Nov. 21, 1939. L. BETHKE 2,180,389

TOOTH POWDER DISPENSER

Filed Sept. 19, 1938

Fig. 3.

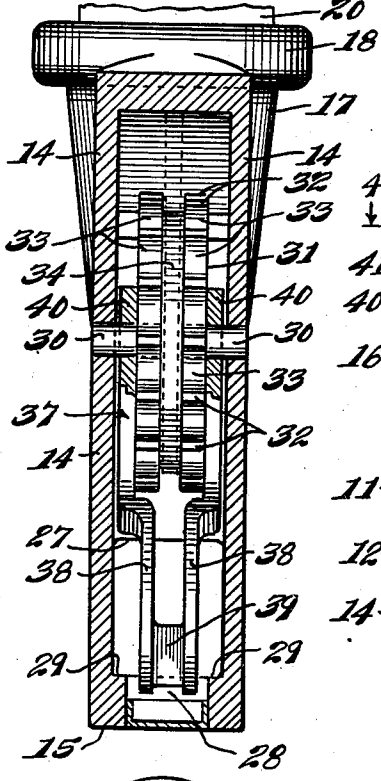
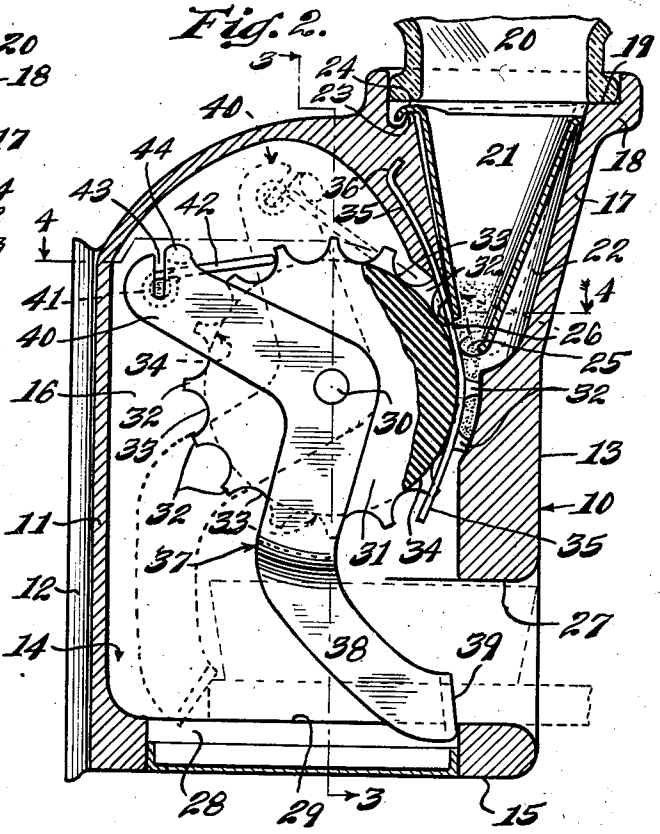


Fig. 2.



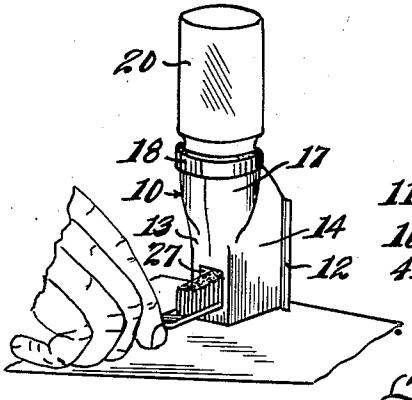
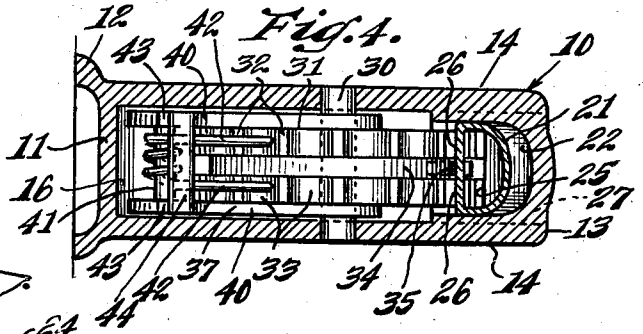


Fig. 1.

Fig. 4.



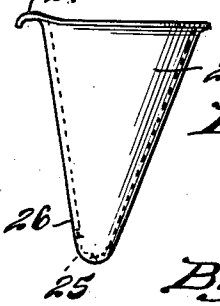


Fig. 5.

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UNITED STATES PATENT OFFICE

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TOOTH POWDER DISPENSER

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11 Claims. (Cl. 221—61)

This invention relates to powder dispensing devices, and more particularly to a tooth powder dispensing device designed to discharge a small or measured quantity of the powder onto the tooth brush upon insertion of the brush into the device to actuate the same.

Among the objects of the invention are to provide a novel, simple and attractive device of the above character which forms a desirable and convenient accessory in home or office with improved brush actuated powder dispensing means and vibrating means actuated thereby or simultaneously to agitate and loosen the powder to free and cause the positive discharge thereof and thereby prevent the powder from clogging or caking within the container or hopper and insuring the feeding thereof to discharge pockets and passage to supply the brush with just the necessary and desirable quantity of powder for use, such as on a tooth brush for cleaning the teeth.

Other objects and advantages will appear and be brought out more fully in the following specification, reference being had to the accompanying drawing, wherein:

Fig. 1 is a perspective view of the powder dispensing device showing the manner of using the same;

Fig. 2 is an enlarged vertical sectional view thereof;

Fig. 3 is a vertical transverse section taken on the line 3—3 of Fig. 2;

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 3; and

Fig. 5 is an elevation of the oscillatory or vibrating auxiliary hopper or funnel to agitate or prevent clogging of the powder.

Referring more particularly to the drawing, the device is shown as comprising a fitting or bracket consisting of a housing or casing 10 which is vertically elongated and relatively flat. This casing may be die cast or made of other suitable material in one, two or more sections as shall be found most convenient. It is provided with a vertical rear wall 11 which may be provided with side flanges 12 for supporting the device against a wall or other vertical support having opposed grooves for this purpose as is common. The front wall is designated at 13 and is relatively thick, while the side walls are designated at 14 and the bottom at 15 forming an internal chamber 16 to accommodate the working parts of the device. At the front above and at the top portion of the vertical front wall 13 is a hopper 17 shown substantially conical and formed by enlarging and rounding the side and front walls of the casing. This hopper has an outwardly and upwardly extending flange 18 above the casing forming an internal upwardly facing shoulder or seat 19 upon which a receptacle 20 containing the powder is adapted to be supported in an inverted position and secured in place in any suitable way. An auxiliary hopper or conical funnel 20 seats within the hopper 17 and is adapted to be oscillated or vibrated therein to prevent clogging or caking of the powder. This auxiliary hopper or funnel is normally disposed against the back portion of the hopper 17 to provide a space 22 at the front allowing movement of the vibratory funnel therein and the lower portion of the wall of the hopper 17 is curved rearwardly and provided with an arcuate recess therebeneath, as shown more particularly in Fig. 2 of the drawing.

The funnel is supported for agitation upon a pivot formed by a projection 23 at the top and back of the wall, the funnel having a hook 24 at its top edge engaging the projection or pivot to support the funnel in position to be oscillated or swung back and forth at its tapered end, which is provided with a slot or opening 25 at the bottom or back portion thereof through which the powder contained therein is designed to be discharged. This slot forms an edge wall 26, the purpose of which will be subsequently explained.

At the lower portion of the front wall 13, the casing is provided with a vertical slot or front opening 27 adapted to take a tooth brush in the manner shown in Figs. 1 and 2 of the drawing with the bristles extending upwardly. A narrow slot 28 may also be provided in the bottom to accommodate certain parts of the actuating mechanism or lever as will be subsequently explained and forming opposed shoulders 29 for supporting and guiding the brush during its movement into and out of the casing through the opening 27. Suitably journaled in the opposite side walls of the casing, as by means of a shaft 30, is a wheel or disc 31 having a plurality of equidistantly spaced teeth 32 forming intervening concaved pockets 33 in the periphery thereof designed to receive a small or measured quantity of powder sufficient for use and designed to convey the same downwardly between the disc and the concaved portion of the front wall at the inner side of the latter and the passage produced thereby. The disc may be provided with a peripheral groove intermediately or at the side for receiving a spring arm 35 which may be anchored, as shown at 36 in the casting or in any other suitable way. This spring serves to fric-

tion the rotation of the disc as well as to guide the powder and insure depositing thereof on the brush as well as assisting in dislodging the same in the passage. A cross arm in the form of a bell crank lever or yoke **37** is pivotally mounted on the shaft **30** and, as shown, this lever is formed on a reversed curve or ogee and has its lower arm **38** extending downwardly and forwardly in inclined position and provided with an engaging end **39** adjacent the opening **27** and limited in its forward movement against the forward end of the slot **28**. The upper arm **40** extends upwardly and rearwardly in the chamber **16** and carries a pivot **41** on which is mounted a spring pawl **42**, the pivot being held in a slot **43**, if desired, so that the pawl will engage in back of the teeth **32**. The pawl is held against displacement from the teeth or riding upwardly by a lug **44**.

In the operation of the device, the brush is inserted in the opening **27** to engage the end **39** of the lever **37** to move it from the full line position shown in Fig. 2 to the dotted line position shown in said figure. This will swing the arm **40** upwardly and forwardly and cause the pawl **42** to advance the disc one or two teeth at a time. As the teeth are advanced, they will strike the edge wall **26** and swing the funnel into the space **22** as shown in dotted lines in Fig. 2, thus causing the funnel or auxiliary hopper to be vibrated or oscillated as the teeth pass said edge wall and effectively loosen the powder so as to feed the same into the pockets of the feed wheel or disc and prevent the same from clogging up in the hopper or passage. The disc is preferably of some material such as Bakelite or fibre to prevent undue noise or wear or possible corrosion and it will be seen that a measured quantity of the powder will be deposited on a brush at each operation just sufficient for use. This will not only result in a saving, but will prevent the scattering of the powder such as happens when applied in the usual way. Upon withdrawal of the brush, the lever will swing down by gravity and return the pawl to its original position for operation. A pan may be inserted in the slot **28** for the purpose of catching surplus powder which may spill over the sides of the brush.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. In a powder dispensing device, a casing having a hopper for the powder having an outlet, means for receiving and feeding the powder for deposit on a brush or the like, an auxiliary hopper movably mounted in the first hopper and having an outlet and means to actuate the auxiliary hopper to cause agitation and discharge of the powder from the hopper.

2. A powder dispenser including a hopper, a vibratory auxiliary hopper mounted in the first hopper, and brush actuated feeding mechanism in the casing for receiving the powder and for actuating the vibratory auxiliary hopper.

3. A powder dispenser including a casing having a brush entrance opening and a hopper with means for supporting a receptacle above the hopper, a funnel mounted in the hopper for oscillation and having a discharge opening, a wheel having pockets and adapted to turn in the casing, means to engage and agitate the funnel and means for advancing the wheel in stepped relation upon insertion of a brush through the opening in the casing.

4. A powder dispensing device having a casing with dispensing means, a hopper and an auxiliary hopper mounted for movement in the aforesaid hopper and having a discharge opening, said dispensing means having means intermittently engageable with the auxiliary hopper for oscillating the same.

5. A powder dispensing device having a casing with dispensing means, a hopper and an auxiliary hopper mounted for movement in the aforesaid hopper and having a discharge opening, said auxiliary hopper having operative connection with and adapted for actuating the auxiliary hopper upon operation of the dispensing means.

6. A powder dispenser of the class described comprising a casing having a hopper for receiving the powder, said hopper being mounted loosely for movement and having a discharge opening near the bottom, means for agitating the hopper, and lever operated dispensing means having pockets for receiving the powder when actuated.

7. A powder dispenser of the class described comprising a casing having a hopper for receiving the powder, said hopper being mounted loosely for movement and having a discharge opening near the bottom, a disc rotatably mounted in the casing and having peripheral pockets with intervening teeth adapted to intermittently engage the hopper and release the same, means to friction the rotation of the disc and brush actuated means for advancing the disc.

8. A powder dispenser of the class described comprising a casing having a hopper for receiving the powder, said hopper being mounted loosely for movement and having a discharge opening near the bottom, a disc rotatably mounted in the casing and having peripheral pockets with intervening teeth adapted to intermittently engage the hopper and release the same, means to friction the rotation of the disc and brush actuated means for advancing the disc, said actuating means adapted to return to normal position by gravity.

9. A powder dispenser of the class described comprising a casing having a hopper for receiving the powder, said hopper being mounted loosely for movement and having a discharge opening near the bottom, a disc rotatably mounted in the casing and having peripheral pockets with intervening teeth adapted to intermittently engage the hopper and release the same, said casing having a brush receiving opening, a lever pivoted in the casing and having a pawl designed to engage the teeth of the disc, said lever extending adjacent the opening for engagement of the brush to advance the disc, and means to return the lever to normal position.

10. A powder dispensing device comprising a casing with a hopper and an adjacent wall, a vibrating member mounted in the hopper, a toothed wheel rotatably mounted in the casing, a spring arm mounted in the wall and frictionally engaging the wheel, said arm extending between the wheel and the hopper and serving to dislodge powder in a passage between the wheel and casing, and means for advancing said wheel.

11. A powder dispenser comprising a casing, means for supporting and retaining a receptacle in an inverted position on the casing, said casing

having a tapered hopper beneath the receptacle, an agitating member in the hopper and a discharge passage therebeneath, a feeding member mounted in the casing, a spring arm frictionally engaging the feeding member and extending down into and below the passage for dislodging the powder, said feeding member serving to actuate said agitating member and brush operated means for operating said feeding member.

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