

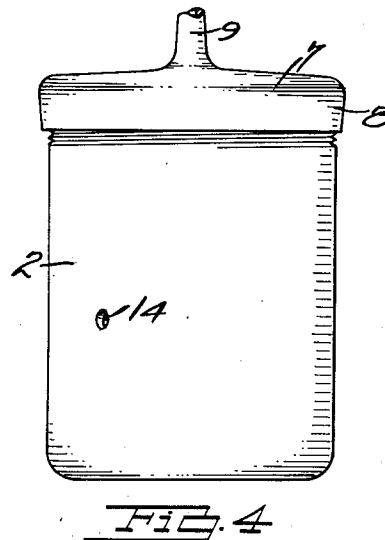
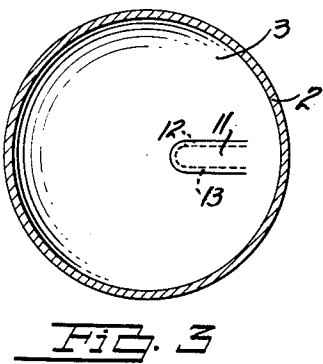
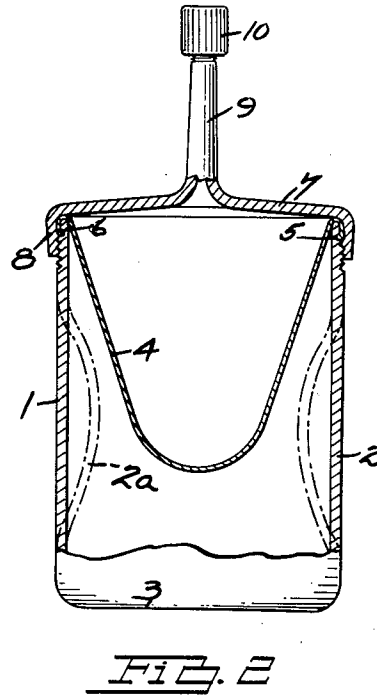
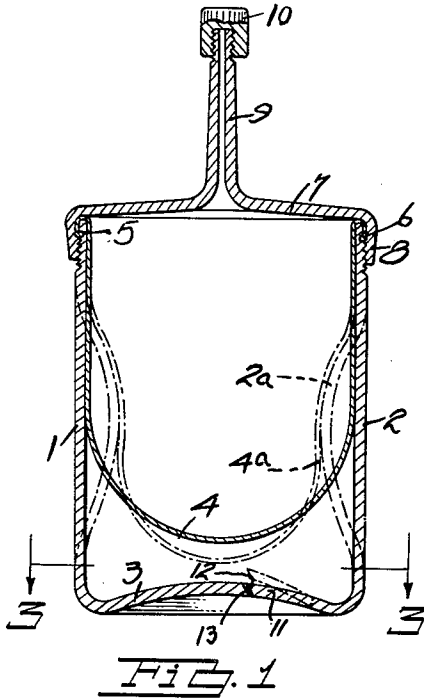
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RESILIENT, MANUALLY OPERABLE DISPENSERS FOR VISCOUS MATERIAL

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## RESILIENT, MANUALLY OPERABLE DISPENSERS FOR VISCOUS MATERIAL

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1 Claim. (Cl. 222—95)

This invention relates to improvements in resilient, manually operable dispensers for viscous material, such as shaving cream, tooth paste and the like.

It is an object of the invention to provide a dispenser including a deformable casing having a cover thereon from which a spout extends, and a collapsible elastic inner container mounted within the casing and having its upper annular margin secured to the casing beneath the cover, so that when opposite sides of the casing are squeezed inwardly some of the contents of the inner container is expelled through the spout; and when pressure on the casing is released the latter reassumes its normal shape.

Another object of the invention is to provide such a dispenser wherein the peripheral wall of the inner container is substantially contiguous to the encircling wall of the casing when the container is full, so that then when opposite sides of the casing are squeezed inwardly pressure is directly exerted upon the container to compress it and discharge some of the material therein; and when the container (which when filled is under slight tension) has been sufficiently collapsed by partial discharge of its contents and a large enough air space has been formed around it within the casing, air pressure is generated within the said casing when the latter is squeezed and this air pressure causes further collapse of the container and discharge of some of the remaining material therein. Consequently by repeated squeezing of the casing the container is gradually emptied.

A further object of the invention is to provide such a dispenser wherein means are provided for admitting air into the casing after release of inward pressure thereon to insure that the casing immediately reassumes its normal shape; meanwhile the inner container becomes and remains smaller upon each discharge of some of its contents.

Another object of the invention is to provide such a dispenser wherein the length and the cross sectional form and area of the spout are such that sufficient frictional resistance is offered to the flow of viscous material there-through that discharge thereof ceases when pressure is no longer exerted upon the outer casing.

Having thus stated some of the objects and advantages of the invention I will now describe the invention in detail with the aid of the accompanying drawing, in which:

Figure 1 is a sectional view of the invention with the inner container largely filled.

Figure 2 is a similar view, partly in section, showing the inner container partly emptied.

Figure 3 is a section on the line 3—3 of Figure 1, and

Figure 4 is an elevation showing a slightly modified form of the invention.

Referring to the drawing, 1 designates a deformable resilient casing having an annular wall 2 and a base 3. Mounted in the casing 1 is an inner container or bag 4 which is collapsible and expanded under slight tension when full. The upper margin of the container 4 is se-

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cured around its periphery to the top of the annular wall 2. In the present instance this is accomplished by forming an annular groove 5 around the outer side of the wall 2 adjacent its upper extremity to receive a bead 6 which extends around the top of the container 4 and is integral therewith. The upper margin of the container is downwardly and outwardly folded over the edge of the wall 2 and is resiliently held in the groove 5.

Mounted on the casing 1 and the container 4 is a cover 7 which, in the instance shown, has a depending annular flange 8 projecting over the downturned margin of the container 4 thereby holding the latter in place. The lower portion of the flange 8 is preferably internally threaded to engage corresponding threads formed around the casing wall 2 beneath the groove 5. Extending from the cover 7 is a relatively long and narrow spout 9 through which the contents of the container is adapted to be discharged. The length and restricted cross section of the bore of the spout is such as to offset by surface friction any tendency for the contents of the container to flow therethrough when no pressure is being exerted thereon, since the container is expanded when full and under slight tension. A removable cap 10 is mounted on the outer extremity of the spout 9.

When the container is full, or substantially so, pressure exerted upon opposite sides of the casing 1 deforms the latter as indicated at 2a in Figure 1, so that pressure is directly applied to the container at 4a thereby deforming it so that some of its contents is discharged through the spout 9 if the cap 10 is off. After repeated squeezing of the casing 1 the size of the container 4 becomes so reduced that actual contact is no longer made therewith when the casing is deformed as shown at 2a in Figure 2. Then squeezing and deformation of the casing generates air pressure in the casing which is exerted upon the container 4 so that some of its contents is expelled. In fact by repeated squeezing of the casing substantially the entire contents of the container may be gradually discharged.

In Figure 3 a valve 11 is shown which is formed integral with the base 3 of the casing and has downwardly and inwardly inclined sides 12 which are adapted to bear against correspondingly inclined sides of a seat 13 formed integral with the base. Thus when pressure is generated in the casing 1 by squeezing opposite sides of the latter the valve 11 is forced down against its seat 13 to maintain pressure in the casing. When inward pressure on the casing ceases and the resilient sides 2 commence to reassume their normal shape the valve 11 opens so that the space within the casing, which has increased somewhat due to shrinkage of the container caused by discharge of its contents, is again filled with air at atmospheric pressure.

In the modification shown in Figure 4, the valve 11 is dispensed with and the base 3 of the casing is imperforate. Then a small aperture 14 is formed through the wall 2 of the casing which is closed by the hand of the person using the dispenser. As soon as pressure on the casing is relaxed and the hand no longer closes the aperture air enters through the latter.

While in the foregoing the preferred embodiments of the invention have been described and shown, it is understood that further alterations and modifications may be made thereto provided they fall within the scope of the appended claim.

What I claim is:

A dispenser for viscous material including a resilient, deformable casing open at one extremity, an elastic container in the casing open at one extremity and having its annular margin secured to and around the open extremity of the casing, said elastic container being expanded under

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slight tension when filled, a cover mounted on the open extremity of the casing and forming a closure for the open extremity of the container, a relatively long spout projecting from the cover the bore of which extends through said cover into the top of the container, said casing being apertured for the admission of air thereinto around said container, means for preventing the escape of air from within the casing when said casing is squeezed to exert external pressure upon the container and eject some viscous material therefrom through the spout, the bore of the long spout being small whereby surface friction exerted thereby offsets any tendency for the material to be ejected when no external pressure is being exerted on said container, and the cross sectional area of the

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container immediately adjacent the inner extremity of the bore of the spout being very materially greater than that of said bore whereby when external pressure on the container ceases said container tends to withdraw some of the viscous material from the spout back thereinto.

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