Aug. 18, 1936. H. EICKEN 2,051,440

DEVICE FOR ATOMIZING POWDER

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Fig. 1

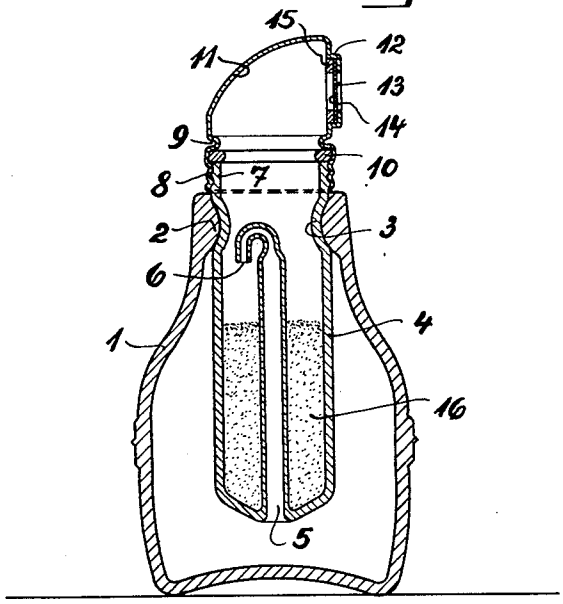
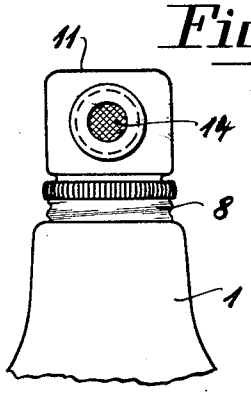


Fig. 2



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DEVICE FOR ATOMIZING POWDER

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4 Claims. (Cl. 221—61)

Despite careful manipulation of the hand-ball, it sometimes easily happens that the blowing nozzle of the well-known powder atomizers sets considerable quantities of the powder supply in an upward motion in the form of pellets with the first puff of air, and throws them against the lower surface of the exhaust sieve. In this manner, therefore, not only are the openings for the normal air-dust current clogged up by the material in this form, but a part of these dust pellets are ejected without being reduced to a smaller size with the result that clothing or other objects are soiled.

In addition, the blowing of dust on to body surfaces which are more or less steep with the already known similar devices is rendered difficult because the exhausting sieve of the device is directed upwards in the axial direction of the device. Of course, the thought immediately occurs of directing the air-dust current against such surfaces as well simply by holding the device at more or less of an angle; however, the whirl-pool effect produced by the above mentioned blowing tube is much more difficult to adjust when necessary in the tilted position than in the vertical position.

The present invention eliminates these deficiencies because the exhaust sieve in the outer closing-off cap of the powder supply container is not located radially across from the opening of the latter, but in its side wall and is installed in a lateral direction, whereas the end wall of the cap is arranged as a rebounding surface which is directed at an angle to the axis of the container and to the exhaust sieve. In this way it is brought about that the pellet-formed quantities of dust which are otherwise shot directly through the exhaust sieve in an upward direction by the stream issuing from the blowing nozzle, are prevented from striking the exhaust sieve directly, and are directed against the oblique rebounding surface beforehand. As far as these pellets are not converted to the dust form, they fall back after losing their momentum into the supply container. Therefore, only the finely divided dust which is floating in the issuing stream of air can be carried through the openings of the sieve. In this manner, the position of the exhaust sieve at the side of the issuing cap makes it possible to concentrate the dust stream at the desired place even in the case of vertical surfaces, and to avoid the useless and annoying flying around of dust in the undesired directions.

Figure 1 of the drawing represents a vertical section and

Figure 2 shows a lateral view of the upper part of the invention.

The rubber ball 1 is provided at its mouth with a rim protuberance which fits into a flat ring groove 3 of the powder container 4 which is sunk into the interior space of the hand-ball. The powder container consists preferably of glass and its lower part is traversed with an air tube 5 in the longitudinal direction which is in connection with the lower air space of the rubber ball, whereas the upper end of this tube narrows down to a goose-necked blowing nozzle 6 which is bent downward. The upper rim of the powder container which extends beyond the rim protuberance of the hand-ball has been designed as a thread support 7 to which the lower rim of the metallic screw cap 8 fits. The latter is provided above the terminal rim of the thread support with a fastening 9 and a packing ring 10. The interior space of the screw cap which lies above this fastening is closed off at the end by an obliquely located deflecting or rebounding surface 11, whereas a short cylindrical support 12 is pressed out of the cylindrical side surface of this end part of the screw cap, of which the opening 13, located opposite said deflecting surface 11, is closed off by the sieve 14 which is made of wire mesh or similar material. On the inside this sieve is held by a metallic ring 15 and is secured in the frame of the support 12.

The air stream which issues from the blowing nozzle when the rubber ball 1 is pressed is driven against the powder supply 16 which fills the lower part of the powder container. In this way, a part of the powder is whirled up in highly divided form, whereas other parts, especially when the ball is pressed together strongly, are carried upward by the air stream in an undivided condition while the air stream turns more or less upwards on the surface of the powder supply itself. Those parts of the powder which are in the form of pellets either strike against the oblique rebounding surface 11 and are finely divided, or they fall, after having lost their momentum, back again into the supply space. Therefore the air stream issuing laterally from the mesh of the sieve 14 contains only a finely divided powder dust, even when the manipulation of the rubber ball is carried out impetuously and with little care, and the forcefully issuing stream of air and finely divided dust

may be directed accurately against the surface to be dusted.

I claim:—

1. A device for atomizing powder consisting of a rubber ball connected to a powder container, said powder container enclosing a blowing tube with a blowing nozzle directed away from its opening, the powder container arranged inside of the rubber ball and the extending rim of said container being provided with a thread onto which a closing-off cap having a discharge opening is attached.

2. A powder atomizer comprising a powder container having a lateral discharge outlet at its top and a deflecting surface located adjacent to said outlet for directing particles of powder flowing from the container toward said outlet back into the container, a blow tube disposed within the container and having a lower inlet end opening exteriorly through the container and having an upper discharge end located above the level of the powder in the container and provided with a nozzle arranged to direct air downwardly against the powder in the container, and a pressure bulb for forcing air through said blow tube.

3. A powder atomizer comprising a powder container having an upper normally open end, a cap closing said normally open end of the container and provided at one side with a discharge outlet, said cap having a wall portion disposed above and opposite said outlet for deflecting particles of powder flowing from the container toward said outlet back into the container, a blow tube disposed within the container and having an inlet end opening outwardly through the container and an upper discharge end provided with a discharge nozzle bent to discharge air down against the powder in the container, and a pressure bulb for forcing air through said blow tube.

4. A powder atomizer comprising an elastic air forcing receptacle, a powder container disposed in said receptacle and having an upper normally open end projecting outwardly from the receptacle, a cap closing the normally open end of the container and provided at one side with a discharge outlet and having a wall portion disposed above and opposite said opening for deflecting particles of powder flowing from the container toward the discharge outlet back into the container, and a blow tube extending longitudinally within the container and having an inlet end in open communication through the bottom thereof with the elastic air forcing receptacle and having at its upper end a discharge nozzle located above the level of the powder in the receptacle and bent so as to direct air downwardly against the powder in the receptacle.

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