Aug. 22, 1939. A. A. ANTHONY 2,170,182

TOOTH POWDER DISPENSING DEVICE

Filed June 23, 1938

Fig. 1.

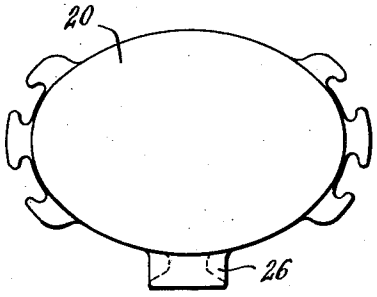


Fig. 4.

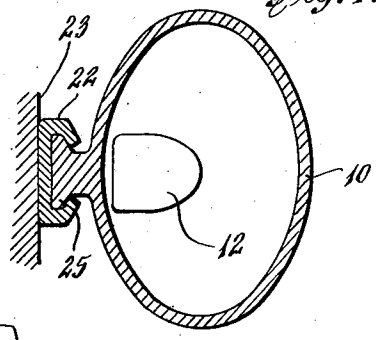


Fig. 5.

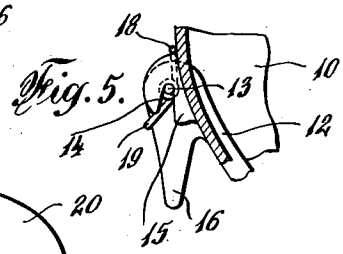


Fig. 2.

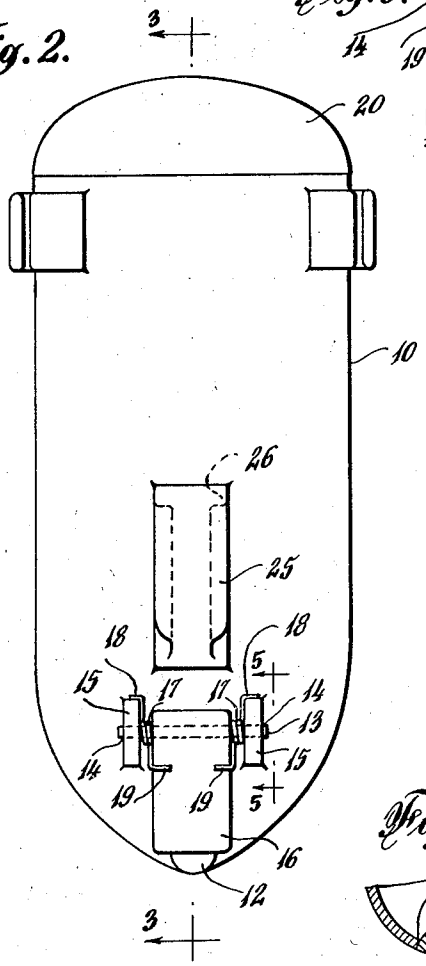


Fig. 3.

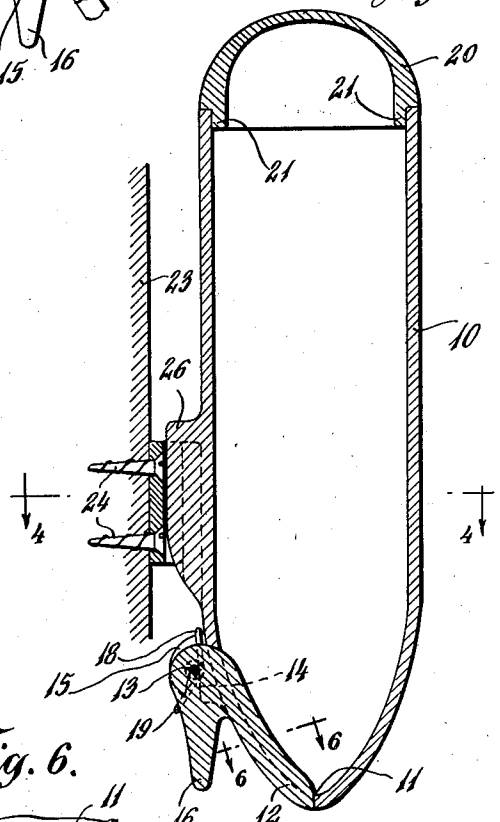
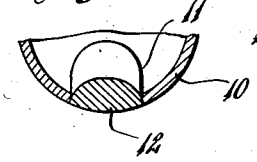


Fig. 6.



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TOOTH POWDER DISPENSING DEVICE

Alfred A. Anthony, New York, N. Y.

Application June 23, 1938, Serial No. 215,398

3 Claims. (Cl. 221—62)

This invention relates to dispensing devices and more particularly to those forms of dispensing devices intended for dispensing tooth powder or similar substances, and which devices are intended to be substantially stationary and refillable.

The principal object of this invention is to provide a satisfactory dispensing device of the above-described character; and this is attained by providing a simple, sturdy and inexpensive device, which is efficient in operation and attractive in appearance.

It is among the objects of this invention to provide a dispensing device which can be readily secured to the wall of a bathroom or medicine chest, but which is so arranged that the receptacle portion or hopper can be easily removed for refilling, cleaning, and the like, and in which there is provision for holding necessary tooth brushes.

Another object of this invention is to provide, in a tooth powder dispensing device, a means for releasing tooth powder from the dispenser into the open palm of the same hand which is employed to release the said tooth powder, thus requiring the use of but one hand to operate the device and at the same time receive the powder.

A still further object of this invention is the provision of simple spring-controlled mechanism adjacent the bottom of the receptacle portion towards the rear of the device whereby the closure or door of the container is ordinarily not visible at the front of the device when the device is suspended from a wall and in which device the only moving parts contemplated by this invention, other than the cover, are the closure or flap and the trigger, which are preferably moulded into one piece, and the simple spring or springs which are intended to return the closure or flap to closed position and to normally keep the same closed.

The invention contemplates such a construction and arrangement of parts that the device may, preferably, be easily cast or moulded from some of the commercial plastics, such as the phenolic condensation products, cellulosic materials, the glycerol-phthalic anhydride and urea-thiourea, and other synthetic resins, the commercial names of some of which are "Bakelite", "beetleware" and "glyptal." Thus by reason of the simplicity of the mechanism and the form and arrangement of its parts, the device is intended to lend itself to inexpensive quantity manufacture and yet be sturdy and attractive.

A still further object of this invention is to provide novel and efficient means for intercepting the flow of tooth powder from the receptacle portion of the device and to reduce to a minimum any possibility of collection of powder on the closure or door or at the edges of the aperture which might otherwise tend to clog the opening and prevent the closure or door from returning to a fully closed position, or the powder from flowing from the container.

Numerous other objects of the invention will be readily apparent from examination of the following specification taken in conjunction with the accompanying drawing in which:

Fig. 1 is a top elevation;

Fig. 2 is a rear elevation;

Fig. 3 is a longitudinal sectional view on the line 3—3 of Fig. 2, showing the device attached to a wall;

Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 3;

Fig. 5 is a fragmentary sectional view on the line 5—5 of Fig. 2; and

Fig. 6 is a sectional view of the closure or door of the device and a fragment of the receptacle portion of the device, all on the line 6—6 of Fig. 3.

Referring generally to the drawing, it will be seen that the device consists of a receptacle portion, or body, a cover and bracket or supporting means therefor, a holder for tooth brushes, and dispensing mechanism consisting of a manually-operated closure mounted at the discharge end of the receptacle.

More particularly, the receptacle or body portion 10, consists of a hopper-like container which is best shaped so as to permit powder contained therein to be readily directed downwardly by gravity toward the discharge opening 11 in the bottom thereof. This opening 11 is preferably located to the rear or back of the device and out of sight when the device is viewed from the front or top. The sides or walls of the opening 11 are disposed at a slight angle to the receptacle portion so that the portion of the opening toward the interior of the receptacle portion is slightly restricted and smaller than the portion of the opening at the exterior of the receptacle; in other words, so that the periphery of the opening at the interior of the receptacle portion is slightly less than the periphery of the opening at the exterior of the receptacle portion, as shown in Fig. 6.

A closure or door 12 is provided for this aperture or opening 11, and is preferably pivoted by means of integrally formed pivots 13 at either side thereof or by means of a pin 13 which passes through apertures 14 in bearing projections 15 of the receptacle portion 10 of the device.

The bearing projections 15 may, if the receptacle portion 10 is made of moulded construction, be moulded or cast integrally with the receptacle, and the apertures 14 may be moulded or cast into the projections 15. These apertures 14 may consist of substantially round openings in the projections 15, or they may preferably consist of an open-ended slot on the opposing face of each of the projections if it is not desired to have the same extend completely through the bearing projections 15, or the open-ended slots may extend through the bearing projections 15, and in either latter case the open end of said slots should be toward the bottom of the projections 15.

For opening the closure when powder is required to be dispensed from the receptacle portion, there is provided a suitable trigger or handle 16. This trigger is preferably in the form of a member linked to the closure or integrally formed therewith so that the movement of the trigger 16 will cause the closure to move on its pivot or pin 13 into and out of closure position with respect to the discharge opening 11. When the closure is moved out of closure position, the contents of the receptacle will flow out therefrom by gravity.

One or more springs 17 may be used to retain the closure 12 in normally closed position. These springs 17 may consist of a coil of spring steel wire extending about the pivot pin 13, and each having extensions 18 and 19 engaging, respectively, the receptacle portion and the projections 15, at the base of the said projections, and the trigger 16, intermediate the free end thereof and the pivot 13.

The closure 12, is of such size and shape that it fits snugly into the aperture or opening 11 of the receptacle portion 10 when closed so that the outer surface of the closure is substantially flush with the surface of the receptacle portion and so that the opening of the receptacle portion may be completely closed.

To further insure tight fitting of the closure 12, the periphery of the closure is shaped to conform to the periphery of the aperture 11, as shown in Fig. 6. This also provides means for limiting the action of the springs, 17, and prevents them from urging the closure 12 into the receptacle portion 10 beyond the point where the outer surface of the closure will be substantially flush with the surface of the receptacle portion.

The closure 12 is further shaped to prevent any undue accumulation of powder thereon, which otherwise might prevent its full return to normally closed position after powder has been dispensed. This may be accomplished in a number of ways, but the most simple and one of the most efficient means of so doing is to increase the thickness of closure 12 so that the same may be made substantially dome-shaped. The curvature of the upper and inward portion of the closure thus presents no surface upon which powder will accumulate and the dome-shaped portion of the closure 12 pushes the powder within the receptacle portion 10, away from the discharge opening. The shape of the opening 11 and closure 12 cooperate to permit of but little chance of powder clogging about the discharge opening and thus preventing a tight closure, since the wall of the aperture 11 is at but a slight angle to the receptacle portion.

A suitable, preferably moulded, cover 20 may be provided for the receptacle 10, which cover is intended to be easily removable to permit replenishing of the powder in the receptacle 10. This cover 20 may have a projecting rim 21 to engage within the top of the receptacle portion at its open end, to permit proper seating of the cover on the receptacle.

This device is intended primarily for suspension from a wall of a room or cabinet by a support which may be in the form of the conventional dovetail bracket arrangement such as shown or some other somewhat similar means for suspending the same. The means shown herein includes a dovetail-grooved bracket 22 adapted to be secured to a wall 23 of a room or cabinet by means of countersunk screws or nails 24, and a cooperating dove-tail tongue 25 on the rear of the device with a stop 26.

The assembly of the dispensing mechanism is simply accomplished by inserting the pivot pin 13 through the aperture in the one bearing projection 15, and then passing, in turn, the said pin through the coil of one of the springs 17, the closure 12, the coil of the other spring 17, and finally through the aperture in the other of the bearing projections 15. The pivot pin 13 may be secured against movement out of position by some usual means such as heads, cotter pins, nuts or the like.

The device can even be more simply assembled where the pivot 13 is integrally formed with the closure 12, or is rigidly secured thereto. All that is then required is to position the coils of the springs 17 upon the pivot, at either side of the closure 12, with the extensions 19 of the springs 17, engaging the trigger 16, whereupon the extensions 18 of said springs 17 are urged in an arc toward the trigger 16, so that the pivots can be passed into the slots at the open ends thereof and moved in the slots to come to rest at the closed or upper ends thereof, and thereupon the spring extensions 18 are released to assume their positions at the bases of the bearing projections 15 adjacent the receptacle portion 10, in which position the action of the springs, 17, will hold the closure assembly in place.

The receptacle is preferably shaped so that the lower portion thereof is tapered or conic and such tapered portion may be slightly curved from top to bottom with the convex side thereof turned outwardly. The discharge opening 11, for the receptacle is preferably at the rear of this lower portion, and the closure therefor, where the tapered portion is so curved, is also curved, the curve of the closure following the contour of the tapered portion. The closure may preferably have a portion thereof intruding into the receptacle at and beyond the discharge opening, the peculiar function of which has been indicated hereinbefore.

It will be understood that this invention is not confined to the specific details shown and described as numerous other changes and modifications and the full use of equivalents may be resorted to without departing from the spirit or scope of the appended claims.

What I claim is:

1. A dispensing device for free-flowing material comprising a receptacle adapted to be supported at its rear to a wall for gravity discharge of the contents thereof and having the lower portion thereof tapered and a discharge opening in said tapered portion at the rear of said receptacle, a pivoted closure for said discharge opening, and a handle linked to said closure for operating the same, said handle being disposed for movement between said discharge opening and the wall upon which the receptacle is supported, whereby opera-

tion of the dispensing mechanism by the hand with palm upward will cause the release of the said closure and material from within the device to be deposited in the palm of the same hand.

2. In a gravity-feed dispensing device, a receptacle, a closure arcuate in transverse cross-section and having the convex side thereof disposed inwardly of the receptacle and projecting beyond the walls thereof, a handle for operating the said closure, and spring means for retaining said closure normally in closed position.

3. In a dispensing device for free-flowing material, a receptacle having a discharge opening, a closure therefor, bearing projections on said receptacle for said closure and having slots therein open at the one end of each thereof, pivots on said closure receivable by said slots for pivotally mounting said closure on said bearing projections, a spring engaging one of said pivots, said closure and a bearing projection for retaining said closure in pivotally-movable mounted relation with respect to the said bearings and for returning the closure to closed position and for normally retaining the same in closed position.

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