July 13, 1937. H. E. BRANDT 2,086,696

DUST DISTRIBUTING DEVICE

Filed Aug. 13, 1936

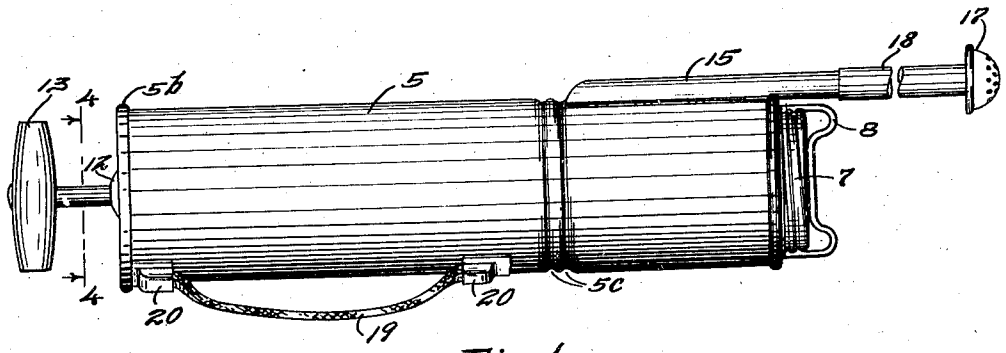


Fig. 1.

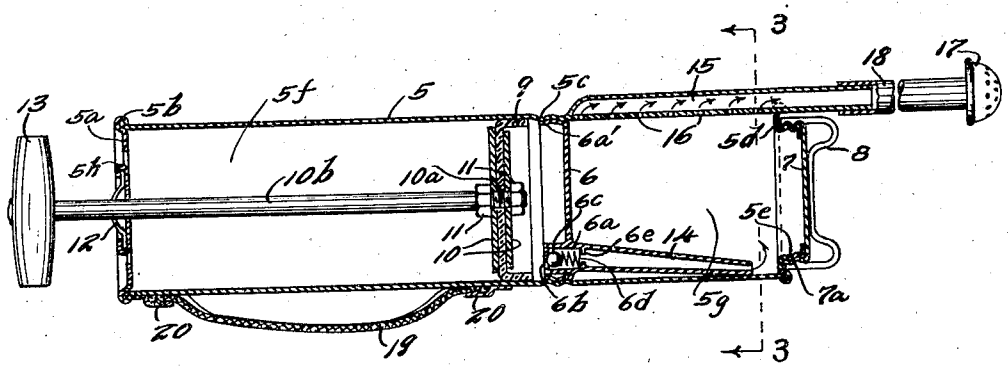


Fig. 2.

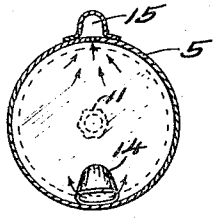


Fig. 3.

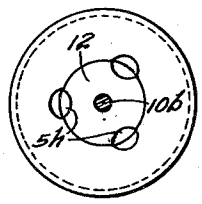


Fig. 4.

Inventor
HENRY E. BRANDT
By Chas. C. Reif.
Attorney

Patented July 13, 1937

2,086,696

UNITED STATES PATENT OFFICE

2,086,696

DUST DISTRIBUTING DEVICE

Henry E. Brandt, North St. Paul, Minn.

Application August 13, 1936, Serial No. 95,817

8 Claims. (Cl. 43—147)

This invention relates to a device for distributing insecticides and particularly to a device for discharging and distributing insecticides in the form of dust. Such insecticides are now commonly used on various kinds of plants and trees.

One problem encountered in making such devices, which are commonly called dusters, is that of having a uniform discharge of the dust from the chamber in which it is contained. In some of the dusters the dust is discharged at a much greater rate when the chamber is nearly full of dust than when the chamber is nearly empty.

It is an object of this invention to provide a simple and efficient construction of duster, one that is easily held and operated and which will discharge the dust uniformly.

It is another object of the invention to provide a duster comprising a casing having a chamber therein adapted to contain the dust, means for forcing air under pressure into said chamber to agitate the dust and keep it in motion and means spaced from said means for receiving dust uniformly from said chamber and discharging the same.

It is still another object of the invention to provide a duster comprising a casing having a chamber therein adapted to receive dust, means for directing air under pressure into said chamber adjacent one end thereof and at one side thereof together with a conduit disposed at the opposite side of said chamber and having holes therein communicating with said chamber through which the dust passes uniformly into said conduit.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawing, in which like reference characters refer to similar parts throughout the several views and in which:—

Fig. 1 is a view in side elevation of the device;

Fig. 2 is a central vertical longitudinal section through the device;

Fig. 3 is a vertical section taken substantially on line 3—3 of Fig. 2 as indicated by the arrows; and

Fig. 4 is a vertical section taken on line 4—4 of Fig. 1 as indicated by the arrows.

Referring to the drawing, a device is shown comprising a casing 5. While this casing might be variously formed, in the embodiment of the invention illustrated it is shown as of general cylindrical form. Said casing is closed at one end by the plate 5a having its edge reversely bent into a bead 5b embracing the end of the cylindrical portion. Said casing has formed therein intermediate its ends a plurality of annular grooves or crimps 5c acting to hold in place a partition 6 having a flange 6a' grooved to fit in said grooves 5c. The other end of the casing is provided with an end plate 5d also having its edge formed into a bead and bent or clamped around the cylindrical end of said casing. Plate 5d extends inward a short distance from the cylindrical wall of said casing and is then bent at right angles outwardly to form a cylindrical flange 5e which has screw threads pressed thereon. A cover 7 has a flange 7a with screw threads pressed thereon, which flange is adapted to screw onto the flange 5e to close said casing. A handle 8 formed of a small rod or wire has end portions extending along the outer side of flange 5d and secured thereto in any desirable manner as by soldering or welding. Handle 8 has U-shaped bends therein at its end portions and its central portion is soldered or welded to the end of cover 7. Casing 5 is divided by partition 6 into chambers 5f and 5g. A cup piston 9 is provided which will be formed of leather or similar material, the same having its central portion held between plates 10 disposed on the reduced threaded portion 10a of a plunger rod 10b. Said portion 10a passes centrally through plates 10 and piston 9 and is provided with nuts 11 disposed at the remote sides of plates 10 respectively and holding the same clamped against the piston 9. A small plate 12 is disposed on top of the end plate 5a, the same having a semi-spherical central portion extending outwardly therefrom and forming with the plate 5a a guide means for the plunger rod 10b. While plate 12 could be variously fastened, in the embodiment of the invention illustrated it is held by a plurality of lugs 5h cut from the plate 5a and bent over the top side of plate 12. Plunger rod 10b is provided with an operating handle 13. A conduit 14 shown as a small pipe or tube extends from chamber 5f into chamber 5g, the same having an open end disposed adjacent plate 5d and having said end slightly flattened and disposed against the wall of chamber 5g. A check valve is provided at the end of pipe 14 adjacent chamber 5f. While various forms of check valves might be used, in the embodiment of the invention illustrated a chamber 6a is provided having a wall with an aperture 6b therein communicating with chamber 5f. A ball 6c is disposed in chamber 6a and is held in position to close aperture 6b by a coiled compres-

sion spring 6d, one end of which engages ball 6c and the other end of which engages small flanges or lugs 6e at one end of chamber 6a. A conduit 15 extends along the outer side of casing 5 opposite chamber 5g, the same being disposed at the side of casing 5 substantially diametrically opposite to the conduit 14. The wall of the casing or chamber 5g which forms one side of conduit 15 is provided with a series of holes 16 which communicate with chamber 5g and with the interior of conduit 15. Conduit 15 is continued beyond the end of casing 5 in the form of a tube and is adapted to receive either a dust discharge nozzle 17 or an extension tube 18 to which the nozzle can be secured. Nozzle 17 as shown as having one flat side and one substantially semi-cylindrical side, the latter being provided with a multiplicity of small holes. Both the nozzle 17 and the tube 18 fit the discharge tube with a friction fit. A handle member 19 is provided for the device, which handle will be made of leather, fabric or similar material. The ends of said handle are secured in flat metal lugs 20 soldered or welded to the side of casing 5. The lug 20 at the end of the casing is shown as also held by the crimped end of plate 5a. The handle 19 is disposed at the same side of the device as is the conduit 14.

In operation, the dust to be distributed or sprayed will be placed in chamber 5g, the cover 7 being readily removed for this purpose. The operator will then hold the casing 5 with one hand, said hand passing between handle 19 and the casing. With the casing so held the conduit 15 is normally at the top side thereof. The operator then directs the nozzle 17 as desired and operates the air pump formed by chamber 5f, piston 9 and attached parts by reciprocating handle 13. Air is forced from chamber 5f past the check valve, spring 6d being compressed, and through the pipe 14. This air under pressure is directed against the plate 5d and is deflected into the chamber 5g so that the dust in said chamber is violently agitated or whirled about in a shower or cloud. The air passes out through the holes 16 carrying a certain amount of dust therewith and this dust and air is discharged in a plurality of streams or jets through the holes in nozzle 17. The dust passes out through the holes 16 in a substantially uniform quantity or at a substantially uniform rate whether there be a large amount of dust in chamber 5g or whether it is almost empty. As stated, the device is held with the conduit 15 at the upper side so that the dust does not rest upon the side of the chamber having the holes 16 therein. With the described construction, therefore, the dust is agitated so that it is well distributed and finely divided. The dust as stated is also discharged at a uniform rate.

From the above description it is seen that applicant has provided a hand operated duster of extremely simple construction and yet one which is very efficient. The device is light in weight, has few parts and is very easily operated. The outer side of casing 5 will, of course, be painted or suitably coated so that it is well protected. The device has been amply demonstrated in actual practice, found to be very successful and efficient and is being commercially made.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which generally stated, consists in a device capable of carrying out the objects above set forth in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:—

1. A dusting device having in combination, a casing having a cylindrical portion with a piston therein, a handle-equipped plunger secured thereto constituting an air pump, said casing having a chamber adjacent said portion, a conduit leading from said portion to adjacent one end of said chamber for discharging air from said pump against one end of said chamber at one side thereof, a second conduit extending longitudinally of said chamber at the opposite side thereof having a series of holes therein communicating with said chamber whereby dust in said chamber is violently agitated and passes uniformly into said second conduit.

2. A duster having in combination, a casing having a chamber therein, an imperforate conduit for delivering air under pressure into said chamber adjacent one end thereof and at one side thereof, a discharge conduit extending along the outer side of said casing at the opposite side thereof for substantially the entire length thereof and having a plurality of holes therethrough communicating with said chamber whereby dust in said chamber is whirled about by said air and passes uniformly through said holes and into said second conduit.

3. A dusting device having in combination, a casing having a substantially cylindrical chamber therein adapted to receive dust, said chamber having a flange at one end extending inwardly at right angles to its cylindrical wall, a removable cap within said flange, a conduit having an open end adjacent and directed toward said flange, means for delivering air under pressure through said conduit, a second conduit adjacent the wall of said casing at a point substantially opposite said first mentioned conduit and having a plurality of holes therethrough communicating with said chamber whereby dust in said chamber will be blown about therein forming a shower and will pass uniformly through said holes and into said second conduit.

4. A dusting device having in combination, a chamber adapted to contain dust, means for delivering air under pressure adjacent and against one end of said chamber to whirl said dust about in a shower therein, a conduit extending longitudinally along the wall of said casing, said casing having a plurality of holes spaced longitudinally along and in the wall of said chamber spaced from said first mentioned means and communicating with said conduit whereby said dust will pass out through said holes and be uniformly discharged from said conduit.

5. A dusting device having in combination, a casing having a substantially cylindrical chamber therein, a flange extending inwardly at one end of said chamber and then extending outwardly longitudinally thereof at one end, a cap removably secured to the outwardly extending portion of said flange, means for delivering air under pressure adjacent and against said inwardly extending flange, a conduit extending along the wall of said chamber substantially opposite said means and having a series of holes therethrough communicating with said chamber whereby dust is agitated in said chamber and passes uniformly through said holes into said conduit.

6. A dusting device having in combination, a casing having a chamber therein, an air pump chamber adjacent said chamber, a pipe extend-

ing from said air pump chamber into said first mentioned chamber and having a flattened end adjacent and directed toward one end of said first mentioned chamber and at one side thereof for delivering air under pressure thereinto, a discharge conduit extending along said casing at the side thereof remote from said side and having a plurality of openings therein communicating with said chamber.

7. A dusting device having in combination, a casing having an air pump chamber therein and a dust chamber therein at one end of said air pump chamber, a handle secured to one side of said casing at the exterior of said air pump chamber, means for delivering air under pressure into said dust chamber, a discharge conduit extending along the side of said casing at the exterior of said dust chamber and at the opposite side of said casing from said handle and having a plurality of holes therethrough communicating with said dust chamber, said handle being constructed and arranged so that in operation said conduit will be at the top of said casing.

8. A dusting device having in combination, a chamber adapted to contain dust, means extending into said chamber and to a point adjacent one end thereof for directing air under pressure against said end of said chamber at one side thereof for causing a whirl of air in said chamber to stir up the dust therein, said chamber having a plurality of spaced holes along and through one wall thereof at the opposite side thereof through which dust may pass and discharge means with which said holes communicate.

HENRY E. BRANDT.