(No Model.)

R. MORRILL & F. MORLEY.

INSECT DESTROYER.

No. 575,260. Patented Jan. 12, 1897.

Fig. 1.

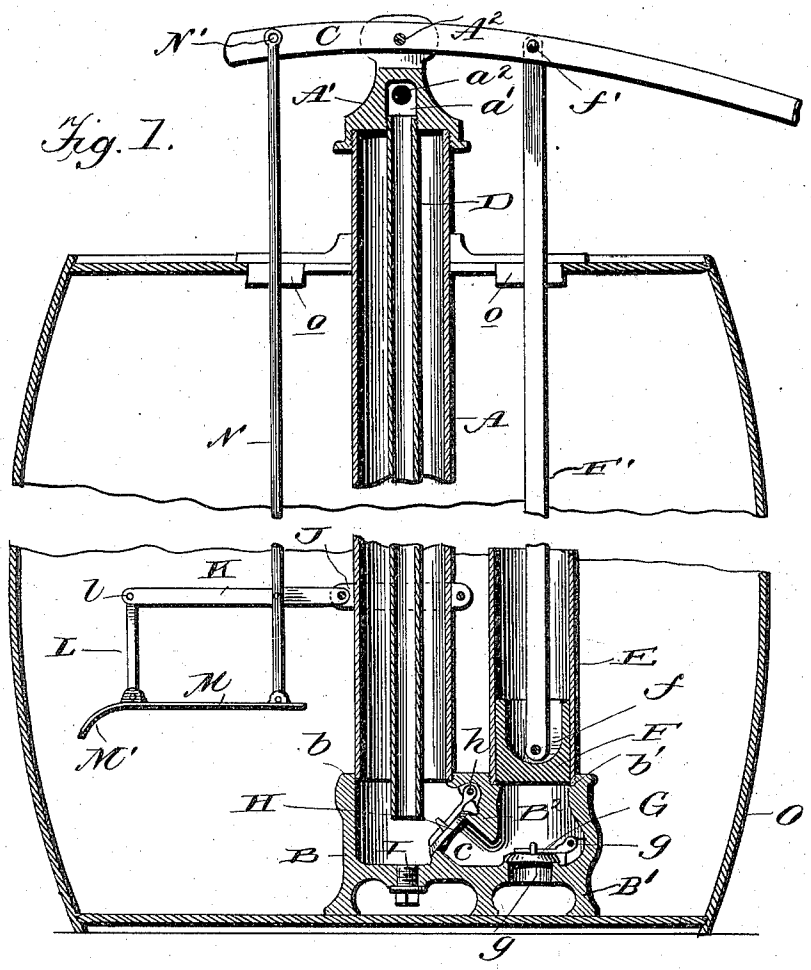
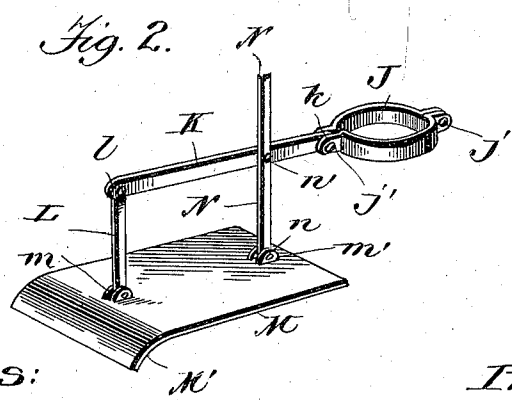


Fig. 2.



Witnesses:
L. C. Hills.
E. H. Bond

Inventors:
Roland Morrill and
Fernando Morley.
by E. B. Stocking Atty.

UNITED STATES PATENT OFFICE.

ROLAND MORRILL AND FERNANDO MORLEY, OF BENTON HARBOR, MICHIGAN.

INSECT-DESTROYER.

SPECIFICATION forming part of Letters Patent No. 575,260, dated January 12, 1897.

Application filed February 15, 1896. Serial No. 579,424. (No model.)

To all whom it may concern:

Be it known that we, ROLAND MORRILL and FERNANDO MORLEY, citizens of the United States, residing at Benton Harbor, in the county of Berrien, State of Michigan, have invented certain new and useful Improvements in Insect-Destroyers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in insect-destroyers, and is designed primarily as an improvement on the Patent No. 532,982, granted to us January 22, 1895; and it has for its objects, among others, to improve the same in its general construction, whereby a better result is attained, and to this end we make an improved casting whereby we obtain more compact arrangement and better working of the parts, the device is more firmly supported in its position within the inclosing case or barrel, provision is made for drainage by a plug in the bottom of the casting, the valves are arranged more closely together, so there is less material between them, and the agitator is of novel form, carried by an adjustable clamp and pivotally supported from a frame or support which in turn is pivoted upon said clamp, whereby greater speed is attained and more violent agitation given to the material.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a substantially vertical section through the improved insect-destroyer with portions broken away, and Fig. 2 is a perspective detail of the agitator and its clamp and connections.

Like letters of reference indicate like parts in the different views.

Referring now to the details of the drawings by letter, A designates an air-cylinder, the lower end of which is detachably held in one of the openings of the casting B and its upper end provided with a cap A′, the upper end of which is bifurcated, as shown, and receives a pin or bolt A^2, upon which the operating-lever C is pivotally mounted.

D is the discharge-pipe, arranged concentrically within the air-cylinder, being detachably held at its upper end in the socket a' of the cap and its lower end preferably extended below the lower end of the barrel, said cap being provided with an opening a^2, serving as the discharge-outlet, and to which may be connected the flexible hose or other discharge-pipe through which the liquid may be conveyed to a desired point.

The casting B constitutes the body portion of the pump, and has a screw-threaded opening b, into which the lower end of the air-cylinder is engaged, and upon the other side has an opening b', into which is engaged the pump-barrel E, the upper end of which is open and in which works the plunger F, to which is connected the plunger-rod F′, the lower end of which is pivotally mounted upon a pivot f in the concavity of the plunger, and the upper end of the rod pivotally mounted, as at f', to the operating-lever C, upon one side of its pivot. The casting is provided with suitable legs or downward projections B′, by which it is firmly supported in position, and in line with the pump-barrel E is an inlet-opening g, while G is a valve pivotally mounted, as at g', within the chamber and adapted to close the inlet-opening g.

B^2 is an inclined partition or diaphragm arranged substantially centrally of the casting and between the opening b b' thereof, and in this diaphragm is the passage c, affording communication between the two chambers of the casting, and on the inclined seat thus formed is designed to be seated the valve H, pivotally mounted, as at h, and adapted to be normally seated. In the bottom of the casting in line with the discharge-pipe D is an opening closed by a plug I, which is easily removed when desired to drain the casting of its contents and sediment.

J is a clamp embracing the pump-barrel and designed to be adjusted vertically thereon and held in its secured position in any suitable manner, as by bolt and nut j, the clamp being formed, preferably, of two parts, and between the ears j' thereof is pivotally mounted upon a pivot or pin k the horizontal arm K,

to the outer end of which is pivotally mounted, as at *l*, a depending arm L, the lower end of which is pivotally mounted, as at *m*, in lugs on the upper face of the agitator M, while to the lug *m'*, projecting from the upper face of the agitator, near the outer end, is pivotally mounted, as at *n*, the rod N, which is pivotally connected, as at *n'*, with the horizontal arm K, and its upper end is pivotally connected, as at N', with the operating-lever, as seen in Fig. 1. The outer end of the agitator is curved downwardly, as seen at M'.

In practice the pump is placed within a suitable inclosing case or barrel O, provided with a suitable cover having slots *o*, through which the rods F and N are free to work, the air-cylinder being passed through a suitable opening in the head, as shown, and held firmly in its vertical position.

In use the liquid to be sprayed or thrown upon the plants is placed within the barrel or receptacle O to a point below the top of the pump-barrel E, preferably, and as the operating-lever is actuated the upward movement of the plunger causes the valve G to open, and the liquid is drawn in through the inlet *g* into the compartment of the case B, and as the plunger is forced downward the valve G is closed and the valve H opened and the liquid forced into the chamber of the casting beneath the air-cylinder. This operation is repeated at each movement of the plunger, and the liquid is forced out through the discharge pipe and outlet a^2, as will be readily understood. As the operating-lever is actuated the agitator is caused to be moved rapidly, violently agitating the material in the receptacle. The agitator being free and disconnected from the air-cylinder, and by reason of its peculiar connection with the rod N and the horizontal arm K, it is caused to travel in a parabolic path, and the downwardly-curved outer end of the agitator tends to sweep the material toward the casting and force it under the same, so as to cause violent agitation of the material beneath the inlet-opening and prevent accumulation of sediment at that point.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with the casting having inclined diaphragm with opening and valve therefor, of the air-cylinder secured in an opening upon one side of said diaphragm, the plunger in the pump-barrel, the pump-barrel secured in an opening on the outer side of said diaphragm, the discharge-pipe, the operating-lever and a removable plug in the bottom of the casting in line with the discharge-pipe, and a connection between the lever and the plunger; substantially as described.

2. The combination with the casting having inclined diaphragm with opening and valve therefor, of the air-cylinder secured in an opening upon one side of said diaphragm, the plunger in the pump-barrel, the pump-barrel secured in an opening on the outer side of said diaphragm, the discharge-pipe, the operating-lever, and a connection between the same and the plunger, a pivotal support mounted on the air-cylinder and an agitator pivotally supported from said pivotal support and connected with the operating-lever; substantially as described.

3. The combination with the operating-lever, of a pivoted horizontal arm, an agitator pivotally suspended from said arm, and a rod connected with the operating-lever, and pivotally connected with the agitator and with said arm; substantially as described.

4. The combination with the air-cylinder, of a clamp thereon, an arm pivotally mounted on the clamp, a depending arm pivotally mounted on said arm, an agitator pivotally connected with said arm, the operating-lever, and a rod pivotally connected therewith and pivotally connected with the agitator and with the arm carried by the clamp; substantially as described.

5. In an insect-destroyer, a suspended, pivotally-mounted agitator, having its outer end curved downward, combined with the operating-lever and a connection between said lever and the agitator and pivotally connected to each, said connection being pivotally connected with the horizontal, pivoted arm from which the agitator is pivotally suspended; substantially as described.

6. In an insect-destroyer, a suspended, pivotally-mounted agitator having its outer end curved downward, combined with the air-cylinder, a clamp adjustably mounted on the air-cylinder, a horizontal support pivotally mounted on the clamp and from the outer end of which said agitator is suspended, the operating-lever, and a connection between the same and the agitator, said connection being pivotally connected with the horizontal, supporting-arm; substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

ROLAND MORRILL.
FERNANDO MORLEY.

Witnesses:
G. M. VALENTINE,
AUGUST GROSS.