

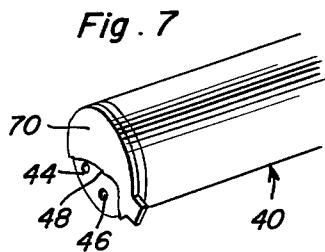
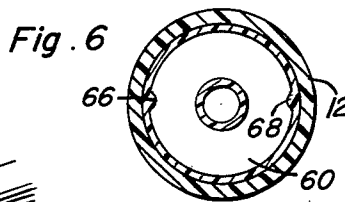
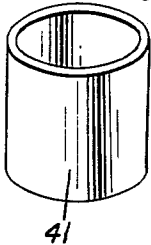
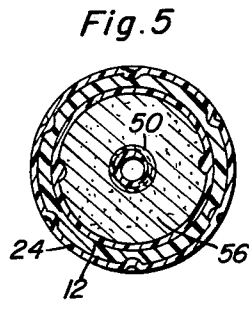
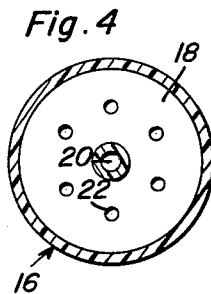
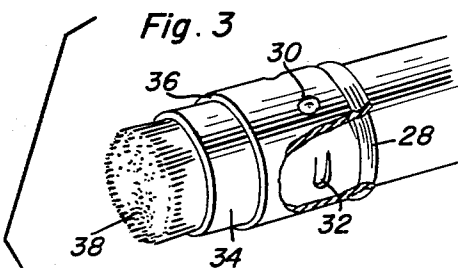
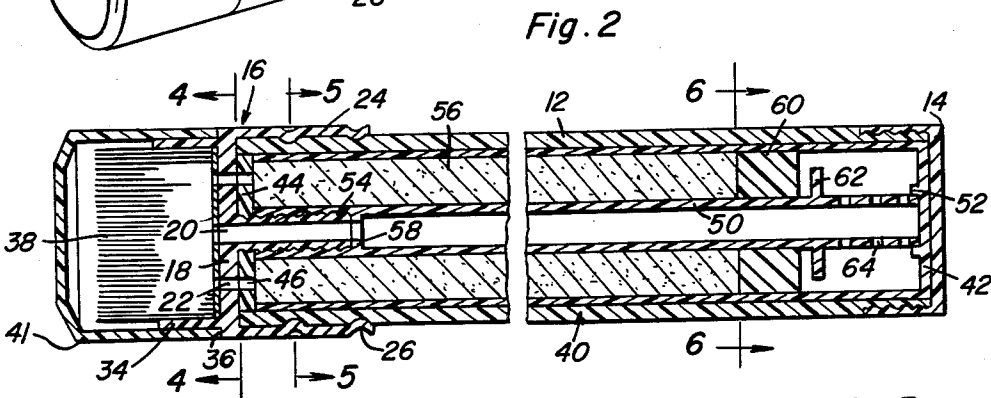
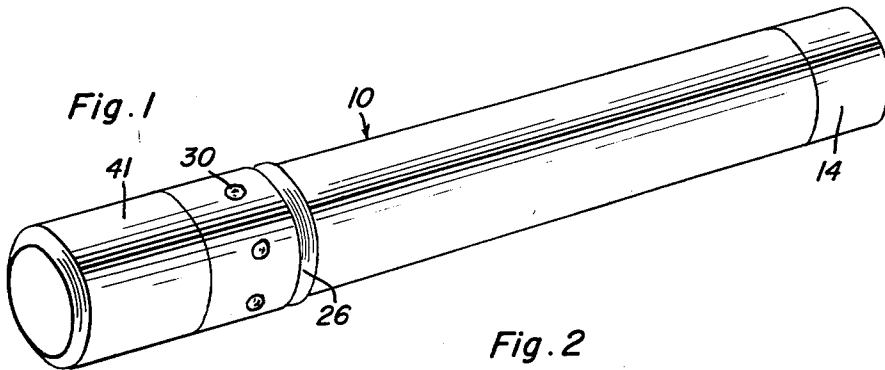
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3,256,550

POWDER BRUSH WITH DISCHARGE PLUNGER

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POWDER BRUSH WITH DISCHARGE PLUNGER
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The present invention is generally concerned with self-dispensing powder brushes, and is more particularly related to a powder brush wherein the internally contained powder is dispensed through the action of a freely sliding plunger located therein.

One of the primary objects of the instant invention is to provide a powder brush which is, in itself, adapted to contain and dispense a supply of powder, generally face powder.

In conjunction with the above object, it is also an object of the instant invention to provide a means for encouraging the dispensing which will not result in a packing of the powder, this being a frequent problem due to the generally oily nature of various powders such as face powders.

It is also an object of the instant invention to provide for the supplying of the powder in individual insertable cartridges, enabling the utilization of the same dispensing powder brush with a variety of different powders without requiring the exhausting of the supply within the brush inasmuch as the powder containing cartridge can be removed prior to the emptying of the contents therefrom and another substituted in its place as desired.

In order to achieve the above objects, it is contemplated that the device of the instant invention consist basically of a cylindrical container or housing having a removably mounted rotating brush carrying dispensing head on one end thereof and a removable cap on the other end thereof through which the various powder containing cartridges can be inserted. These powder containing cartridges are to closely conform to the interior of the cylindrical housing and include, in addition to a dispensing plate on one end thereof, an elongated centrally located tubular rod upon which is mounted, in a freely sliding manner, a weighted plunger which, upon a shaking of the casing, effects a smooth dispensing of the powder, located between the plunger and the dispensing plate of the cartridge, through the dispensing head and into the powder applying means.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the powder brush of the instant invention with the brush covering cap thereon;

FIGURE 2 is an enlarged longitudinal cross-sectional view of the device;

FIGURE 3 is an exploded perspective view of the dispensing end of the device and the cap;

FIGURE 4 is a transverse cross-sectional view taken substantially on a plane passing along line 4-4 in FIGURE 2;

FIGURE 5 is a transverse cross-sectional view taken substantially on a plane passing along line 5-5 in FIGURE 2;

FIGURE 6 is a transverse cross-sectional view taken substantially on a plane passing along line 6-6 in FIGURE 2; and

FIGURE 7 is a partial perspective view of the dispensing end of a powder cartridge.

Referring now more specifically to the drawings, reference numeral 10 is used to generally designate the powder

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brush comprising the instant invention. This brush 10 includes an elongated tubular casing or cylindrical container 12 having a removable cap 14 threaded on and sealing the rear end thereof, and a removable dispensing head 16 on the other end thereof.

The dispensing head 16 is in effect a tubular member consisting of a circular perforated plate 18 having a central passage 20 therethrough with the perforations 22 arranged in a circular spaced outwardly therefrom. Extending rearwardly from the circular plate 18 is a cylindrical flange 24 which receives the forward end of the casing 12 therein for abutment with the rear surface of the plate 18. This rearwardly projecting flange 24 includes an inwardly directed peripheral groove 26 adjacent the rear or outer edge thereof, this groove forming an internal rib which is releasably received within a mating groove 28 provided about the exterior of the casing 12 so as to in effect lock the dispensing head 16 to the casing 12 in a manner which, while preventing normal longitudinal movement, allows a rotation of the dispensing head 16 relative to the casing 12. In addition, it will be noted that the rearwardly projecting flange 24 includes a plurality of circumferentially spaced detents 30 therein with a corresponding number of notches 32 appearing in the casing, these notches 32, in conjunction with the detents 30, allowing the fixing of the dispensing head 16 in a plurality of rotationally adjusting positions for reasons which shall be pointed out presently.

Projecting forwardly from the perforated plate 18 is a second cylindrical flange 34 offset inwardly from the periphery of the plate 16 so as to form a shoulder 36 thereabout. This flange 34 functions so as to both protect the powder applying means, which may be in the form of a brush 38 as illustrated or a puff, and also so as to frictionally retain a removable cap 41 which is frictionally received thereover so as to protect the powder applying means or brush 38. Incidentally, the bristles of the brush 38 are to be secured directly to the forward face of the perforated plate 18.

The present invention contemplates the provision of the powder supply for the powder brush 10 be in the form of removable and replaceable cartridges 40 which are tubular in shape and closely conform to the interior of the tubular casing 12 for reception therein. Each cartridge 40 includes a solid rear wall 42 and a perforated forward wall 44 with the perforations 46 therein being arranged in a circle about a central aperture 48 in the manner of the perforations 22 of the plate 18, and in exactly the same relationship so as to allow an alignment of the perforations 22 and 46 as well as an alignment of the apertures or passages 20 and 48.

Located centrally within and extending the full length of the tubular cartridge 40 is a tubular rod 50 having the upper end thereof internally threaded and aligned with the front wall aperture 48, the lower end of the tubular rod being rotatably supported centrally on the bottom wall 42. This rotatable supporting of the lower end of the tubular rod 50 being provided for in any suitable manner such as by a circular collar 52 projecting forwardly from the wall 42 in surrounding relationship to the tube 50.

Engaged within the internally threaded forward end of the tube 50 is a rearwardly projecting hollow externally threaded stub 54 on the perforated plate 18 in surrounding relation to the central opening 20 therein.

In mounting the cartridge 40 within the casing 12, the rear end cap 14 is removed and the cartridge 40 inserted so as to engage the internally threaded forward end of the tube 50 with the externally threaded stub 54 of the dispensing head. Next, the dispensing head is rotated so as to draw the cartridge into the casing 12 until the perforated forward end wall 44 of the cartridge 40

is engaged against the rear of the perforated dispensing plate 18. At this point the end cap 14 is replaced. With the end cap 14 in position an unthreading of the stub 54 from the tubular rod 50 is impossible, and, upon a rotation of the dispensing head 16 a rotation of the tubular rod 50 will also result, thus enabling a successive alignment and misalignment of the apertures 22 and 46 so as to allow or prevent a flow of the powder 56 from the cartridge to the applying head or brush 38. It will be noted that a stop 58 is also provided so as to limit the threading of the stub 54 into the forward end of the tubular rod 50, this stop being located so as to ensure a proper positioning of the cartridge wall 44 against the rear surface of the dispensing plate 18. It will of course be appreciated that the tubular rod 50 is to be frictionally retained within the cartridge 40 in a manner so as to only allow a rotation of this tubular rod 50 relative to the cartridge 40 upon a positive preventing of rotation of the cartridge 40 such as will result by a preventing of longitudinal movement of the cartridge 40 when the end cap 14 is positioned on the casing 12.

In order to effect a dispensing of the powder 56 through the aligned apertures 22 and 46, a weighted cylindrical plunger 60 is provided within the cartridge 40 for longitudinal sliding movement therein, this plunger 60 of course including a central aperture therethrough for slidably receiving the tube 50. The powder 56 itself is received within a powder chamber formed between the front wall 44 and the plunger 60 which, incidentally, is orientated in spaced relation from the rear wall 42 by outwardly projecting stops 62 provided on the tube 50, this spaced positioning of the plunger 60 allowing for the provision of an air chamber to the rear of the plunger 60 so as to prevent any build-up of a vacuum such as would result in a restriction to the free movement of the plunger 60. Communication of this air chamber with the exterior is provided through the hollow interior of the tubular rod 50 which, in conjunction with lateral air holes 64 in the lower or rear end thereof behind the stop 62 and the hollow interior of the stub 54, and the central opening 20 in the dispensing plate 18 provides free communication of the air chamber with the atmosphere. The plunger 60 is guided in its longitudinal movement within the cartridge by a pair of opposed longitudinally extending grooves 66 slidably mating with longitudinally extending ribs 63 along the full length of the cartridge 40.

In dispensing the powder 56 from the cartridge 40 to the powder applying brush 38, the apertures 22 and 46 are aligned and the entire casing shaken so as to reciprocate the plunger 60 between the stops 62 and the powder 56 with the combined shaking of the device 10 and the impact of the plunger 60 on the powder 56 providing a very effective dispensing of the powder 56 into the powder applying brush 38, this being achieved without any packing of the powder such as might preclude its free passage through the aligned apertures, the shaking of the tube, necessary so as to effect a reciprocating of the plunger 60 constituting a significant feature in providing for the free flow of powder. As desired, the detents 30 and the notches 32 can be arranged so as to alternatively provide for an alignment and misalignment of the apertures 22 and 46, or, the notches and detents can be provided so as to always provide for an alignment of the apertures with a misalignment of the apertures being achieved only upon a moving of the detents out of the notches. Further, inasmuch as the cartridges 40 are to be removable and replaceable at will, it is contemplated that a removable and replaceable at will, it is contemplated that a removable sealing strip 70 be provided over the perforated forward wall 44 so as to prevent the flow of powder therefrom when not being utilized within the casing 12. Incidentally, this removable sealing film 70, or in fact the cartridge 40 itself can be of a transparent nature so as to allow a user to quickly ascertain the type and color of powder orientated therein.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A removable cartridge for use in a dispensing powder brush, said cartridge being tubular in shape and having a solid plate closing one end thereof and a perforated plate closing the other end thereof, a plunger having a cross-section corresponding generally in size and shape to the cross-section of the interior of the cartridge, said plunger being positioned in the cartridge for longitudinal sliding movement therein, removable means for sealing the perforations in the plate, an elongated hollow tubular rod rotatably and concentrically positioned within the cartridge, said plunger having a passage centrally therethrough of a size so as to slidably receive the tubular rod, and at least one aperture in said rod communicating the hollow interior thereof with the interior of the cartridge adjacent the end of the cartridge closed by the solid plate, said hollow interior communicating with the outside atmosphere through the perforated plate.

2. In a powder brush, an elongated tubular casing, a perforated plate rotatably mounted on one end thereof, said plate having an elongated stub thereon projecting rearwardly from said plate concentrically into said casing, a cartridge snugly received within said casing, a perforated plate on one end of said cartridge positioned adjacent the casing plate, the perforations in both plates being alignable, an elongated rod rotatably and concentrically mounted in said cartridge, means interlocking said stub and the forward end of the rod, a solid plate on the other end of the cartridge, and a weighted plunger slidably mounted in said cartridge about said rod for longitudinal movement therealong toward and away from the perforated plate, said stub and said rod being hollow with the interiors thereof in communication with each other, said casing plate having an aperture therethrough in alignment with the stub, said rod having at least one aperture therethrough communicating the interior thereof with the interior of the cartridge rearward of the plunger.

3. The structure of claim 2 including stop means on said rod forward of the aperture therein for limiting movement of the plunger.

4. The structure of claim 3 wherein said means interlocking the stub and rod consists of internal threads on the forward end portion of the rod and mating external threads on the stub.

5. A removable cartridge for use in a dispensing powder brush, said cartridge being tubular in shape and having a solid plate closing one end thereof and a perforated plate closing the other end thereof, a plunger having a cross-section corresponding generally in size and shape to the cross-section of the interior of the cartridge, said plunger being positioned in the cartridge for longitudinal sliding movement therein, an elongated hollow tubular rod positioned centrally within the cartridge, said plunger having a passage centrally therethrough of a size so as to slidably receive the tubular rod, and at least one aperture in said rod communicating the hollow interior thereof with the interior of the cartridge adjacent the end of the cartridge closed by the solid plate, said hollow interior communicating with the outside atmosphere through the perforated plate.

6. In a powder brush, an elongated tubular casing, a perforated plate on one end thereof, means sealing the second end of the casing, plunger means reciprocally responsive to vibration of the casing, said plunger means being received within the casing, said perforated plate and said plunger means generally defining a powder chamber therebetween, powder applying means on said casing forward of the perforated plate, and an elongated member

positioned within the tubular casing, said elongated member extending along substantially the full length of said casing and having a smooth exterior, said plunger means including a smooth passage therethrough slidably receiving said member for longitudinal movement of said plunger means along said member, said member including a hollow passage coaxially therethrough, means communicating said member passage with the atmosphere through the perforated plate, and at least one aperture in said member located between said plunger means and the means sealing the second end of the casing and in communication with the member passage.

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