

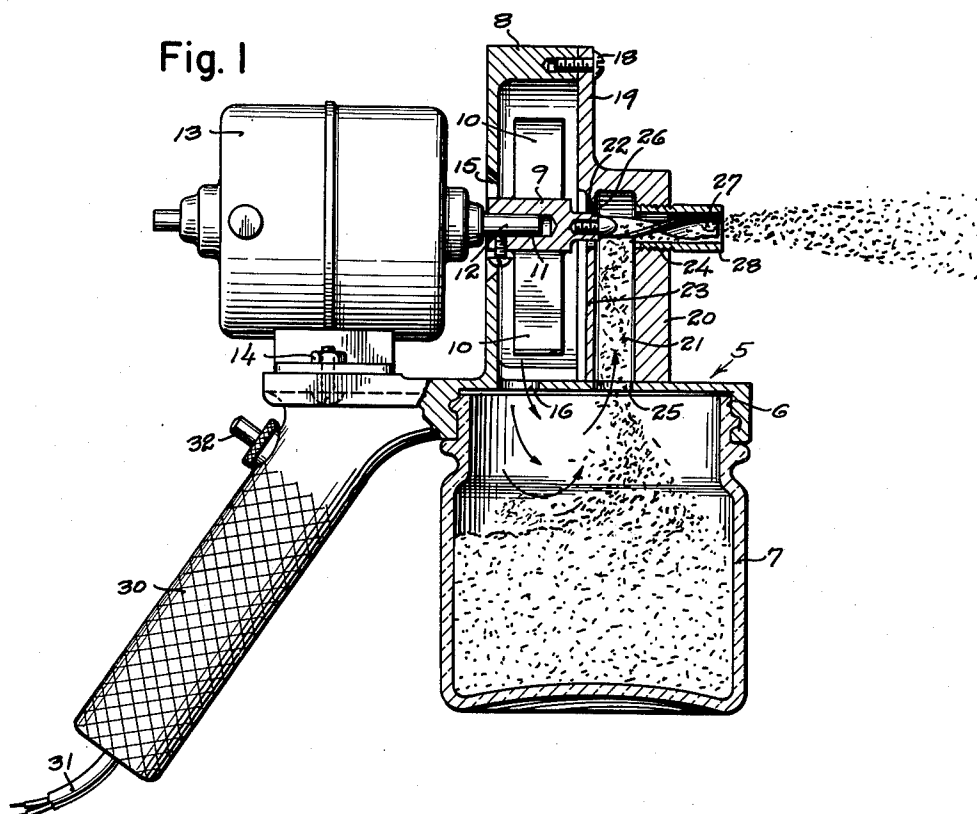
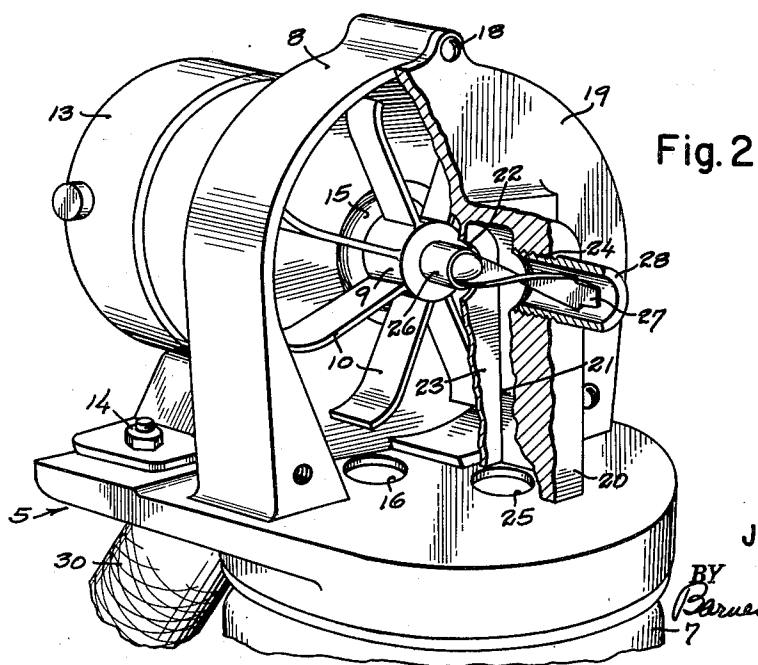
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FLOCKING GUN

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FLOCKING GUN

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8 Claims. (Cl. 222—193)

This invention relates to a gun for delivering flocking and other like or suitable light-weight comminuted matter, particulated glass metallics for example.

The application of flocking can be performed either by gun or by hand. Application by hand is objectionable in that it is quite tedious, slow, and lacking in uniformity. However, the only guns heretofore devised which have any measurable success have delivered the flocking in a strong jet of high-velocity air. While this has to a large extent overcome the troublesome tendency of flocking to "ball up" it has not been completely successful in this respect, and tends to disperse the delivered flocking more widely than is desired for fine control.

Looking to the provision of a perfected flocking gun of simple and inexpensive construction which will overcome the recited and other disadvantages of existing equipment, the present invention consists in the novel construction and in the adaptation and combination of parts hereinafter described and claimed.

In the accompanying drawings:

Figure 1 is a view partly in elevation and partly in longitudinal vertical section illustrating a flocking gun constructed to embody the preferred teachings of the present invention; and

Fig. 2 is a fragmentary perspective view of said gun likewise shown partly in elevation and partly in section.

Denoted by the number 5 in said drawing is a mounting base having upon its underside an annular socket 6 threaded to receive a standard glass jar or other like or suitable container 7, and being surmounted by a case 8 for the runner of a single-stage centrifugal air blower. Such runner is comprised of a hub 9 with a plurality of terminally curved blades 10 radiating therefrom, and exposed to the rear of the hub is a center-bore 11 in which is secured the armature shaft 12 of a small-capacity electric motor 13 bolted, as at 14, to the mounting base so as to occupy a position to the rear of the case and centered with respect thereto.

As a central induction opening for the blower, case 8 has a fairly large opening 15 concentrically surrounding the hub 9, and a tangential eduction orifice 16 is provided in the mounting base and opens into the head chamber of the socket so as to communicate with the interior of a container threaded into said socket.

The case has an open front, and bolted, as at 18, over this open front is a closure 19. Such closure, on its exposed face, is formed with a prominence 20 giving much the appearance of a strong-back rib and which extends from the floor level to a point somewhat above center. The prominence has an open-bottom vertical passage 21 therein, and a small circular opening 22 provided in the back wall 23 of the prominence gives access from the blower chamber to the head end of said passage. An opening 24 provided in the front wall of the prominence leads from the head end of such passage to the atmosphere. Openings 22 and 24 are placed co-axial to one another and to the air-induction opening 15. An

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orifice 25 provided in the mounting base registers with the open bottom of the passage and, as with the orifice 15, communicates with the head chamber of the socket 6. Said vertical passage 21 serves as an emission chamber for comminuted matter contained in the container 7.

Denoted by 26 is a reduced neck extending forwardly as an axial prolongation of the hub through said opening 22 into the emission chamber, and threaded into a tapped center-bore provided by such reduced neck and extending forwardly therefrom through and beyond the opening 24 is a ribbonlike blade 27 twisted to produce a substantial worm or auger having its axis coinciding with the axis of the neck. The spirality of such worm is left-hand so that rotation in the right-hand direction common to standard electric motors will impart a forward propulsive effect to air-borne comminuted matter surrounding the blade. The pitch is quite shallow, and I find that the degree to which the helical development progresses need not exceed a quarter to a half turn. The opening 24 through which said worm protrudes is tapped, and threaded into this tapped opening is a tubular nozzle 28 having its interior diameter so dimensioned as to give fair tolerance between such nozzle and the contained worm.

Said mounting base, the blower case, and the socket are or may be cast as a one-piece body, and may, if desired, include a handle 30 made hollow so as to accommodate an electric cord 31. A switch is housed in said handle, operated by thumb pressure applied to an exposed trigger 32.

It is thought that the operation and advantages of the invention will have been apparent from the foregoing description taken in conjunction with the illustration, wherein it will be seen that air thrown centrifugally from the blades 10 of the blower are projected through eduction orifice 16 into the head end of the container. As the air eddies and swirls within said head end of the container it picks up the flocking and such air-borne flocking then issues from the container through orifice 25 into the vertical emission passage 21. Coming under the influence of the rapidly revolving worm 27, the column of air-borne flocking is projected forwardly while at the same time being caused to spin and there is created that which in effect is a miniature cyclone in which the particles of flocking are each individually suspended in a current having a high velocity in point of circumferential travel but only a moderate velocity considered in a direction endwise to the axis.

While I have here illustrated and described my preferred embodiment of a flocking gun, changes can be resorted to without departing from the spirit of the invention. It is therefore my intention that no limitations be implied and that the hereto annexed claims be given a scope fully commensurate with the broadest interpretation to which the employed language admits. The term "flocking," as employed in the foregoing description and in the annexed claims, is to be construed in a generic sense as meaning any comminuted substance with which the present gun may be suitably employed.

What I claim is:

1. In a flocking gun, in combination: a container for flocking having a threaded neck, a mounting base provided upon its underside with a threaded socket to receive the threaded neck of said container and pierced by a pair of spaced-apart holes each communicating with the head end of the container, an open-front blower case surmounting said base provided in its rear wall with a central induction opening and having a tangential discharge registering with one of said two holes so as to deliver the discharge into the head end of the container, a closure for said open front of the blower provided with a centrally placed through-opening axially coinciding with

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the induction opening and presenting a vertical passage connecting at its upper end with said through-opening and registering at the lower end with the other of said two holes so as to deliver air-borne flocking to the through-opening, and a power-driven rotary blower received in the blower case and provided with a worm projecting forwardly as an axial prolongation of the hub section of the blower into said through-opening, the directional twist of the worm being such as to expel air-borne flocking forwardly through said through-opening.

2. The gun of claim 1 wherein the worm projects forwardly well beyond the closure, and having a tubular nozzle threaded into the closure to surround said projecting end of the worm.

3. The gun of claim 1 in which the power for said blower is derived from an electric motor boltably secured upon the mounting base to the rear of the blower case.

4. The gun of claim 3 in which the mounting base and the blower together with a hand grip are formed as a one-piece unitary casting.

5. The gun of claim 3 in which the blower hub is detachably secured to the armature shaft of the motor, and wherein said hub at its front end provides a socket in which the worm is threadedly secured.

6. The gun of claim 1 in which the pitch of the worm is quite flat to develop little end thrust so that the spinning worm creates an air disturbance in the nature of a

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cyclone with high-velocity travel circumferentially about center and comparatively moderate advance endwise to the axis.

7. In a flocking gun, in combination, a container for the flocking, a delivery passage leading from the interior of said container to the atmosphere, means for delivering a pressure column of air into said container for discharge, together with air-borne flocking, through said delivery passage, a worm journaled for rotation in said delivery passage, and means for spinning said worm at a high speed and in such a direction as causes the worm thrust to coincide directionally with the travel through said delivery passage of the column of air-borne flocking.

8. The flocking gun of claim 7 in which the pitch of the worm is quite flat to develop little end thrust so that the spinning worm creates an air disturbance in the nature of a cyclone with high-velocity travel circumferentially about center and comparatively moderate advance endwise to the axis.

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