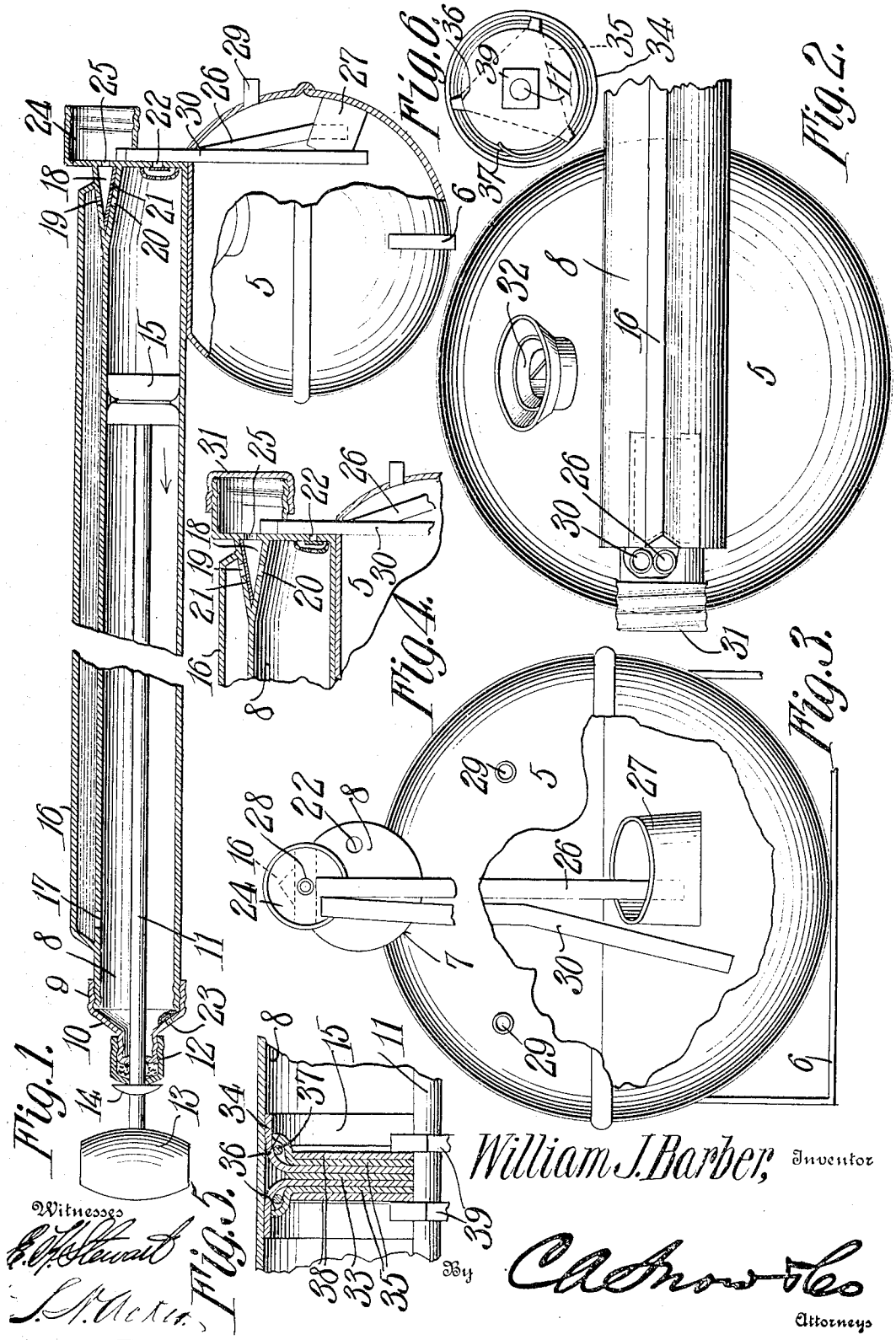
No. 892,703. PATENTED JULY 7, 1908.

W. J. BARBER.

COMBINED ATOMIZER AND POWDER DISTRIBUTER.

APPLICATION FILED SEPT. 30, 1907.



Witnesses

William J. Barber, Inventor

By

Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM JAY BARBER, OF HONEOYE FALLS, NEW YORK.

COMBINED ATOMIZER AND POWDER-DISTRIBUTER.

No. 892,703. Specification of Letters Patent. Patented July 7, 1908.

Application filed September 30, 1907. Serial No. 395,271.

To all whom it may concern:

Be it known that I, WILLIAM JAY BARBER, a citizen of the United States, residing at Honeoye Falls, in the county of Monroe and State of New York, have invented a new and useful Combined Atomizer and Powder-Distributer, of which the following is a specification.

This invention relates to a combined atomizer and powder distributer for applying liquid or powdered insecticides upon trees and other vegetation.

The object of the invention is to provide a tank or receptacle having a pump operatively connected therewith and provided with independent atomizing and powder distributing nozzles, said nozzles being operatively connected with the receptacle and adapted to discharge the contents thereof when the pump is actuated.

A further object of the invention is to provide a terminal hood or chamber having spaced depending tubes communicating therewith and extending within the tank or receptacle, said hood being provided with a removable cap or closure for controlling the flow of air to the receptacle.

A further object is to provide the tank or receptacle with an interior cup or pocket for the reception of the liquid insecticide so that the lower end of the atomizing tube may be submerged in the liquid regardless of the position of the tank or receptacle.

A still further object of the invention is to generally improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a side elevation partly in section of a combined atomizer and powder distributer constructed in accordance with my invention. Fig. 2 is a top plan view of a portion of the same. Fig. 3 is a front elevation partly in section. Fig. 4 is a detail longitudinal sectional view showing the device used as a powder distributer. Fig. 5 is an enlarged detail sectional view of a portion of the pump piston. Fig. 6 is a face view of the piston.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved device forming the subject matter of the present invention includes a tank or receptacle 5 preferably circular in contour and formed in sections the adjacent edges of which are over-lapped and soldered or otherwise united, there being a flat bar 6 extending transversely across the bottom of the receptacle to form a support for the same, as shown.

The upper section of the tank or receptacle is formed with a semi-circular seating recess 7 for the reception of a pump cylinder 8, the latter being soldered or otherwise rigidly secured to the receptacle and having its exterior walls threaded at 9 for engagement with a correspondingly threaded cap 10.

Mounted for reciprocation within the pump cylinder 8 is a piston rod 11 which extends through the gland or bushing 12 of the cap 10 and is provided with a terminal operating handle 13 having an annular stop collar or shoulder 14 for limiting the longitudinal movement of the piston 15.

Engaging the exterior walls of the pump cylinder 8 is a longitudinally disposed air tube 16 preferably triangular in cross section, as shown, and having one end thereof communicating with the interior of the cylinder through an aperture 17 with the opposite end thereof communicating with a valve chamber 18 by means of a similar aperture 19, there being an aperture 20 formed in the opposite wall of the valve chamber 18, as shown.

Arranged within the valve chamber 18 is a flap valve 21 adapted to alternately close the apertures 19 and 20 when the piston 15 is reciprocated.

Arranged at the forward end of the pump cylinder is an intake valve 22 through which air enters when the piston is retracted, there being a similar valve 23 formed in the threaded cap 10 through which air is admitted into the cylinder when the piston 15 is moved in the direction of the tank or receptacle.

Secured in any suitable manner to the front end or wall of the pump cylinder 8 is a substantially cylindrical hood 24 having an opening or aperture 25 formed in the rear wall thereof and communicating with the interior of the valve chamber 18, as shown.

Disposed within the chamber of the hood 24 is a depending atomizer tube 26 the upper end of which is disposed in horizontal alinement with the aperture 25 while the lower

end thereof extends within a cup or pocket 27 secured in any suitable manner to the interior walls of the lower section of the tank or receptacle.

By arranging the cup 27 within the tank or receptacle the lower end of the atomizing tube will be submerged in the liquid regardless of the angle or inclination of the tank, it being here noted that the mouth of the cup is contracted while the bottom thereof is inclined towards the adjacent wall of the lower tank section.

Extending laterally from the upper section of the tank or receptacle are spaced nozzles 29 which communicate with the interior of the tank and through which the insecticide is discharged when the device is used as a powder distributer.

Extending through the lower wall of the hood 24 and preferably projecting a short distance above said wall is an air tube 30 the lower end of which communicates with the interior of the tank or receptacle so that when the device is used for distributing powder the air from the chamber of the hood will be forced downwardly in the tank and thus discharge the powder in the receptacle laterally through the nozzles 29.

The exterior walls of the hood 24 are threaded for engagement with the correspondingly threaded cap 31 which forms a closure for the open end of the hood and thus serves to direct the air downwardly through the tube 30 into the tank or receptacle when the cap is in position on said nozzle.

The upper section of the tank is provided with a filling orifice through which the liquid or powdered insecticide is introduced into said receptacle, said filling orifice being normally closed by a stopper or other similar closure 32.

The piston head 15 consists of a central disk 33 having washers 34 bearing against the opposite faces thereof with their peripheral edges flared laterally for engagement with the interior walls of the pump cylinder, there being substantially triangular plates 35 bearing against the washers and provided with terminal laterally extending hooks 36 for engagement with an expansible ring or band 37. The rings or band 37 bear against and yieldably support the flared edges of the flexible washers in engagement with the walls of the pump cylinder and thus serve to prevent leakage.

Suitable disks or plates 38 bear against the plates 35 and are retained in engagement therewith by clamping nuts 39 threaded on the adjacent end of the piston rod 11, as shown.

When the device is used for atomizing purposes the liquid insecticide is introduced into the receptacle through the filling orifice and the cap or closure 31 removed from the hood 24 after which the piston 15 is reciprocated within the pump cylinder by manipulating the handle 13.

As the piston 15 is moved in the direction indicated by the arrow in Fig. 1 of the drawings the air will be admitted in front of the piston through the valve 22 while the air at the rear of the piston will pass through the aperture 17 into the longitudinal tubes 16 and thence through the aperture 19 into the valve chamber 18, thus moving the valve 21 to close the apertures 20 and forcing the air through the aperture 25 into the chamber of the hood 24. As the air passes over the free end of the atomizing tube 26 the liquid in the compartment 27 will be drawn or sucked upwardly through the atomizing tube and thus be delivered upon the plants or other vegetation in a finely atomized condition. On the return stroke of the piston 15 air will be admitted to the rear of the piston through the valve 22 while the air at the front of the piston will be forced through the aperture 20 into the valve chamber 18 and thence through the aperture 25 to the atomizer nozzles thereby rendering the device continuous in operation.

When the pump is used for distributing powder or other finely divided material the liquid is removed from the tank and the latter thoroughly dried after which the powdered insecticide is introduced in the filling orifice and the cap or closure 31 placed in position on the hood 24 so as to form a closure for the front end of the hood, as best shown in Fig. 4 of the drawing.

When the parts are thus assembled and the pump is operated the air entering the chamber of the hood through the valve chamber 18 will come in contact with the closure 31 and thence be directed downwardly through the tube 30 into the interior of the tank or receptacle thus discharging the powder through the nozzles 29, as will be readily understood.

Attention is here called to the fact that when the device is used for atomizing purposes and the liquid in the cup 27 is partially or totally consumed the cup may be again refilled by merely tilting the tank which causes the liquid in the latter to flow into the cup 27, the operation being continued until all of the liquid in the tank has been consumed.

From the foregoing description it is thought that the construction and operation of the device will be readily understood by those skilled in the art and further description thereof is deemed unnecessary.

Having thus described the invention what is claimed is:

1. A device of the class described including a receptacle provided with a discharge nozzle, a pump, a chamber operatively connected with the pump, an atomizer tube forming a source of communication between the chamber and receptacle, respectively, and

means for directing the air from the chamber into the receptacle.

2. A device of the class described including a receptacle provided with a discharge nozzle, a pump, a chamber operatively connected with the pump, and an atomizer tube forming a source of communication between the chamber and interior of the receptacle, and a closure for one end of the chamber for directing the air from said chamber into the receptacle.

3. A device of the class described including a receptacle provided with a discharge nozzle, a pump, a hood secured to one end of the pump and provided with an air chamber, an atomizer tube forming a source of communication between the chamber and interior of the receptacle, respectively, an air tube, and a removable cap engaging the hood for directing the air from the chamber through the air tube into the receptacle.

4. A device of the class described including a receptacle provided with a discharge nozzle, a pump, a hood operatively connected with the pump and provided with an interior chamber, a cup disposed within the receptacle and adapted to receive a liquid insecticide, an atomizer tube one end of which communicates with the chamber of the hood, the opposite end thereof being extended within the cup, an air tube, and a cap forming a closure for one end of the hood for directing the air from the chamber downwardly through the air tube into the receptacle.

5. A device of the class described including a receptacle having an interior compartment and provided with a discharge nozzle, a liquid receiving cup disposed within the compartment, a pump, a hood operatively connected with the pump and provided with a chamber, and an atomizer tube one end of which is extended within the hood and the opposite end thereof disposed within the liquid receiving cup and a closure engaging the hood for directing the air from said chamber downwardly into the compartment.

6. A device of the class described including a tank having an interior compartment, a liquid receiving cup disposed within the compartment, a pump, a valve chamber having one wall thereof formed with an aperture, a longitudinally disposed tube communicating with the pump cylinder and valve chamber, respectively, a valve disposed within the chamber, a hood having a chamber communicating with the valve chamber, and an atomizer tube having one end thereof extended within the chamber of the hood and the opposite end thereof disposed within the liquid receiving cup.

7. A device of the class described including a tank having a semi-circular socket formed therein and provided with a liquid receiving cup secured to the interior walls of said tank, a pump cylinder seated in the socket, a piston operating within the cylinder, a valve chamber, a longitudinal air tube having one end thereof communicating with the interior of the cylinder and the opposite end thereof connected with the valve chamber, a valve disposed within the chamber, a hood secured to one end of the pump cylinder and having its exterior walls threaded, there being an aperture formed in the rear end of the hood and communicating with the valve chamber, and similar apertures formed in the walls of the valve chamber and communicating with the interior of the pump cylinder and air tube, an atomizer tube having its upper end disposed in alinement with the aperture in the hood and its lower end seated in the liquid receiving cup, a cap engaging the threaded walls of the hood, a tube for conducting the air from the hood into the receptacle when the cap is in position on said hood, discharge nozzles communicating with the interior of the receptacle, and intake valves disposed at the opposite ends of the pump cylinder.

8. A device of the class described including a receptacle, a pump cylinder secured to the receptacle, a piston operating within the pump cylinder, a valve chamber communicating with the pump cylinder, a longitudinally disposed air tube one end of which is connected with the valve chamber and the opposite end thereof with the pump cylinder, a valve disposed within the valve chamber, a hood secured to one end of the pump cylinder and having an aperture formed therein and communicating with the valve chamber, an atomizer tube having its upper end disposed in alinement with the aperture in the hood and its opposite end disposed within the receptacle, discharge nozzles communicating with the receptacle, and means for directing the air from the hood into the receptacle thereby to discharge the contents of said receptacle through the nozzles.

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

WILLIAM JAY BARBER.

Witnesses:
A. H. LORD,
GEO. R. JOHNSON.