Jan. 1, 1957 J. E. JENSEN 2,775,989

DISPENSER AND SUPPORTING MEANS

Filed Aug. 9, 1954 2 Sheets-Sheet 1

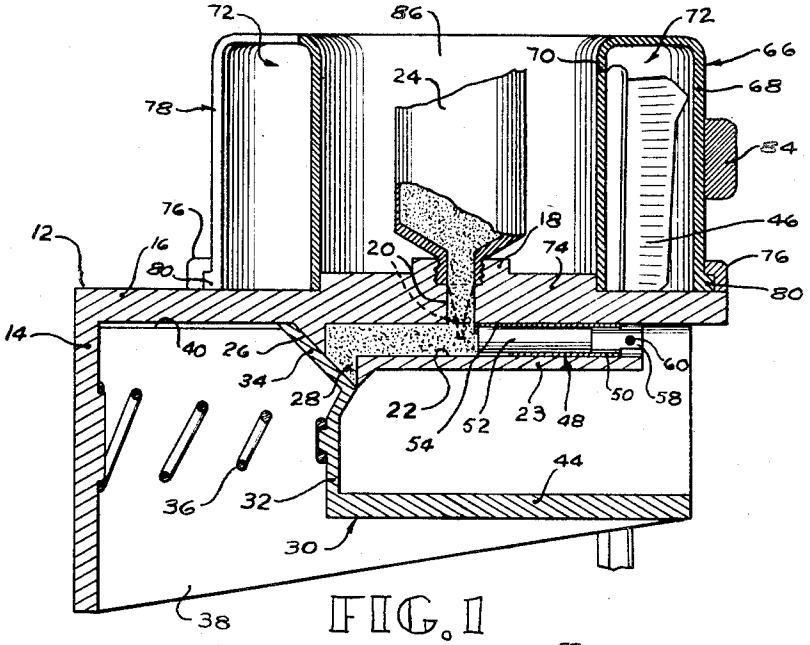


FIG. 1

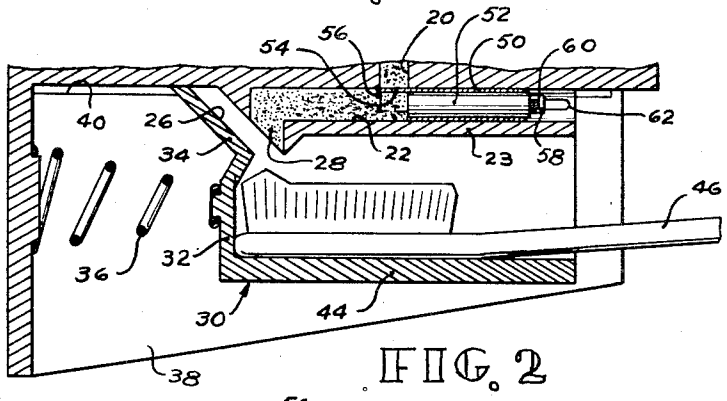


FIG. 2

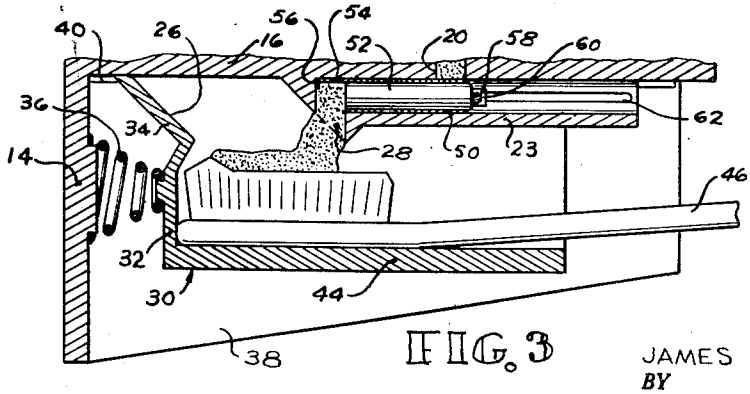


FIG. 3

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DISPENSER AND SUPPORTING MEANS

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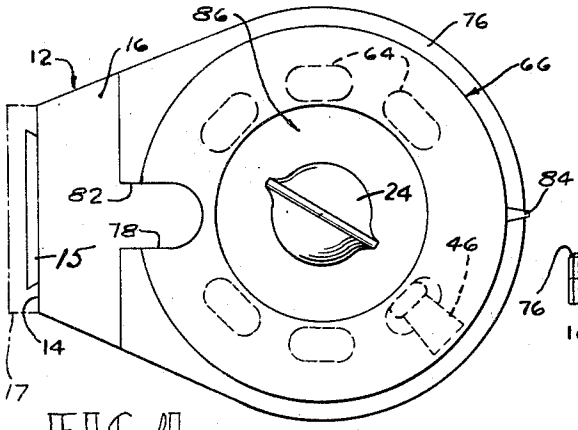


FIG. 4

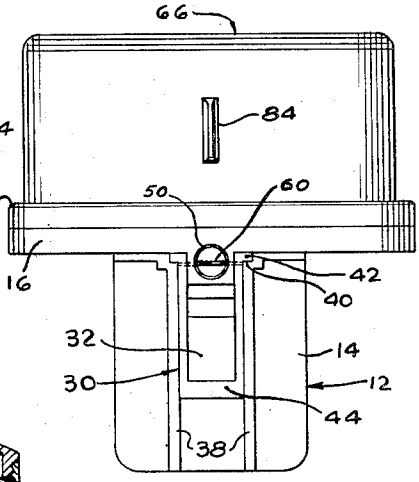


FIG. 5

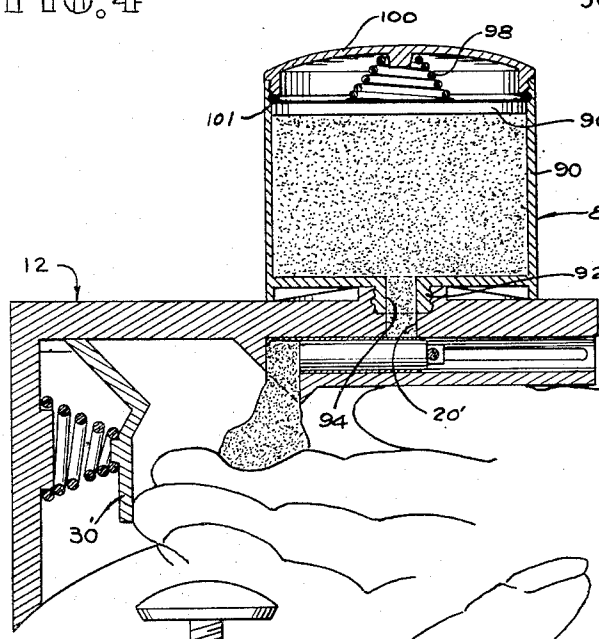


FIG. 6

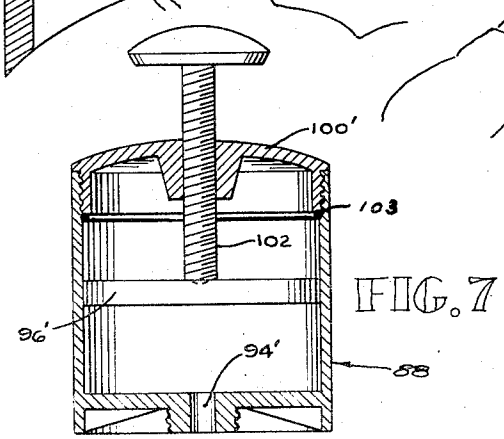


FIG. 7

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DISPENSER AND SUPPORTING MEANS

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11 Claims. (Cl. 141—360)

The present invention relates to dispensers for material such as toothpaste, and supporting means for toothbrushes.

An object of the invention is to provide a novel dispenser for material having actuating means for engagement by a toothbrush (or the hand) and operative in response to movement thereby for dispensing the material.

Another object is to provide a dispenser constructed for mounting a container thereon in communication with a discharge chamber, and means for dispensing in response to actuation by a toothbrush (or the hand) in which in the initial portion of the dispensing operation communication between the container and discharging chamber is cut off and in the latter portion of the operation, the material in the discharging chamber is dispensed.

A further object is to provide a novel device for supporting toothbrushes in which the toothbrushes are enclosed by a cover having an access opening movable selectively to positions adjacent the different toothbrushes supported thereon.

Another object is to provide a dispenser for toothpaste having means for supporting a plurality of toothbrushes, in which the mechanism for effecting the dispensing operation is arranged in a compact fashion enabling the toothbrushes to be supported in at least partially enveloping relation to the dispensing mechanism.

Other objects and advantages of the invention will be apparent upon reference to the following detail description taken in connection with the accompanying drawings in which—

Figure 1 is a vertical longitudinal sectional view of the dispenser of the present invention;

Figure 2 is a view of the lower portion of the device of Figure 1, showing the actuating means in an initial position in the dispensing operation;

Figure 3 is a view similar to Figure 2 showing the actuating member in a more advanced position;

Figure 4 is a plan view of the dispenser;

Figure 5 is an end view from the right of Figure 4;

Figure 6 shows a device, in vertical sectional view, similar to Figure 1 but utilizing a different form of material container and illustrating its actuation by the hand; and

Figure 7 is a sectional view of an alternate form of material container.

Referring in detail to the drawings, and particularly to Figures 1 to 5 inclusive, attention is directed first to the form of construction embodying both a dispensing mechanism and a toothbrush mounting means. The device includes a main supporting member 12 which may be in the form of a casting, having a back vertical wall 14 and a top wall or deck 16 preferably integral therewith. The vertical wall 14 may be mounted to a supporting wall, the mounting means preferably including a tongue 15 converging downwardly for fitting in a similarly shaped groove in a bracket 17. The bracket may be secured on the supporting wall by screws concealed when the device is mounted therein. The top wall or deck 16 is provided with a central boss 18 having a threaded bore 20 forming an inlet opening to a chamber 22 in the form of a bore extending longitudinally of the device. A container 24, such as a conventional toothpaste tube, is threaded into the bore 20 and thus arranged for the contents of the tube to be forced through the bore

20 into the discharge chamber 22. The passage 20 preferably has a large circumferential dimension, and a very small axial dimension, as shown in dot-dash lines in Figure 1.

The chamber 22 is formed by a tubular wall 23 having an inclined front face 26 through which a discharge opening 28 leads from the chamber 22. The discharge opening 28 is located inwardly of, or posterior to the inlet opening 20 in the direction of movement of the actuating member, i. e., from right to left. The actuating member 30, which also may be in the form of a casting, is preferably generally U-shaped having a front wall 32, the upper portion 34 of which is inclined complementary to the inclined face 26 and arranged for engagement with the latter face, and closure of the discharge opening, when the actuating member is in retracted position (Figure 1). A compression spring 36 biases the actuating element to retracted position.

The actuating element 30 may be mounted in the mounting member 12 in any suitable manner, such as by means of side plates 38 separate from the wall elements 14 and 16 and secured thereto by suitable means, such as screws, and having shoulders 40 upon which the ribs or beads 42 of the actuating member bear. Preferably, the actuating member 30 includes a bottom wall 44 for convenience in resting the toothbrush 46 (Figure 2) thereon in the dispensing operation.

The discharge chamber 22 is equipped with a plunger means 48 which serves as the medium for effecting dispensing of the material onto the toothbrush (or the hand) and includes an outer sleeve 50 and an inner plunger element 52. The sleeve 50 is dimensioned for snugly but slidingly fitting in the discharge chamber 22, and the plunger element 52 is similarly dimensioned for free sliding movement in the outer sleeve. The sleeve 50 includes a forward extension 54 at its upper part, and at the extreme forward end of the extension is a downturned lug 56 for engagement by the forward end of the plunger element 52. At the opposite end of the sleeve are lateral extensions 58 having apertures receiving a pin 60 which projects laterally through slots 62 formed in the wall 23 and mounted in the member 30. These slots 62 are of suitable length for sliding movement of the pin in the movement of the plunger means in the dispensing operation.

The elements are dimensioned and relatively located for accomplishing a dispensing operation in a novel manner in which in the first part of the dispensing operation the communication between the tube 24 and the discharge chamber is cut off, and in the latter part of the dispensing operation, the material in the discharge chamber is dispensed through the discharge opening 28 onto the toothbrush (or the hand). Beginning in the normal or retracted position (Figure 1), the actuating member 30 may be substantially flush with the extended end of the supporting member. The user inserts the toothbrush 46 as in Figures 2 and 3 and forces the actuating member 30 to advanced position, a preliminary position of which is shown in Figure 2 and fully advanced position in Figure 3. In the initial portion of the advancing movement, from that of Figure 1 to that of Figure 2, the extension 54 on the sleeve closes the inlet opening 20, while the plunger element 52 lags, i. e., it does not move with the sleeve. This movement of the sleeve effects closing off of the inlet opening 20 from the discharge chamber. Upon further movement of the actuating member the pin 60 engages the plunger element and the sleeve and plunger element are advanced together as a unit and the discharge opening 28 will have been opened, of course, by the fact of movement of the portion 34 away from the inclined face 26. The material in the discharge chamber

22 will then be forced out through the discharge opening 28 onto the toothbrush. Upon rearward or retracting movement (to the right) the plunger means 48 is retracted with the actuating member and the inclined element 34 engages the inclined face 26 and closes the discharge opening 28. The plunger element 52 recedes to the opposite end of the sleeve by atmospheric pressure and abuts the projection 56. In the final or retracted position of the actuating member the inner end of the sleeve 50 is substantially at the edge of the inlet opening 20 as shown in Figure 1. The material from the tube 24 is forced from the tube down into the discharge chamber 22 by suitable means such as a pre-stressed tube or as may be accomplished by hand manipulation.

Thus when the actuating member is in its retracted position, the discharge chamber 22 is filled with the material and in the next dispensing operation the inlet opening 20 is immediately closed as described above, and thereafter the material in the bore 22 is dispensed. There is a minimum time or interval during which both the inlet opening 20 and the discharge opening 28 are open so that there will be no free flow of material through the discharge chamber. It will be understood that in the dispensing operation the movement of the actuating member and consequent movement of the plunger means is relatively rapid so that the time interval in which a clear passage from the inlet opening 20 through the discharge chamber 22 and discharge opening 28 is in existence may be considered as momentary. Hence the amount of material dispensed in each operation is under complete control of the user. This condition exists particularly in the case of the short axial dimension of the opening 20 as defined by the dot-dash line in Figure 1. In this event the lost motion between the sleeve 50 and plunger element need be no greater than the axial dimension of the opening.

The invention also encompasses a novel arrangement for mounting toothbrushes, one of the considerations being a compact arrangement whereby the foregoing dispensing mechanism is incorporated into a means for supporting the toothbrushes whereby the toothbrushes are arranged in groups disposed on opposite sides of the dispensing mechanism. The upper wall element or deck 16 is provided with a plurality of apertures or holes 64 (Figure 4) arranged in the aggregate in the form of a circle but in two groups, each group being on one side of a longitudinal zone in which the dispensing mechanism is compactly arranged. The circular area or zone in which these apertures are located is enclosed by a cover 66 which includes an annular enclosed area defined by an outer wall 68 and an inner wall 70, the annular space 72 therebetween being closed at the top and open at the bottom. The cover or shell 66 is mounted on the upper deck 16 around a central raised portion 74 for centering the shell and is held in position thereon by a rim or inturned flange 76 suitably shaped and conveniently secured on the deck. The outer wall and the top wall of the cover is provided with an opening 78 for gaining access to the toothbrushes in the apertures 64. The cover is rotatably mounted on the deck for selectively positioning the opening 78 in register with the toothbrushes for removing and replacing the latter.

The means for securing the cover on the deck may take the form of toes or lugs 80 preferably spaced apart as, for example, at opposite sides of the cover and which engage under the flange 76. The flange is also provided with an opening 82 for enabling the lugs 80 to be withdrawn therethrough with facility in removing the cover from the deck. If desired, however, the cover may be made of flexible material so that the outer wall 68 can be flexed inwardly to enable the lugs to be snapped into or out of the retaining flange 76. The specific construction of means for retaining the cover in place may take any of several convenient forms. Also, a thumb piece 84 may be secured to the outer wall 68 for convenience in rotating the cover.

The arrangement provides for a compact arrangement for mounting the toothbrushes together with a dispensing mechanism all in a relatively confined space. Furthermore, the cover 66, being of annular form as it is, includes a central space or well 86 in which the toothpaste tube 24 or other container is disposed, to the end of presenting a trim and pleasing appearance.

The invention also encompasses a device for dispensing material such as soap, and for dispensing it directly onto the hand. Such a construction is shown in Figure 6 and includes a mounting member 12 similar to that described above. The actuating member 30' is substantially equivalent to the actuating member 30 but without the bottom wall so as to render the interior accessible to the hand as illustrated, and in consideration of the latter feature the transverse dimensions of the device may be greater than described above, it being understood that in the present instance the compactness need not be adhered to as in the previous construction since it does not include provision for mounting of toothbrushes. However, the same novel dispensing mechanism is included in the construction of Figure 6 as described in connection with the previous embodiment.

The container for soap or material to be dispensed is indicated as a whole at 88 and includes a cylindrical housing 90 having an exteriorly threaded boss 92 at the bottom having a discharge opening 94. The discharge opening 94 communicates with the inlet opening 20'. The material in the housing 90 is forced downwardly by a follower plate 96 above the mass of material and biased by a compression spring 98 confined between the plate and the top element 100 of the container, the latter being suitably secured as by a threaded connection. After loading the housing 90 no further attention need be given to the container, but the material will be dispensed automatically by the follower plate 96 and the compression spring 98.

A novel feature is that the housing 90 may be supplied as a complete container with the plate 96 acting as the closure therefor. A split ring 101 is fitted in a groove in the inner surface of the housing for retaining the plate in the housing. The top element 100 and spring 98 may be retained by the user and applied to successive containers.

The device of Figure 7 is a container corresponding to and similar to the container 88 of Figure 6. In the container of Figure 7 the follower plate 96' is engaged by the lower end of a screw stem 102 threaded into the cover element 100'. Upon turning the screw down the follower plate 96' forces the material out through the discharge opening 94'. In this case, similarly to that of Figure 6, a split ring 103 is provided for retaining the follower plate 96' in the container so that the plate will serve as a closure for the container, and containers supplied without the cover element 100' and screw 102.

I claim:

1. A dispenser comprising a mounting member having a bore constituting a chamber from which material is dispensed, the bore having an inlet opening and a discharge opening, means for mounting a container on the member in communication with the inlet opening, plunger means slidable in the bore including an outer sleeve having a sliding fit in the bore and a plunger contained entirely within the sleeve and slidable therein within predetermined limits, and actuating means connected to said sleeve positioned for engagement by a tooth brush or the hand, said actuating means and plunger means being movable between a normal retracted position wherein the actuating means closes the discharge opening and the inlet opening communicates with the bore, and an advanced position wherein the discharge opening is opened and the plunger means covers the inlet opening, the sleeve in the initial portion of the advancing movement clos-

ing the inlet opening and operative upon engaging the plunger element therein for advancing the latter in the bore and forcing the material from the bore through the outlet opening.

2. The combination of claim 1 wherein the inlet opening is of minor dimension longitudinally of the bore and relatively great dimension circumferentially thereof, whereby to provide substantial total area of opening while enabling closing thereof in relatively short movement of the plunger means.

3. A dispenser comprising a mounting member having a deck and having a bore with an inlet opening and a discharge opening, the inlet opening being formed in a boss on the deck and internally threaded to receive the neck of a standard toothpaste tube, and the discharge opening being disposed in an inclined end face, plunger means in the bore for closing the inlet opening and forcing material from the bore through the discharge opening, actuating means on the mounting member connected with the plunger means and having an inclined face engageable with the first inclined face and closing the discharge opening, said actuating member and plunger means being movable between a retracted position wherein the actuating means closes the discharge opening and the inlet opening communicates with the bore, and an advanced position wherein the discharge opening is opened and the plunger means covers the inlet opening, the plunger means including a sleeve and plunger therein with lost motion therebetween and effective in the initial portion of the advancing movement thereof for closing the inlet opening by the sleeve and in the latter portion thereof for forcing the material from the bore by the plunger.

4. A dispenser comprising a mounting member, means for mounting a container on the mounting member, means for dispensing material from the container, the dispensing means being substantially centrally positioned and extending in fore-and-aft direction, said mounting member on each of the opposite sides of the dispensing means having openings for reception of toothbrushes, and a cover on the mounting member surrounding the container and having an annular space defined by radially spaced wall elements receiving toothbrushes in the openings and having an aperture in its outer wall element, and the cover being rotatably mounted for selectively positioning the aperture to the toothbrushes.

5. A dispenser comprising a mounting member, means for mounting a container on the mounting member, means for dispensing material from the container, the dispensing means being substantially centrally positioned and extending in fore-and-aft direction, said mounting member on each of opposite sides of the dispensing means having openings for reception of toothbrushes, the openings together lying in a circle, and a cover on the mounting member with an access aperture and rotatably mounted for selectively positioning the aperture to the toothbrushes.

6. A dispenser comprising a mounting member having a deck, means for mounting a container on the mounting member, means for dispensing material from the container including a discharging means and an actuating member below the deck, and depending side walls on opposite sides of the discharging means and actuating member defining a relatively long and narrow space, said deck having a group of holes on each of opposite sides of the side walls for receiving toothbrushes, the holes in the two groups lying in a circle, and a cover member mounted on the deck having an annular space defined by inner and outer side walls surrounding the container, the walls enclosing the toothbrush holes in the annular space, the outer wall of the cover having an access opening and the cover being rotatable about an axis extending through the container for positioning the access opening selectively to the toothbrushes.

7. A dispenser comprising a mounting member having a bore with an inlet opening and a discharge opening, a container removably mounted on the member in communication with the inlet opening, means urging the material in the container into the bore, and means for discharging the material from the bore including ejector means in the bore and actuating means engageable by an external medium connected with the ejector means including two relatively movable parts one of which is contained in and moved by the other, one of the parts in initial movement of the actuating means closing said inlet opening and the other part in the latter portion of such movement discharging material from the bore.

8. A toothbrush support comprising a mounting member having a deck with apertures therein for reception of toothbrushes arranged in a circle, and a cover mounted on the mounting member over the toothbrushes with an access opening in a side wall thereof, said cover being rotatable for selectively positioning said access opening to the toothbrushes.

9. A toothbrush support comprising a mounting member having a deck with apertures therein for reception of toothbrushes arranged in a circle, and a cover mounted on the mounting means having an annular chamber defined by an outer and an inner wall, the inner wall defining a central well, said annular chamber receiving the toothbrushes and the outer wall having an access opening, means mounting the cover for enabling rotation thereof for selectively positioning the access opening to the toothbrushes, said last means including an inturned flange on the mounting member and a lug on the cover positioned thereunder, said flange having a break for passage of the lug therethrough and removal of the cover in a predetermined position of the latter.

10. A container for containing dispensable material comprising a housing having a discharge opening and means for mounting the housing for establishing communication from the opening to a place of delivery, the end of the housing opposite the discharge opening having a removable cover element, a follower plate in the container, means reacting against the cover element for advancing the cover plate and dispensing material from the container, and means independent of the cover element for retaining the follower plate in the housing when the cover element is removed whereby the follower plate serves as a closure for the housing.

11. A dispenser comprising a mounting member having a chamber with an inlet opening and a discharge opening, means for mounting a container on the member in communication with the inlet opening, an actuating member slidably mounted on the mounting member between a retracted position in which it closes the discharge opening and an advanced position in which the discharge opening is uncovered, means yieldingly biasing the actuating member to retracted position, a sleeve slidable in the chamber, a plunger slidable in the sleeve, a pin mounted in the actuating member and extending through a slot in the wall of the chamber and through the sleeve and forming a stop for one end of the plunger, the other end of the sleeve having an extension with a projection forming a stop for the corresponding end of plunger and the plunger having limited sliding movement between the stops, the sleeve in retracted position of the actuating member being withdrawn beyond the inlet opening and in the movement of the actuating member in advancing direction initially closing the opening and thereafter causing the pin to engage the plunger and force the plunger in advancing direction to force material from the chamber through the discharge opening.

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