

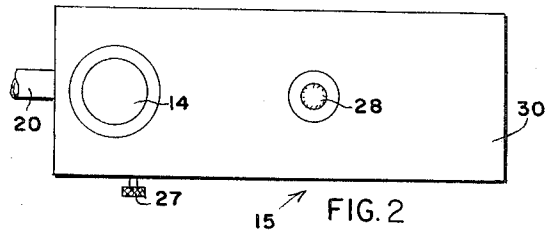
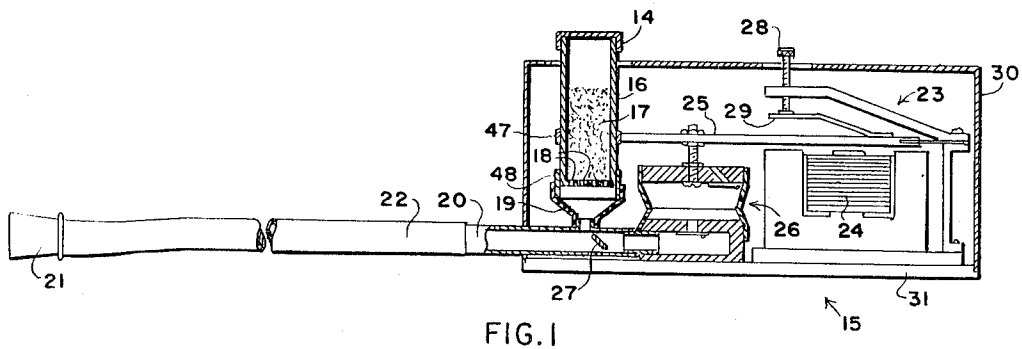
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DUSTER DEVICES

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DUSTER DEVICES

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The present invention relates to dusters for agricultural, medicinal and industrial uses. These dusters are devices for delivering a stream of air in which any desired powder is dispersed.

Heretofore, in dusters of this class, a stream of air, in its flow through a passage to a discharge nozzle, is made to gather a dust by applying force to deplete a powder supply which is interposed in or which is in communication with said passage. Others have dust-feeding mechanism employing whirlers, gear conveyors and the like, which in all instances are difficult to clean and comparatively complicated and costly. In most, the quality of the final discharge is not controllable.

It is therefore an object of this invention to provide a novel and improved duster construction in which the air flow and its dust intake are independently adjustable to control air volume and velocity and mixture quality of the product discharged from the nozzle.

Another object thereof is to provide a novel and improved duster of the character described, in which the introduction of the dust or powder into the air passage is independent of the existence and the force of the flow of air.

Still a further object of this invention is to provide novel and improved dusters of the kind set forth, which are simple in construction, automatic in action, reasonable in cost to manufacture, easy to adjust and use and efficient in carrying out the purposes for which they are designed.

Other objects and advantages will become apparent as this disclosure proceeds.

For one practice of this invention, a can having a perforated bottom, holds a supply of powder. This can is constantly shaken by a vibrator means. A constant supply of pressured air passes through a horizontal tube terminating in a discharge nozzle. This tube has an upright branch holding said can by means of resilient coupling structure so it receives the powder being sprinkled. A valve controls the air flow to the sprinkling station and there is a means to control the shaking action. The air supply may come from a driven pump. For a self-contained duster apparatus, the pump and vibrator are driven by a single electro-magnetic motive power means.

Such preferred embodiment of this invention will now be described in detail, for which I shall refer to the accompanying drawing forming part of this specification. In this drawing, similar characters of reference indicate corresponding parts in all the views.

FIG. 1 is an elevational view which is partly in section, showing a duster device of modified construction, in which a simple electrically-operated means is used for shaking the powder container by offering a vibratory motion thereto and at the same time, said means actuates a bellows pump to supply the air flow.

FIG. 2 is a top plan view of FIG. 1.

In the drawing, the duster apparatus indicated generally by the numeral 15, includes a suitable container 16, having a supply of a chosen powder 17 therein. The bottom wall of the container has perforations 18 therethrough. The lower part of said container is securely held in the upper end of a resilient tubular coupling element 19, which is connected as an upwardly extending branch of a substantially horizontally positioned tube 20, so that when said container 15 is shaken, powder sprinkled therefrom will enter said tube and become mixed with a

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flow of air forced through said tube. The laden air then passes out as a stream from a discharge nozzle 21 at the end of a flexible tube section 22 which is a continuation of said tube 20. As a means for shaking the container 16, there is an electro-magnetic device designated generally by the numeral 23, which consists of an electro-magnet 24 to be actuated by an alternating current supply, and an armature 25 attached to said container; said armature being arranged to vibrate when current is applied to said electro-magnet. In this embodiment, said armature also is connected to a bellows pump indicated generally by the numeral 26 which operates to force air into the tube 20. A valve 27 interposed in the tube 20 between its branch element 19 and said pump 26, controls the flow of air from the pump into said tube and an adjustment screw 28 bearing against a flexible cantilever finger 29 which extends from the armature 25, serves to control the intensity of vibration of the armature. The numeral 30 indicates a casing for this apparatus 15 which is carried on a base 31.

Of importance to note is that the introduction of the powder into the air passage in my duster construction, is independent of the force and even the existence of the air flow. I have therefore made it possible to use a simple, cheap and low motive power means, as preferably the electro-magnetic device 23, to operate both the powder container shaking means and a pump to create an ample air flow. In previous duster devices, comparatively large motors were necessary to drive them.

For medical use, the powder may be aspirin for lining the respiratory tract. This is set forth to indicate but one therapeutic practice. For use in agriculture, the powder is usually an insecticide. As an industrial use, the apparatus may be employed to do flocking, in which case the powder supply may be a colored sand, ground mica and the like.

The container 16 may have a removable cap 14 so the powder supply may be replenished, or said container may be removable when empty, to be replaced by a new full one to be snug slide-fitted in the rings 47 and 48. Although not shown, it is readily understandable that the can 16 may be made to be screwed into the ring 48 and may be made of transparent plastic or glass to show its contents.

This invention is capable of numerous forms and various applications without departing from the essential features herein disclosed. It is therefore intended and desired that the embodiments shown herein shall be deemed merely illustrative and not restrictive and that the patent shall cover all patentable novelty herein set forth; reference being had to the following claims rather than to the specific showings and description herein to indicate the scope of this invention.

I claim:

1. In a duster device of the character described, the combination of a tube having an intake end and a discharge end for the flow of air therethrough, a downwardly-discharging, powder-sprinkling container, means connecting said tube to said container whereby said container constitutes an upwardly extending branch of said tube; at least part of said connection means being extensible and contractable whereby said container is shakable in relation to said tube, a vibratable armature connected to said container, an electro-magnetic means for actuating said vibratable armature, an air pump connected to discharge into the intake end of the tube and means connecting said vibratable armature to said pump, whereupon actuation of said electro-magnetic means, the pump is operated and the container is shaken.

2. A device as defined in claim 1, including means to adjust the movement of said armature.

3. A device as defined in claim 1, including means to

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adjust the flow of air between the intake end of said tube
and said branch.

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