

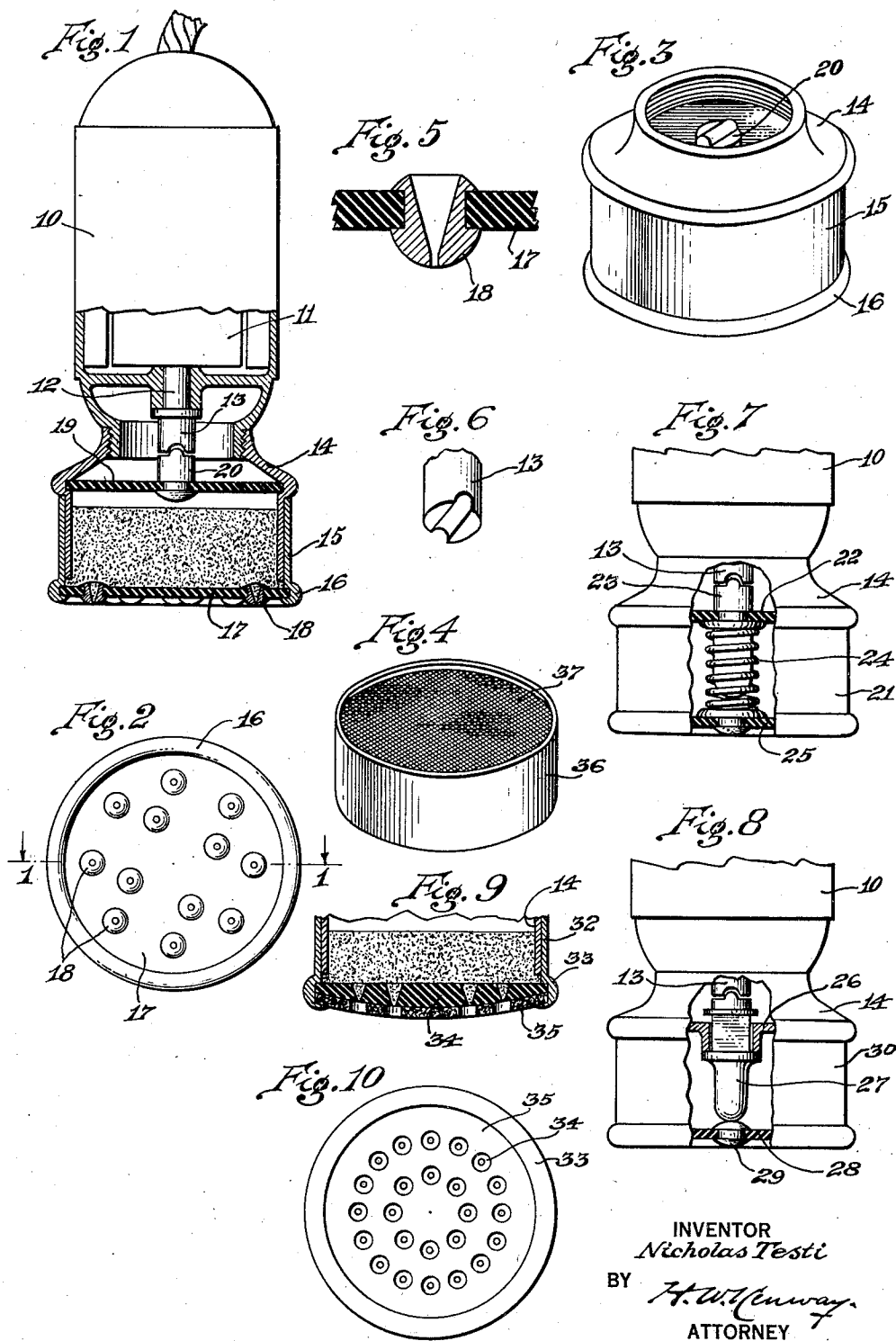
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MECHANICAL POWDER PUFF

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## MECHANICAL POWDER PUFF

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The present invention consists in a mechanical powder puff, that is to say, in a device constructed and arranged to contain a supply of toilet powder or the like and to discharge it freely over an appreciable area when the user desires to apply it.

An object of my invention is to provide a compact and efficient device in which an ample supply of powder shall be maintained instantly available in such quantities as may be desired and from which the powder shall be discharged without any effort on the part of the user beyond that of moving the device as a whole over the parts of the body to be treated.

The device of my invention is herein shown as designed to be used as an attachment for a dry shaving implement and may replace the shearing head upon the casing which serves as a handle for the shaving implement and houses the motor thereof. The device includes a vibratory diaphragm for discharging powder from the supply through perforations in one wall of the powder container and, when the device is used as an attachment for a dry shaver, this diaphragm may be operatively connected to the motor and actuated thereby. On the other hand, the device may comprise a unitary organization having its own motor and handle.

A feature of the invention lies in a flexible and vibratory wall perforated so that powder may be discharged through it and provided with spaced projections designed to impart a massaging treatment to the surface of the body under treatment. For example, when the device is used as an attachment for a dry shaver the user has all the appliances available for shaving, powdering and facial massage.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawing, in which:—

Fig. 1 is a view of the device partly in elevation and partly in longitudinal section;

Fig. 2 is an end view thereof;

Fig. 3 is a view in perspective of the powder container and associated parts;

Fig. 4 is a view in perspective of a powder containing cartridge;

Fig. 5 is a fragmentary sectional view, on a greatly enlarged scale, of a portion of the powder discharging wall of the device;

Fig. 6 is a fragmentary view in perspective showing the end of the motor shaft;

Figs. 7 and 8 are fragmentary views in ele-

vation, with portions broken away, showing two modified forms of the device;

Fig. 9 is a fragmentary view in section, showing a third modified form of the device; and

Fig. 10 is an end view of the device shown in Fig. 9.

In the drawing the device is shown as an attachment for a dry shaving implement having an elongated cylindrical casing 10 in which is housed a motor having a rotor 11 and shaft 12 journaled in bearings formed as part of the casing. It will be understood, however, that this particular embodiment of the invention is selected for illustration only and that the device may be constructed, if desired, with the unitary purpose of providing a mechanically actuated powder puff.

Referring first to Fig. 1, it will be seen that the end of the housing 10 is shaped to present a threaded ring or flange and upon this is detachably secured an auxiliary casing 14 having a ring portion threaded for engagement with the corresponding part of the casing 10 and a cylindrical wall which forms a portion of the powder container. The open end of the auxiliary housing 14 is closed and the powder container completed by a cap or sleeve member having a cylindrical wall 15 which fits telescopically upon the corresponding wall of the auxiliary housing 14. The cap or sleeve member is provided with a circumferential rib 16, grooved about its inner face to receive a circular perforated end wall 17. In the illustrated device the end wall 17 is flexible, being formed of hard rubber, and is provided with a series of perforated rounded projections or bosses 18. These serve as discharge openings for the powder container and also as massaging projections.

The auxiliary casing 14 is provided with an annular groove or channel in its inner face, about its cylindrical wall and in this is mounted a circular flexible diaphragm 19 which may also be of hard rubber or other suitable composition. The diaphragm 19 is provided at its center with a fixed metallic stud 20 which projects upwardly and is provided at its end with a transverse rib. The rib of the stud 20 is so shaped and located as to extend slightly into the transversely grooved end of the motor shaft 12 thus presenting a metallic face to receive impulses. Accordingly, as the shaft is rotated, the stud 20 and the diaphragm 19 in which it is set are vibrated rapidly toward and from the discharge end wall 17 of the powder container. The mass of powder contained therein and the air within the container are thereupon agitated as the air is drawn in and

out through the discharge opening and the result is that the powder is discharged in an extremely rapid series of small puffs through all of the bosses 18 which may be symmetrically distributed as shown in Fig. 2 in any desired pattern throughout the area of the circular wall 17. In addition to the copious and distributed discharge of powder thus brought about, the mass of powder within the container is agitated, aerated and prevented from settling into a compact cake and the flexible end wall is also vibrated by the pulsations imparted to it through the body of air in the container.

The container may be refilled by removing the cap or sleeve member from the cylindrical portion of the auxiliary casing 14 and powder poured into it or a cartridge of powder may be inserted at this time. Such a cartridge is illustrated in Fig. 4 as having cylindrical walls 36 and end walls 37 of fine mesh or gauze effective to hold the powder in place until it is agitated within the container.

In the device illustrated in Fig. 1 the flexible end wall 17 has no connection with the flexible diaphragm 19 but has a vibration imparted to it through the action of the body of air interposed between the two. In the modification shown in Fig. 7, on the other hand, the perforated and flexible end wall 25 is connected through a spring 24 to the flexible diaphragm 22 and a vibration is imparted from one to the other through this mechanical connection. In this device the cap member 21 contains the circular end wall 25. The diaphragm 22 in the auxiliary casing 14 is provided with a stud 23 extending upwardly and having a rib in its upper end and extending downwardly below the diaphragm to form a guide spindle for the spiral spring 24.

In the modification of Fig. 8 the auxiliary casing 14 is provided with a rigid diaphragm 26 having a central boss with a square bore which forms bearings for the stud 27. The latter has a square stem which is held against turning in the boss of the diaphragm and is provided with a cross rib in its upper end. The stud 27 is extended downwardly into engagement with a metallic button fast in the flexible end wall 28 of the cap member 30. In this construction the wall 28 alone vibrates.

In Figs. 9 and 10 is illustrated a modified form of cap member 32 capable of use, for example, with the device of Fig. 1. In this case a relatively thick and flexible end wall 34, having convergent discharge openings, is provided with a cover sheet 35 of felt or velvet.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. A device of the class described comprising a container for a supply of powder, a perforated cover therefor, a mechanically vibrated diaphragm associated with the container and serving to discharge powder from the supply therein,

and power operated means contained within the device for vibrating said diaphragm.

2. A device of the class described comprising a container for a supply of powder, one wall of the container being perforated by discharge openings and the opposite wall comprising a mechanically vibrated diaphragm operating to discharge powder through the discharge openings, and power operated means contained within the device for vibrating said diaphragm.

3. A device of the class described comprising a cylindrical container for a supply of powder, the container having an outer perforated end wall and an interior diaphragm arranged to vibrate toward and from said end wall to discharge powder through the perforations thereof, and power operated means contained entirely within the device for vibrating the diaphragm at high speed.

4. A device of the class described comprising a container having a perforated flexible wall provided with spaced massaging projections, an interior diaphragm and means for imparting a vibration to said diaphragm causing powder within the container to be discharged through the perforations of said flexible wall and the wall itself to vibrate with said projections.

5. A device of the class described comprising a container having a wall of flexible material, a plurality of rounded and perforated studs set in said wall and projecting from the outer face thereof, a diaphragm mounted within the device in spaced parallel relation to said wall, and mechanism for vibrating said diaphragm, whereby the said projections are maintained in a state of vibration and powder from the container discharged through them.

6. An attachment for a dry shaving implement, comprising a casing having a threaded flange for attachment to the implement, a vibratory diaphragm having a central stud presenting a metallic face to receive impulses, and a flexible perforated wall arranged to discharge powder contained between said diaphragm and said wall.

7. An attachment for a dry shaving implement having a rotary motor, comprising a casing shaped for detachable engagement with said implement, a flexible diaphragm mounted within said casing and having a stud projecting therefrom and presenting a metallic face to receive impulses, and a cap member removably mounted on said casing and having a flexible wall perforated to discharge powder contained between the diaphragm and wall.

8. A device of the class described comprising a casing having a container for a supply of powder, the container having a diaphragm on one side and a flexible, perforated discharge wall on the other side of the powder supply, and power driven means contained within the device and acting through the diaphragm for vibrating the discharge wall.

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