

Jan. 27, 1959

W. S. MARTIN

2,870,565

POWDER-DISSEMINATING DEVICE

Filed Feb. 28, 1957

3 Sheets-Sheet 1

FIG. 1.

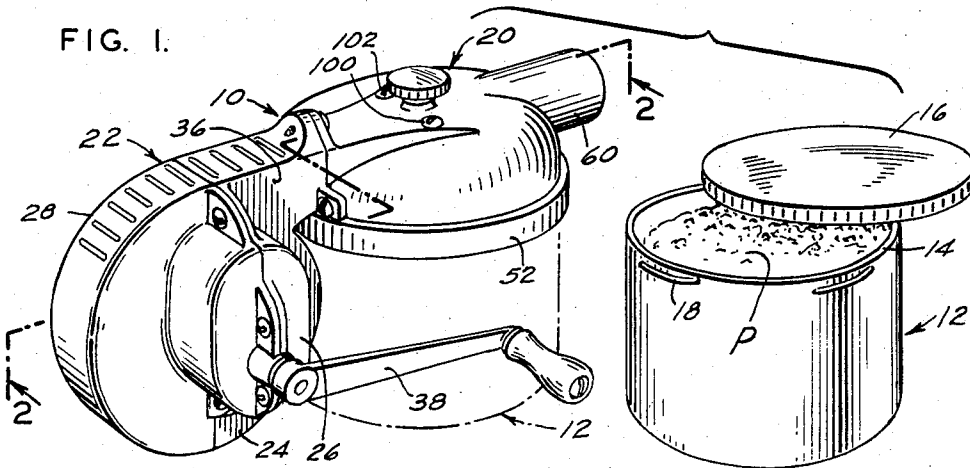


FIG. 2.

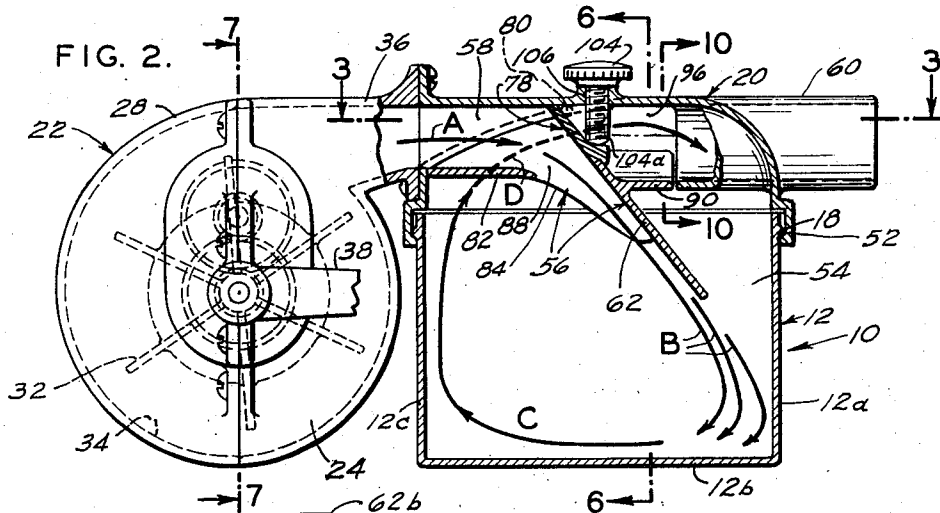


FIG. 3.

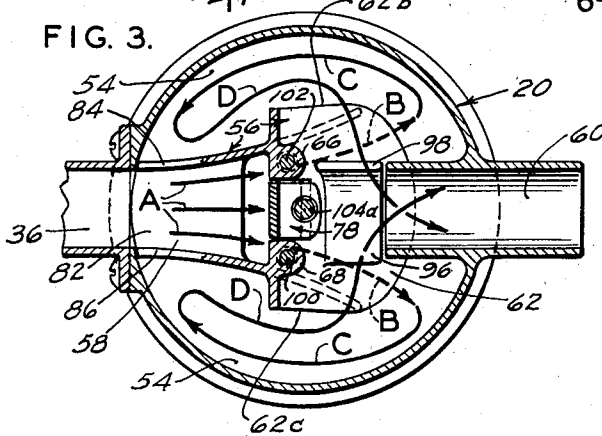
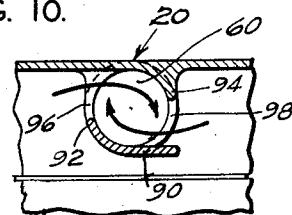


FIG. 10.



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FIG. 7.

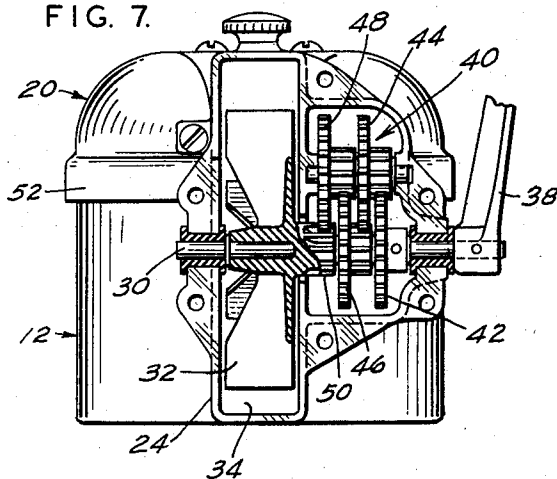


FIG. 9.

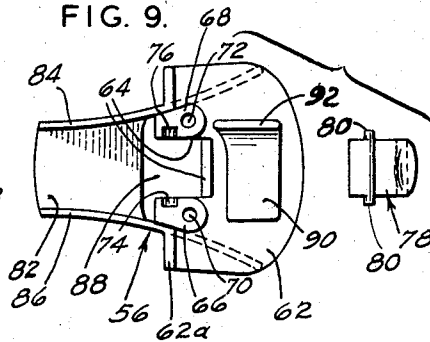


FIG. 8.

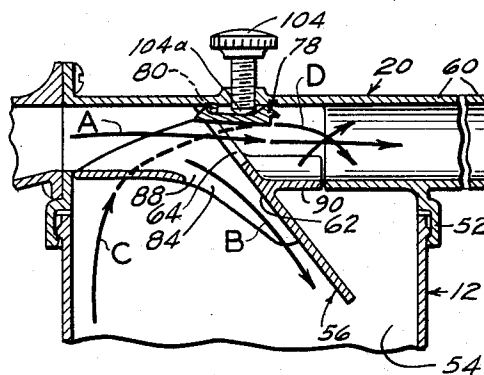


FIG. 4.

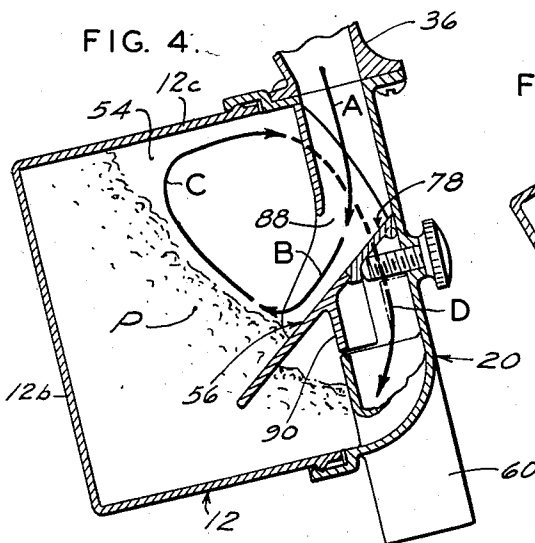
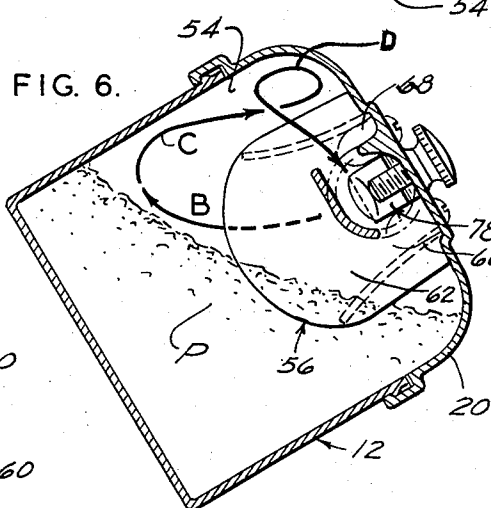


FIG. 6.



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FIG. 5.

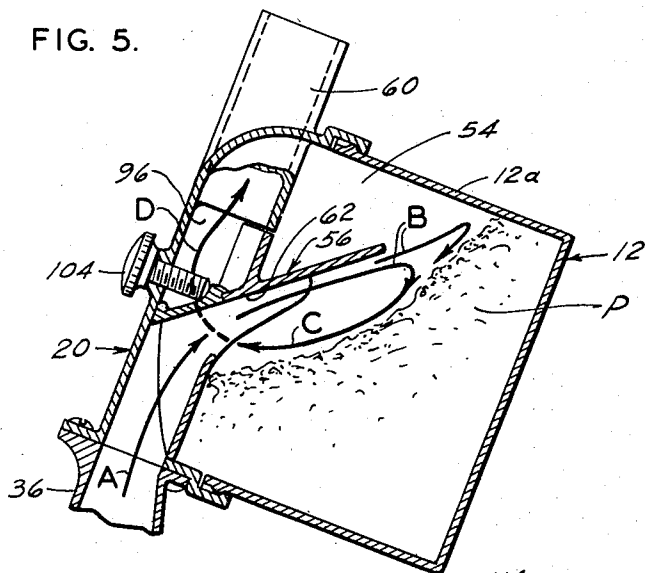
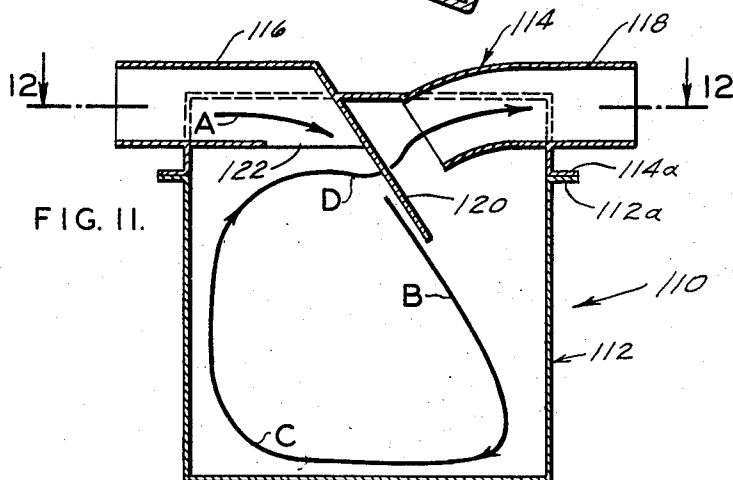


FIG. 11.

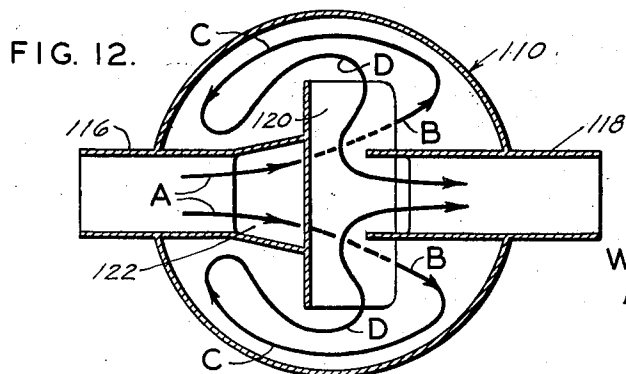


FIG. 12.

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POWDER-DISSEMINATING DEVICE

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Application February 28, 1957, Serial No. 643,068

10 Claims. (Cl. 43—148)

The present invention relates generally to powder disseminating devices, and in particular to a portable pneumatic duster for distributing dusting compositions and materials, such as insecticides and fungicides.

Dusting devices are known which incorporate a hopper or container adapted to receive a quantity of the dusting composition or material and a blower associated with the hopper to admit a stream of air with the dusting composition to entrain dust particles in the stream of air. Such known dusting devices, often referred to as dry dusters, usually include mechanical feeding and agitating mechanisms arranged to aid in the dispensation of the powder. The principal use of this type of device is in the care and protection of trees, shrubs, flowers and various types of produce.

Difficulty is often experienced in the operation of the mechanism of these dusting devices, due in part to the abrasive action of the dusting composition. Often the efficiency of these devices is materially affected by rapid wearing and the tendency of the operating mechanisms to become fouled as a result of the caking-up of the dusting material.

Further, these known devices frequently exhibit practical shortcomings and problems in use. Probably one of the most troublesome of these problems is the waste of the dusting composition when the blower is being started and as the blower is being stopped. At the start of dispensing, the dusting composition is fed into the blower air stream when the air stream speed is less than that required to properly entrain and distribute the dust. This may be attributed to the fact that with such devices the blower, agitator and feeder are driven as a unit. Under these conditions, the dust is dispensed en masse, but not as part of a properly entrained blower air stream.

Quite separate and apart from this disadvantage, known dusting devices often are not capable of handling a variety of dusting compositions which differ in physical properties and fineness, apparent weight, real weight and like variables which determine their ability to flow and be dispensed. The ratio of air to dusting composition in the operation of any given blower will be determined by the physical properties of the dust and the velocity and volume of the air stream. For a conventional duster, which delivers a stream of air of a velocity and volume determined by the crank speed of the blower, the amount of the dusting composition entrained and the resulting air-dust ratio will vary in accordance with the physical properties of the dust or powder.

It is an object of the present invention to provide an improved duster which obviates one or more of the aforesaid difficulties. Specifically, it is within the contemplation of the present invention to provide an improved dusting device which utilizes pneumatic principles to feed dust particles for dispensation as part of a directed air stream.

In accordance with an illustrative method demonstrating features of the present invention, a dusting composi-

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tion is disseminated from an enclosed chamber by admitting an air stream into the chamber and directing the air stream in a spiral course through and across the top of the chamber. As the air stream travels through the chamber, it tends to entrain a certain amount of the dusting composition as part of a finely divided dust-air stream; and as this dust-air stream changes in direction, sharply, a separating action occurs whereby the larger particles tend to fall out of the dust-air stream and are returned to the chamber proper to be again subjected to the directed air stream. Experience indicates that by proper application of the air stream and appropriate dimensioning of the dust hopper or chamber, it is possible to dispense finely divided dust particles as part of a directed air stream, useful in achieving uniform coverage of prescribed areas with dusting composition of a controllable density.

Illustrative apparatus in accordance with the present invention embodies a dust-disseminating device which may be attached to a hopper having an open top and containing a quantity of dusting material. The dust-disseminating device includes a cover arranged to bridge the open top of the hopper and adapted to be detachably secured thereto to provide an enclosed chamber wherein the dusting material may be gradually fed into and entrained by an air stream by an air activating means for dissemination. Advantageously, a blower may be associated with the hopper to introduce the air stream through the cover into the chamber provided by the hopper. The air stream produced by the blower is projected downwardly and forwardly in the chamber by a baffle which is constructed to direct the air stream to make multiple passes through the chamber whereby the dusting material is effectively entrained in the air stream. The chamber and baffle are shaped and dimensioned to cause the air stream with entrained dusting particles to change direction sharply during passage through the chamber whereby larger dust particles tend to automatically segregate from the more finely divided and entrained particles. This assures the provision of a dust-air stream of substantially uniform density and containing only finely divided dust particles. The ability to effectively change the course of the air stream in its passage through the chamber causes automatic segregation or sorting of all but the finely divided particles and returns these segregated particles to the bulk of the dusting material contained within the chamber to be subjected to further air activation and sorting action under the influence of the air stream.

As a further feature of the invention, provision is made to regulate the ratio of powder to air in the resulting air stream by selectively by-passing portions of the air stream from the air intake to the discharge port of the activating chamber. This feature is particularly useful when it is desired to obtain a comparatively large area of coverage and when using lighter dusting compositions.

Many practical advantages are realized in accordance with the improved method and dusting device of my invention. Among the most important of these advantages are the ability to start and stop the duster without the risk of spilling out or wasting the dusting composition; the facility for effectively dispensing a directed air stream with entrained dust particles in various attitudes and positions of the duster; and the ready adaptability of the duster for use with a wide variety of dusting compositions having physical characteristics which differ materially and markedly affect their ability to flow and be dispensed.

The above brief description, as well as further objects, features and advantages of the present invention, will be best appreciated by reference to the following

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detailed description of several presently preferred embodiments, when taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is an exploded perspective view of a portable dusting device embodying features of the present invention, the dust-disseminating device being illustrated at the left in the figure and a container or hopper having a quantity of dusting material therein being illustrated at the right in the figure with its cover removed;

Fig. 2 is a side elevational view taken along line 2—2 of Fig. 1, with parts broken away and sectioned, showing the assembly of my dusting device with a container after the cover of the container has been removed;

Fig. 3 is a fragmentary sectional view taken substantially along the line 3—3 of Fig. 2 and looking in the direction of the arrows;

Fig. 4 is a fragmentary sectional view somewhat similar to Fig. 2, but illustrating the dispensing action when the dusting device is displaced from the horizontally-extending position of Fig. 2 to the position of Fig. 4 wherein the discharge port or spout is directed downwardly;

Fig. 5 is a fragmentary sectional view similar to Fig. 4, but illustrating the dispensing action when the dusting device is disposed with the discharge port or spout directed upwardly;

Fig. 6 is a sectional view taken substantially along the line 6—6 of Fig. 2, but with the dusting device tipped sidewise from the position illustrated in Fig. 2 to demonstrate the dispensing action when the dusting device is in the illustrated attitude;

Fig. 7 is an end elevational view taken from the left of Fig. 2, with portions broken away and sectioned along the line 7—7 of Fig. 2, to expose the internal mechanisms for driving the blower;

Fig. 8 is a fragmentary sectional view similar to the showing in Fig. 2, but with the by-pass means between the air inlet and discharge port open to effectively by-pass a portion of the air stream from entry into the dust chamber or hopper;

Fig. 9 is an exploded plan view of the baffle and by-pass door which are mounted in a downwardly and forwardly inclined path in the dusting device;

Fig. 10 is a sectional view taken substantially along the line 10—10 of Fig. 2 and looking in the direction of the arrows;

Fig. 11 is a sectional view of a modified dusting hopper and associated inlet and outlet means demonstrating further features of the present invention, the associated air-supply means being deleted in the interests of simplicity and clarity; and,

Fig. 12 is a sectional view taken substantially along the line 12—12 of Fig. 11 and looking in the direction of the arrows.

Referring now specifically to the drawings, there is shown in Figs. 1 to 10, inclusive, a first form of a dust-disseminating device embodying features of the present invention which has been generally designated by the reference numeral 10. Although the invention is to be described in conjunction with a hand-operated, portable type of device, it is to be expressly understood that many of the principles and constructional features find useful application in larger types of power driven agricultural dusting units. Further, the specific form of dusting device 10 is intended for use with standard size interchangeable containers so that the device may be used as an attachment to a dispensible container which may be purchased with a fill of any one of a wide variety of dusting compositions; however, my improved construction may also be used with a container or hopper adapted to be filled and refilled from time to time, as the situation demands.

As seen in Fig. 1, the dust-disseminating device 10 is to be employed in conjunction with a standard type of container or hopper 12 having therein a quantity of dust-

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ing composition or material P. The container 12 terminates in a wide open mouth 14 which is normally closed by a cover or top 16 having provision along its margins for releasable interlocking with circumferentially spaced locking thread 18 formed on the outer surface of the container 12 contiguous to the wide open mouth 14. Upon removal of the cover 16, the container 12 is adapted to be attached to the dust-disseminating device 10, as illustrated by the dot-dash showing of Fig. 1 and as shown in Figs. 2 to 10, inclusive.

The device 10 includes a dome-shaped control head 20 and a hand-operated rotary blower 22 arranged to deliver a stream of air to the control head 20 and then into the hopper or container 12. The rotary blower 22, the details of which are seen best in Figs. 1, 2, and 7, embodies a bipartite rotor housing 24 having an integral gear housing 26 projecting from one side thereof, the rotor housing has a removable half section 28. Traversing the rotor housing (see Fig. 7) is a rotor shaft 30 which mounts the rotor 32 within the rotor compartment 34. As seen in Fig. 2 the rotor compartment 34 is in communication with a tangential air outlet 36 which is arranged to deliver an air stream into the control head 20 for direction into the container 12 as will be hereinafter described. The rotor 32 on the shaft 30 is driven by the crank or handle 38 disposed to one side of the device 10, the crank or handle 38 being connected to the rotor 32 via the gear train 40 driven from the crank or handle 38 and driving the rotor 32. The gear train 40 includes a drive gear 42 secured to the shaft 30, step gears 44, 46 and 48, and a pinion gear 50 appropriately intermeshed to attain the required step-up from crank speed to rotor speed.

As seen in Figs. 1 and 2, the dome-shaped control head or cover 20 is of generally inverted cup-shaped configuration and terminates at its lower side edge in a marginal flange 52 which is internally formed to engage the locking threads 18 on the container 12 to fix the container 12 to the dome-shaped control head with the control head serving as a top wall for the container 12. The occluded space of the container 12 and the cover or head 20 provides a chamber 54. Mounted within the control head or cover 20 is a combined partition and baffle, generally designated by the reference numeral 56 which, in part defines an inlet connecting passage 58 in alignment with the air outlet 36 of the rotary blower 22 for admitting the air stream into the chamber 54. The air inlet passage 58 extends in alignment with a discharge duct or spout 60 and is separated therefrom by the interposed baffle plate 62.

The combined partition and baffle 56 is illustrated by itself in the exploded showing of Fig. 9 and is seen to include the baffle plate 62 which extends at an angle and is formed adjacent its upper edge 62a with a window or opening 64. Bosses 66, 68 are integrally molded with the baffle plate 62 at opposite sides of the opening 64, these bosses being provided with screw holes 70, 72 for mounting the part 56 in the position illustrated in Fig. 2. The bosses 66, 68 are further provided with journals or bearings 74, 76 which are adapted to accommodate and rockably mount a by-pass gate 78 which is formed with an integral mounting trunnion 80.

Projecting to one side of the baffling device 62 is a base wall 82 which serves as the bottom of the air-inlet conduit 58, the wall 82 being mounted by upstanding side walls 84, 86 and cooperating therewith the frame an inlet port 88 which is bounded at its forward side by the inclined baffle plate 62. As seen best in Figs. 2 and 8, the upstanding walls 84, 86 are shaped to cooperate with the adjacent walls of the dome-shaped control head or cover 20 whereby the base wall 82, the upstanding walls 84, 86 and the overlying and surrounding molded portions of the cover cooperate to define the inlet passage or conduit 58 which communicates with the

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chamber 54 through the opening 88 bounded at its forward side by the baffle plate 62.

Extending in a forward direction from the baffle plate 62 is an integral extension 90 which is formed at one side with an upwardly turned flange 92. As seen in Figs. 2 and 10 the extension 90 is in substantial alignment with the adjacent underside of the outlet or discharge spout 60. The control head or cover 20 is formed (see Fig. 10) with an integral curved flange 94 at the side of the discharge spout 60 remote from the upturned flange 92 of the extension 90. Thus the extension 90 cooperates with the discharge spout 60 and the adjacent walls of the cover 20 to define opposed exit openings or ports 96, 98 behind the baffle plate 62 which ports communicate with the chamber 54 at its upper end and with the outlet spout 60. The construction at the openings 96, 98 to the discharge spout 60 is such that the dusting material cannot enter directly into the spout 60 from the chamber 54 but is able to enter after traversing a prescribed course as will be detailed hereinafter.

As seen best in Figs. 2 and 3, the combined partition and baffle 56 is mounted on the control head by screws 100, 102 which extend through the dome-shaped cover 20 and engage within the tapped holes 70, 72 in the bosses 66, 68. The valve gate 78 is put in position to close the passage 64 by placing the trunnion 80 into the opposed journals or seats 74, 76. In order to regulate the amount of air which may be by-passed from the inlet conduit 58 to the discharge or outlet spout 60 via the passage 64, a regulator screw 104 is tapped into threaded hole 106 and is arranged to have its threaded shank 104a in engagement with an integral projection on the rear underside of the gate 78. By manual adjustment, the screw 104 may be extended downwardly to close the door 78 completely (see Fig. 2) or may be disposed in a position wherein the gate 78 is allowed to swing into an open or partially open position and being in substantial alignment with the air flow. The air stream passing through passage 64 is allowed to by-pass the chamber 54 and pass directly to the port 60 (Fig. 8).

In the preceding description and in the following reference to the various operative positions of the dusting device, the use of such terms as upward, downward, rearward and the like refer to the corresponding relationship between parts as viewed in the showing of Fig. 2, which is the normal upright position of the duster wherein the base of the container 12 extends horizontally and the discharge spout 60 is directed horizontally and to the right.

Preliminary to a description of the operation of the device with reference to the illustrative attitudes which the device may assume, the several pneumatic functions of the baffle 62 will be described. The baffle 62 has a fixed relation within the control head 20 and normally extends transversely of the chamber 12 at a location intermediate the inlet passage 58 and the outlet port or duct 60. Although these ports are shown in substantial end to end alignment, it is to be expressly understood that they may be disposed at different levels and/or laterally displaced with respect to each other, so long as they are effectively isolated in accordance with the principles herein outlined. The oblique position of the baffle or deflector 62 with respect to the path of the inlet air, is indicated by the directional arrows traversing the passage 58 and the baffle directs the air downwardly and forwardly in a flat fan-like path from the control head 20 toward the lower front portion of the container 12. The width of the baffle 62 is greater than the cross-sectional area of the respective inlet and outlet passages 58, 60; however, the width is selected so that there is a clearance space between the opposite sides of the baffle plate 62, which opposite sides have been designated by the reference characters 62b, 62c, and the contiguous portions of the bounding wall of the chamber. In general, the function of the baffle is to direct the air stream in a prescribed course or path through the chamber 54 for en-

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training the dusting composition D therein; and in association with the specially constructed control head to alter the direction of the air stream with the entrained particles to achieve separating, sorting out or segregation of the larger size particles.

A typical sequence of operations will now be described in detail to facilitate a more thorough understanding of the invention.

In normal operation, the dusting composition P which is received in the container 12 is effectively enclosed within the dispensing chamber by locking the container 12 with its top removed to the control head 20, as previously described.

Thereupon the crank 38 is turned to rotate the rotor 32 at the increased speed ratio, as determined by the gearing 40. Operation of the blower will supply a forced stream of air to the inlet conduit 58, as indicated by the directional arrow A, which stream of air will be directed downwardly through the inlet port 88 into the chamber 54. This stream of air, which is confined on the forward side by the baffle plate 62 is spread in a flat stream in a downwardly and forwardly inclined path, as indicated by the directional arrows B. The stream of air diverges somewhat in accordance with the flair of the walls 84, 86 which extend along the undersurface of the baffle plate 62. It will be appreciated that the baffles and the side walls or flanges serve to allow a fan-like course for the stream of air which takes the oblique paths B in relation to the path A and the axis of the inlet conduit 58. Although the base wall 82 and the side walls or flanges 84, 86 are not essential to confine the air stream A, B, they are useful to exclude the free entrance of dust powder into the conduit 58 when the device is directed upward as in Fig. 5.

The fan-like air stream B is directed toward the curved forward side 12a of the container 12 contiguous to the forward bottom corner and the air flow is then redirected in paths parallel to the bottom wall 12b of the container toward the opposite side 12c of the container. The air stream follows around the sides of the chamber, sweeping the dust and entraining the same. The air stream tends to skim tightly about the sides due to the centrifugal action within the confines of the chamber. In the redirecting travel of the air stream B, there is a tendency for the air stream to divide into two rearwardly directed passes C (see Fig. 3). The divided air streams C move rearwardly, as indicated by the directional flow arrows, where they reach the rearward wall portion 12c and curve upwardly along said rearward wall portion toward the top of the chamber 54. Finally, the divided air stream again changes direction and goes forwardly, as indicated by the directional arrows D along the top wall of the chamber and passing corresponding side edges 62b and 62c of the baffle 62 and through the discharge ports or openings 96, 98 into the discharge spout or passage 60.

Before dust is disseminated, a sufficient air velocity must be attained to cause the dust particles to be air activated and entrained where it is carried along the paths B, C and D and brought to the discharge openings 96, 98. As illustrated in Fig. 3, the path of air flow D makes a sharp right angle course as it passes around the edge 62b to enter port 98 or around edge 62c to enter port 96. As the flow of air in path B and C contacts the dust material, a considerable amount of material including lumps or balls of material is picked up by the air stream and a stage of refining is accomplished by a separation through a centrifugal action which takes place in right angle courses around the said edges of baffle 62. When the air velocity is not sufficient to cause the particles to assume the spiral path within the chamber, the dust particles remain within the chamber 54. The air stream entering the discharged spout 60 has a concentration of entrained dust which is somewhat stratified due to the centrifugal action of the path around

edges 62b and 62c. In order to provide a thorough mixing in the spout 60 the entrance openings 96 and 98 are arranged tangentially with respect to the axis of spout 60 to produce spiral motion of the two air streams. If any air is by-passed from the opening 64, it is mixed along with the said dust bearing air streams to produce a uniform entrainment of dust in the air stream as it discharges from the spout 60.

Since the chamber 54 receives the charge of dusting material P, the free space within the chamber varies as the material is dispensed. These variations are from a small space when the chamber is fully charged to a comparatively large space when the major portion of the material is dispensed. However, experience indicated that the pneumatic air stream will flow along the prescribed directional arrows within the chamber 54 whether the container 12 is filled or partially empty. The flow path will be essentially the same, with the dusting material being swept by the air stream at various fill levels to achieve the described pickup and sorting action.

The above brief description refers to the operation of my duster when in the normal upright position, as illustrated in Figs. 1 to 3, inclusive. For the varied uses and applications intended for the instant duster, it is important that the duster operate in any of the various positions and attitudes which may be required for dusting above, below or at either side. It has been found that the present duster operates effectively in various inclined and tilted positions, several extreme positions being illustrated in Figs. 4 to 6, inclusive. In Fig. 4 the duster is arranged with the discharge spout 60 extending downwardly and in this position the lower portion of the baffle plate 62 tends to contain the material within the chamber 54 and to preclude the material from falling directly into the discharge openings 96, 98 which are effectively shielded from the chamber by the interposed baffling arrangement.

As seen in Fig. 5, the duster is directed with its discharge spout upwardly and in this position the dust material P tends to accumulate to the rear and in the back corner of the chamber. In this attitude, the conduit base 32 tends to isolate the dust material from entering into the air inlet conduit 58 thereby effectively keeping the material from entering into air stream directly.

As seen in Fig. 6 when the duster is tipped sidewise, operation is not appreciably affected although it appears evident that there will not be a divided air flow to opposite sides of the baffle. The situation may well result that the dusting material effectively precludes flow to one side of the baffle, but this will not change the principles of operation and it is still possible to effectively entrain lighter particles and to dispense the same as detailed hereinbefore.

In Figs. 11 and 12, there is illustrated a modified form of the present invention which operates essentially in accordance with the previously detailed principles. The modified duster 110 embodies a dispensing container 112 which is bridged by a control head 114 which includes a lock or seal ring 114a connected to a lock or sealing flange 112a contiguous to the upper open mouth of the container 112. The control head 114 includes an inlet conduit 116, a discharge conduit or port 118 and an inclined baffle plate 120 which extends forwardly and downwardly into the container 112 and is disposed substantially transversely to the longitudinal center line of the inlet conduit 116. The inlet conduit is adapted to be connected to an air supply which may be similar to the blower 22 whereby a stream of air A may be directed into the container 112 through the air inlet opening 122 which is formed in the underside of the conduit 116 contiguous to the baffle 120. The air enters and passes downwardly along on the baffle 120 as indicated by the directional arrows B and thereupon divides into paths C and flows rearwardly along the bottom of the container 112

and thence up the rearward side of the container. Thereupon the air streams flow across the top of the container, as indicated by the directional across D, and to opposite sides of the baffle 120 and exits through the discharge port 118. The flow path is such that the required separating action is achieved to assure the entrainment of finely divided dust particles by the S path of the air stream passing from around the side edges of baffle 120 to enter port 118. In this application the normal attitude of the chamber 112 would be maintained in a relatively upright position whereby the function of the baffle 120 would only be to control separation of the coarse particles from the dust air stream as it is discharged into passageway 118.

Although both forms of the invention have been illustrated as employing substantially circular containers, it is equally within the contemplation of the present invention to use the containers which are oval in shape, square in shape, as well as the other shapes convenient and familiar to the art for storage. Smoother flow of the air appears feasible in round or oval-shaped containers. The air supply to the dust chamber may also be positioned to enter through the chamber walls to impinge directly upon the dust material without the use of a deflector and thus obtaining a greater concentration of air blast upon the material.

It must be again emphasized that although the duster illustrated in the several showings is adapted to be manually operative and is dimensioned for maximum maneuverability, the same may be employed for larger scale types of operations. For example, a comparatively large-dispensing container could be employed in conjunction with a flexible hose on the outlet spout whereby the flexible hose could be maneuvered to dispense the dusting composition in various directions while the container is maintained in a fixed position. It should also be understood that the air supply port and the discharge port with its associated baffle with respects to the chamber may assume various arrangements of design which will produce a circular sweeping action of air streams against the dust material while effecting a continuous refinement of coarse dust particle separation without departing from the true scope and intent of the present invention.

A latitude of modification, substitution and change is intended in the foregoing disclosure, and in some instances some features of the invention will be used without a corresponding use of other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the disclosure herein.

What is claim is:

1. A pneumatic dust disseminating device comprising an air-activating chamber adapted to receive a quantity of dusting material and having a control head forming a top wall for said chamber, means for admitting an air stream into said chamber and for directing said air stream in a first pass downwardly and forwardly toward the forward side of said chamber, means for redirecting said air stream in a second pass to flow rearwardly and upwardly along the rearward side of said chamber and in a spiral course toward said control head, means for further redirecting said air stream in a third pass to flow forward along said top wall of said chamber, and means providing a discharge port in communication with said chamber for discharging said air stream.

2. A pneumatic dust disseminating device comprising an air-activating chamber adapted to receive a quantity of dusting material and having a control head forming a top wall for said chamber, means for admitting an air stream into said chamber and for directing said air stream in a first pass downwardly and forwardly toward the forward side of said chamber, means for redirecting said air stream in a second pass to flow rearwardly

and upwardly along the rearward side of said chamber and in a spiral course toward said control head, means for further redirecting said air stream in a third pass to flow forward along said top wall of said chamber, means providing a discharge port in communication with said chamber for discharging said air stream, and means for controlling the velocity of said air stream to activate and entrain a quantity of said material in said first and second passes but controlling material which is not in the form of finely divided entrained dust whereby it falls downwardly in said chamber during said third pass.

3. A pneumatic dust disseminating device comprising an air-activating chamber adapted to receive a quantity of dusting material and having a control head forming a top wall for said chamber, means for admitting an air stream into said chamber and for directing said air stream in a first pass downwardly and forwardly toward the forward side of said chamber, means for redirecting said air stream in a second pass to flow rearwardly and upwardly along the rearward side of said chamber and in a spiral course toward said control head, means for further redirecting said air stream in a third pass to flow forward along said top wall of said chamber, means providing a discharge port in communication with said chamber for discharging said air stream, and means in communication with said discharge port and with the means for admitting an air stream into said chamber for bypassing a portion of said air stream whereby the flow of air into said chamber may be regulated.

4. A pneumatic duster according to claim 3 including means for selectively adjusting the bypass means.

5. In combination, a housing providing a chamber adapted to receive a quantity of dusting material, a blower having an air outlet in communication with the upper end of said chamber and arranged to direct a stream of air into said chamber, baffling means in said chamber for directing said stream of air downwardly and forwardly in said chamber, said baffling means extending transversely of said chamber and being arranged to permit said stream of air to reverse its direction of flow whereby turbulent air flow is created in said chamber which tends to entrain finely divided particles of dusting material, and a discharge port in communication with said chamber and separated from said air inlet by said baffling means.

6. In combination, a housing providing a chamber adapted to receive a quantity of dusting material, a rotary blower having an air outlet in communication with the upper end of said chamber and arranged to direct a stream of air into said chamber, baffling means in said chamber for directing said stream of air downwardly and forwardly in said chamber, said baffling means extending transversely of said chamber and including side walls arranged in diverging relation relative to each other, said baffling means being arranged to permit said stream of air to reverse its direction of flow whereby turbulent air flow is created in said chamber which tends to entrain finely divided particles of dusting material, and a discharge port in communication with said chamber and separated from said air inlet by said baffling means.

7. In combination, a housing providing a chamber adapted to receive a quantity of dusting material, a rotary blower having an air outlet connected in communication with the upper end of said chamber and arranged to direct a stream of air into said chamber, baffling in said chamber for directing said stream of air downwardly and forwardly in said chamber in a flat, fan-like blast, said baffling extending transversely of said chamber and being arranged to permit said stream of air to reverse its direction of flow whereby turbulent air flow is created in said chamber which tends to entrain finely divided

particles of dusting material, a discharge port in communication with said chamber and separated from said air inlet by said baffling, and bypass means in said baffling for porting a portion of said stream of air directly from said air outlet to said discharge port.

8. In combination, a container having an open top and adapted to receive a quantity of dusting material, and a dust-disseminating device attachable to said container for entraining said dusting material and for disseminating the entrained dusting material, said dust-disseminating device comprising a cover arranged to bridge the open top of said container and having means for detachable connection thereto, said cover and container cooperating to provide an enclosed chamber wherein the dusting material may be entrained in an air stream for dissemination, blower means having an air outlet opening through said cover into said chamber, baffling means carried by said cover and extending downwardly and forwardly in said chamber whereby said air stream is directed to flow in multiple passes through said chamber including at least one pass downwardly and forwardly in said chamber and another pass rearwardly and upwardly in said chamber whereby dusting material is entrained in said air stream, and a discharge port connected in communication with said chamber for egress therethrough of said air stream with the entrained dusting material after flow through said chamber.

9. For use with a container having an open top and adapted to receive a quantity of dusting material, a dust-disseminating device adapted to be attached to said container for entraining said dusting material and for disseminating the entrained dusting material, said dusting-disseminating device comprising a cover adapted to bridge the open top of said container and having means for detachably connecting said container to said cover, said cover and container being adapted to cooperate and to provide an enclosed chamber wherein the dusting material may be entrained in an air stream for dissemination, blower means having an air outlet opening through said cover into said chamber, baffling means carried by said cover and extending downwardly and forwardly in said chamber whereby said air stream is directed to flow in multiple passes through said chamber including at least one pass downwardly and forwardly in said chamber and another pass rearwardly and upwardly in said chamber whereby dusting material is entrained in said air stream, and a discharge port connected in communication with said chamber for egress therethrough of said air stream with the entrained dusting material after flow through said chamber.

10. A pneumatic dust disseminating device comprising an air-activating chamber adapted to receive a quantity of dusting material and having a control head forming a top wall for said chamber, means for admitting an air stream into said chamber and for directing said air stream in a first pass downwardly and forwardly toward one side of said chamber, means for redirecting said air stream in a second pass in reverse flow upwardly along the opposite side of said chamber and in a spiral course toward said control head, means for further redirecting said air stream in a third pass to flow forward along said top wall of said chamber, and means providing a discharge port in communication with said chamber for discharging said air stream.

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