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3,096,913

DISPENSING CONTAINER AND APPARATUS

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FIG 2

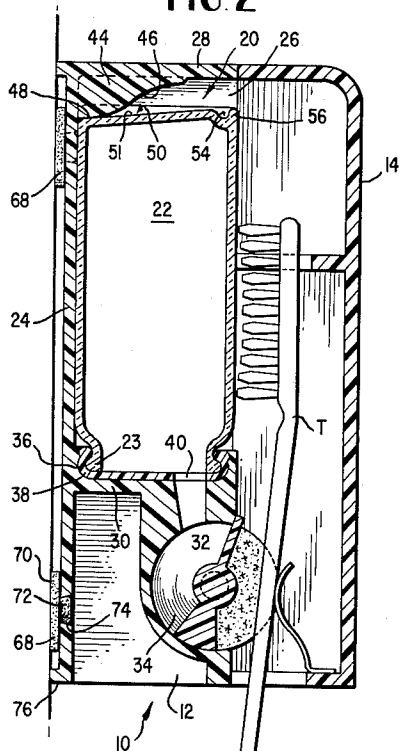


FIG 1

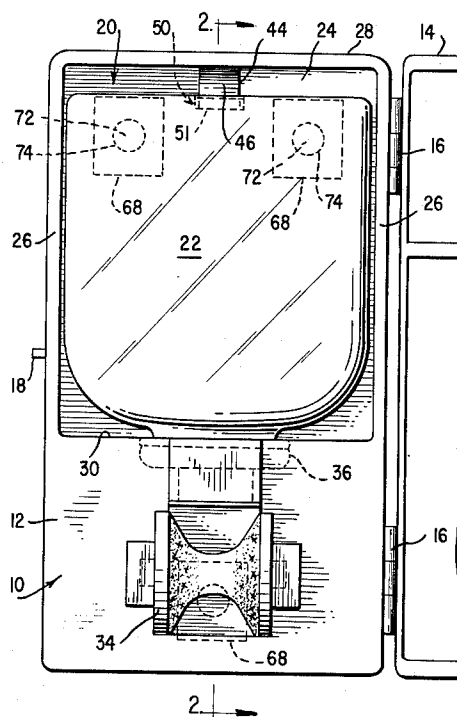


FIG 3

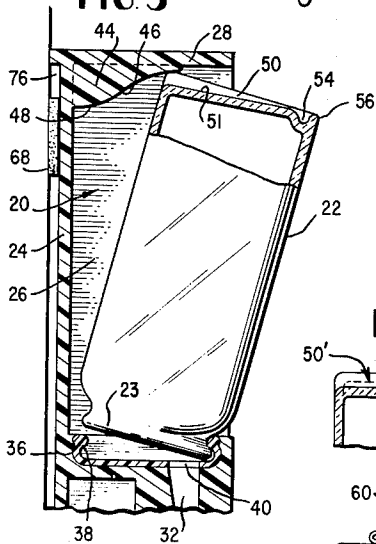


FIG 4

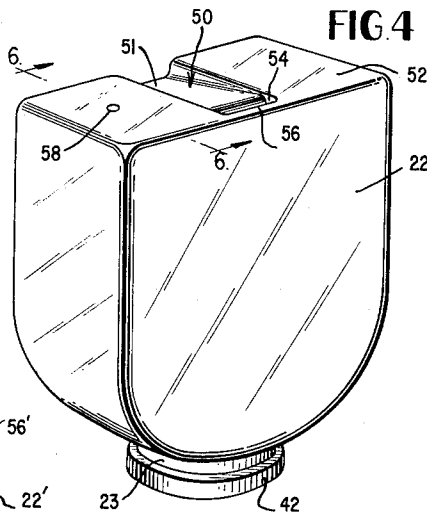


FIG 5

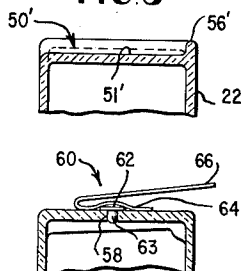
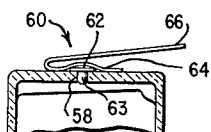


FIG 6



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DISPENSING CONTAINER AND APPARATUS
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This invention relates to dispensing devices and more particularly to such devices and supply containers cooperative therewith for dispensing a fluid material such as toothpaste.

The present invention is specifically directed to an improvement upon the dispensing device shown in application Serial No. 802,540, now Patent No. 3,020,941, filed March 27, 1959, and which comprises a cabinet adapted to receive a supply container and having a dispensing element cooperative with a toothbrush for applying to the brush a predetermined amount of dentifrice. In the structure disclosed in the application, the supply container is constituted by a collapsible structure adapted to be collapsed as the dentifrice is discharged therefrom.

It has been found, however, that it is very difficult to prevent dissemination of the toothpaste odor and air leaks in the collapsible structures, and that a substantially rigid container formed of glass or a suitable thermoplastic material is much preferable. On the other hand, there are certain problems involved in properly mounting and sealing a rigid supply container within the cabinet.

Having in mind the foregoing defects, it is the primary object of the present invention to provide a dispensing cabinet and rigid supply container cooperative therewith that may readily be removably mounted, and yet be accurately positioned and properly sealed when in dispensing position.

It is another object of the invention to provide a dispensing cabinet and supply container removably cooperative therewith having simplicity of design, economy of construction and efficiency in operation.

The novel features that are considered characteristic of the invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and its method of operation, together with additional objects and advantages thereof, will best be understood from the following description of specific embodiments when read in connection with the accompanying drawing, wherein like reference characters indicate like parts throughout the several figures and in which:

FIG. 1 is a front view in elevation of a dispensing cabinet and supply container removably mounted therein in accordance with the present invention, the door to the container being open to better illustrate the relative position of the supply container;

FIG. 2 is a cross-sectional view taken on line 2—2 of FIG. 1, but with the cabinet door in closed position;

FIG. 3 is a fragmentary cross-sectional view similar to that of FIG. 2, but showing the supply container only partially inserted in the cabinet;

FIG. 4 is a view in perspective of a supply container in inverted position as normally installed in the cabinet;

FIG. 5 is a fragmentary cross-sectional view of a modified form of the supply container, and

FIG. 6 is a fragmentary cross-sectional view taken on line 6—6 of FIG. 4 showing a closure for a vent in the bottom of the container.

Referring now specifically to the drawings, particularly to FIGS. 1 and 2, the dispensing device in accordance with the present invention comprises a cabinet 10 including a body portion 12 and a door 14 mounted on the body portion 12 by means of hinges 16 and se-

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cured in closed position by any suitable latch structure 18. The body portion 12 is provided with a chamber 20 for receiving a supply container 22 of toothpaste or other fluid material to be dispensed. The supply container 22 is in the form of a bottle formed of glass or other rigid material, having the usual flanged or threaded open ended neck 23 which is closed by a suitable cap 42, FIG. 4, during storage and shipment.

The chamber 20 is constituted by the rear wall 24, the side walls 26, the top wall 28 and the bottom wall 30 of the body portion, the front side of the chamber 20 being open for the reception of the container 22, and closed by the door 14. The bottom wall 30 of the supply chamber 20 is provided with a discharge opening 32 which leads to a dispensing element 34 cooperative with a toothbrush T stored in the door portion, as more completely disclosed in the aforementioned application, Serial No. 802,540, now Patent No. 3,020,941.

In accordance with the present invention, the bottom wall 30 is provided with a recess 36 in its upper surface which preferably is lined by a gasketlike member 38 of rubber or rubber-like material, such as polyethylene or other suitable thermoplastic material, and this gasketlike member may constitute merely a ring but conveniently is in the form of a cap, as shown, and having a discharge opening 40 registering with the outlet 32. The recess 36 and gasket 38 are adapted to removably receive in sealing engagement the open ended neck 23 of the container 22 which, in use, is disposed in inverted position so that the contents thereof will flow through the openings 32 and 40 to the dispenser 34.

One of the problems involved in the use of rigid containers is maintaining the seal between the discharge neck 23 and the cabinet, and forcing the neck down into sealing engagement as well as maintaining the container in accurate vertical position. In order to accomplish these functions and results in accordance with the present invention, the body part portion 12 is provided with a wedge-like web 44 preferably centrally of the chamber 20 and extending between the top wall 28 and rear wall 24 with the free edge 46 of said web tapering from the top wall 28 and terminating adjacent the rear wall in a short substantially horizontal portion 48. To cooperate with the web 44, the container 22 is provided with a slot 50 transverse its bottom wall 52, and this slot is of a width to snugly straddle the web 44 so that the side walls of the slot when in engagement with the web, as shown in FIGS. 1 and 2, inhibit any lateral tilting of the container 22.

To accommodate insertion of the container 22 into the chamber 20, the top wall 28 of the cabinet must be spaced from the bottom wall 30 a distance greater than the height of the container 22 in order to enable the container 22 to be swung into and from inverted dispensing position, as illustrated in FIG. 3. This difference in height leaves a space between the inverted bottom 52 of the container and the top wall 28 when the container is fully inserted. However, as the container is inserted, one edge of the neck 23 having initially been inserted in the recess 36, it is swung into the chamber 20, the web 44 engages in the slot 50 and cams the container neck down into sealing engagement with the gasket 38 within the recess 36, and the short horizontal edge portion 48 of the web retains the container in this depressed sealed position.

The bottom surface 51 of the slot 50 conveniently is inclined toward the web 44 to assist in the camming action therebetween. In addition, a notch 54 may be provided in the bottom wall 52 of the container adjacent the front wall thereof to provide a flange 56 for the reception of the end of a toothbrush, fingernail or other

implement for prying the container from the chamber when replacement is necessary. This notch 54 conveniently may be aligned with the slot 50. Alternatively, a modified container 22', as shown in FIG. 5, may be provided with a slot 50', the bottom wall 51' of which is generally parallel to the bottom wall 52 of the container, open at the rear but closed at the forward end by a flange 56' which provides means for levering the container from the cabinet. The flange 56 or 56' is contiguous with the front wall of the container, and its free edge is contiguous with the outer surface of the bottom wall of the container.

Depending upon the fluidity of the contents of the container, it may be desirable to provide a small vent 53 through the bottom wall of the container, as shown in FIGS. 4 and 6, although this will depend primarily upon the frequency of the dispensing of the material. In normal conditions where an individual dispenser is used by one person only who stores his toothbrush T in the cabinet 10 between operations, there will be enough air seepage through the discharge opening 32 to permit the contents to flow from the bottle between operations. On the other hand, if there is a greater frequency of dispensing operations, it may be necessary to provide the vent to enable the admission of air in the upper part of the inverted container to prevent the formation of a vacuum which would inhibit the flow of the material.

In this event, it is desirable to provide a closure for the vent for use during shipment and storage of the container and preferably this closure is relatively flat and thin so that the container will be stable when stood in an upright position. Such a closure 60 is shown in FIG. 6 as constituting a thin flat closure pad 62 that may be attached adhesively to the bottom of the container and having a protrusion 63 inserted in the vent 58 to prevent the contained material from solidifying therein. Alternatively, the pad 62 may be secured in position by a thin flexible sheet element 64 that is attached to the bottom of the container by adhesive and conveniently a pressure sensitive adhesive. As it is desirable to remove this closure 60 after the container is installed in the chamber 20 to prevent the admission of air while the container is being installed, the sheet 64 conveniently may be provided with a tongue 66 that is folded back over the closure to enable grasping by the operator after the container is installed in the chamber 20 and then pulled to peel the closure element 60 from the bottom surface 52 of the container.

The cabinet 10 may be mounted upon a wall surface by means of supports 68 that may constitute base pads 70 conveniently secured to a wall surface by a pressure sensitive adhesive or the like, and have buttonlike protuberances 72 for reception in openings 74 in the rear wall 24 of the cabinet. The back wall of the cabinet may also be provided with a rearwardly extending flange 76 of substantially equal depth to the bases of pads 70 so that the cabinet will fit snugly against a supporting wall.

In the operation of the invention, the door 14 is swung open to give access to the chamber 20, and a container 22 filled with a fresh supply of toothpaste or the like with its normal sealing cap 42 removed therefrom is then quickly inverted with the front edge of the neck 23 seated within the front portion of the recess 36, and the bottom wall 52 of the container is then swung inwardly into the upper part of the chamber 20, as shown in FIG. 3. The slot 50 is aligned with the web 44 so that the neck 23 is depressed downwardly into the recess 36 and gasket-like element 38 as the lower surface 51 of the slot 50 engages and slides along the lower edge 46 of the web 44.

After the container 22 is fully inserted, as illustrated in FIG. 2, the horizontal edge portion 48 of the web 44 bears on the bottom surface 51 of the slot and retains the container 22 with its neck 23 in sealing engagement within the recess 36 and gasket 38. If the container has a vent

58 covered by a closure 60, the operator may then grasp the free end of the tongue 66 and pull the latter to peel the closure 60 from the bottom 52 of the container so that air is then admitted to the upper end of the inverted container and the contents thereof may freely flow through the dispensing openings 32 and 40. When the contents of the container 22 are fully dispensed, the container may be readily removed by inserting the end of a toothbrush, fingernail or other implement behind the flange 56 and pry or pull the upper portion of the container from the chamber 20, whereupon a fresh supply container may be installed as described above.

If the operator has difficulty in inserting a container while in an inverted position, as above described, the whole cabinet 10 may be readily removed from the supports 68 by pulling the cabinet from the wall and extracting the buttonlike protuberances 72 from the openings 74 in the rear cabinet wall 24. Thereupon, the cabinet may be inverted and after the door 14 is opened, the container 22 may be inserted in the chamber 20 in the same manner as previously described except that the container is in an upright position so that there is no tendency for the contents thereof to flow therefrom into the discharge opening 32 during installation of the container. Once the container 22 is installed in the chamber 20, the cabinet 10 may then be returned to an upright position and again mounted on the wall by pressing the openings 74 over the protuberances 72 of the supports 70.

Although certain specific embodiments of the invention have been shown and described, it is obvious that many modifications thereof are possible. The invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and by the spirit of the appended claims.

That which is claimed is:

1. An apparatus for dispensing a material having fluid characteristics such as toothpaste, comprising a casing having top, bottom, side and rear walls defining a supply chamber open at the front, the bottom wall having a recess and a dispensing opening through the bottom of the recess, a substantially rigid supply container having an open ended neck and removably mounted in inverted position in said chamber with said neck removably inserted within said recess, and means rigidly locating said container in said chamber and forcing said container neck in sealing engagement with said recess about said dispensing opening, said means including a rigid web projecting downwardly from said top and having a cam surface terminating in a substantially horizontal portion toward said rear wall, and a web receiving slot transverse the bottom of said container opening through the rear of said container to receive the cam surface of said web as said container is inserted at an incline into said chamber from the open front thereof, said cam surface entering said opening at the rear of said slot to cam said container as the container is inserted into said chamber to force said neck down into said recess and the substantially horizontal portion of said web holding said neck in sealing engagement with said recess.

2. A bottle, for use in an apparatus for dispensing a material having fluid characteristics such as toothpaste and of the type including a supply chamber having a rigid projecting web in the top, a bottom recess adapted to sealingly engage the periphery of the open neck of the bottle, and a dispensing opening through the bottom of the recess, said bottle comprising a substantially rigid supply container having an open ended neck covered by a removable closure and adapted to be removably mounted in inverted position in the chamber with said closure removed and said open neck removably inserted within the recess, said container having a small vent opening in its bottom wall, a removable closure member secured to said bottom wall for closing said vent during storage and shipment prior to mounting the container in the chamber, and

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a slot in and transverse to the bottom wall of said container and opening through one side edge of said bottom wall, the vertical section of said slot being shaped to receive through the open end of said slot the projecting web in the top of the chamber and thereby to force the container into sealing engagement with the recess of the chamber.

3. The invention set forth in claim 2 wherein said closure member has a protrusion inserted in said vent opening.

4. An apparatus according to claim 1 comprising a gasketlike element nested in said recess and forming a seal with said neck.

5. An apparatus according to claim 4 wherein said gasketlike element comprises a cap having an opening in registry with said dispensing opening, said cap having a resilient rim embracing the neck of said bottle.

6. An apparatus according to claim 1 wherein said container has a flange contiguous with the bottom surface

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and the front wall thereof for use in prying said container from said chamber when the contents are fully discharged therefrom.

7. An apparatus according to claim 1 wherein said container has a small vent opening in its bottom wall, and a removable closure member secured to said bottom wall and closing said vent during storage and shipment, said closure member having a tongue extending beyond the side of said container to enable pulling said closure member from said bottom wall after said container is installed in inverted dispensing position.

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