

[54] **DOME-BOTTOMED CONTAINER**

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[51] Int. Cl. .... **B65d 35/28**

[58] Field of Search ..... 150/5; 222/214, 104, 95,  
222/105, 107

[56] **References Cited**

**UNITED STATES PATENTS**

|           |         |              |         |
|-----------|---------|--------------|---------|
| 2,129,119 | 9/1938  | Davis .....  | 222/105 |
| 3,155,281 | 11/1964 | Tracey ..... | 222/107 |

**FOREIGN PATENTS OR APPLICATIONS**

|         |        |              |       |
|---------|--------|--------------|-------|
| 688,612 | 6/1964 | Canada ..... | 150/5 |
|---------|--------|--------------|-------|

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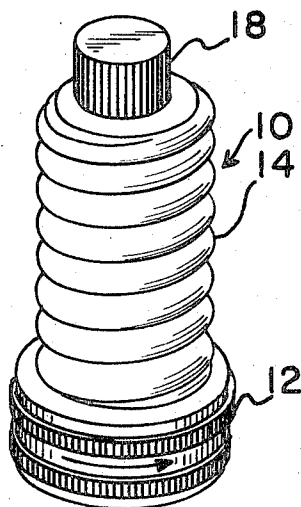
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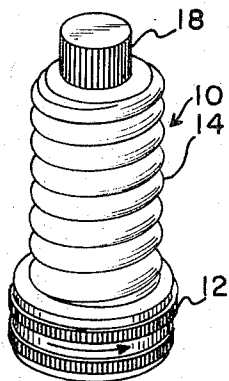
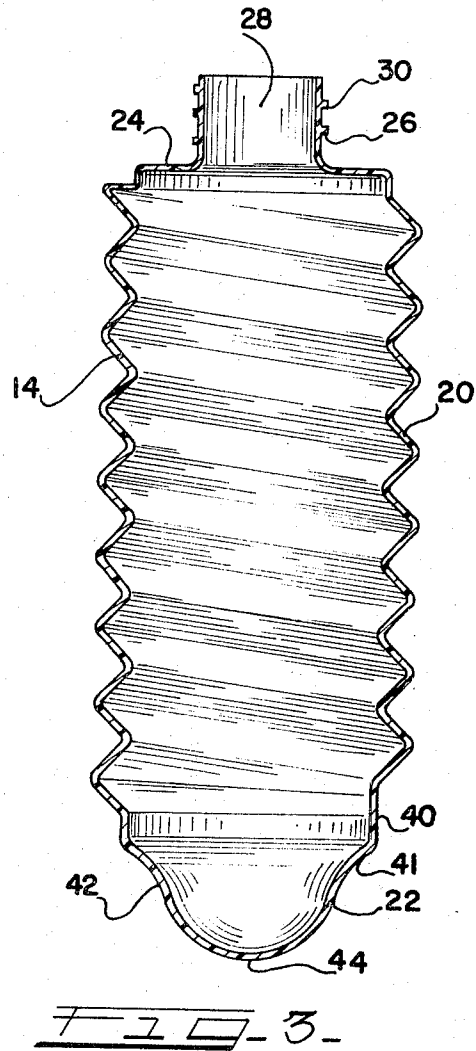
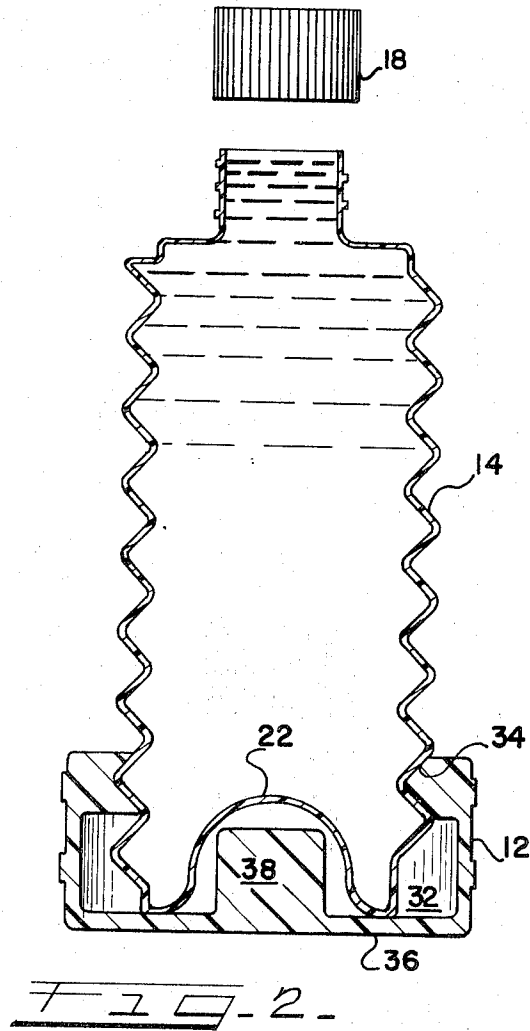
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[57] **ABSTRACT**

A package-dispenser for pastes and the like, having a resilient, flexible threaded wall, and a separate rotatable base. The walls are threaded into the base for advance of the base along the container for extrusion of the contents therefrom. The container includes a bottom which is initially domed outwardly during its manufacture in a blow-molding process. The dome can be involuted without damage to the container, and yet assists in complete evacuation of the contents from this type of container.

**2 Claims, 3 Drawing Figures**





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## DOME-BOTTOMED CONTAINER

This invention relates to containers for containing and dispensing materials such as spreads and pastes, e.g., artists oils, toothpaste, catsup, mustard, and meat, fish or cheese paste spreads, and the like.

The container-dispenser of this invention is an improvement on the container-dispenser disclosed in U.S. Pat. No. 3,155,281, issued to John Stracey on Nov. 4, 1964.

That patent discloses a container-dispenser which has side walls of tough flexible resilient plastic in the shape of a continuous helical bellows, and a base member having inside threads for mating with the helical side walls of the container. The contents are dispensed by threading the base along the side walls. One of the embodiments disclosed in that patent (See FIGS. 7 and 8) show a closed-bottomed container with a solid or hollow projection extending upwardly into the container. This projection is particularly important in the closed-bottomed embodiments of containers of the type disclosed because of the fact that when the base is threaded to the very top of the container, the container side walls, though collapsed or folded down as far as possible, nonetheless occupy a substantial amount of space. This causes a substantial quantity of contents to remain in the container within the base, within the folded side walls. By including the projection 44, around which the pleats of helical walls are folded as the base member advances along the container, most of the space within the completely collapsed wall is thereby occupied by the projection, and contents of the container are more completely dispensed.

It has been found to be extremely difficult to blow-mold a projection of the type described in the aforesaid patent.

It is an object of this invention to provide a container of the type described which is readily manufactured by blow-molding techniques.

Another object of the present invention is to provide a container of the type described having a readily manufactured inwardly directed bottom projection free of kinks and undesirable stresses and having a neat attractive appearance.

FIG. 1 is a perspective view of a container in accordance with this invention.

FIG. 2 is a longitudinal cross-sectional medial elevational view of the package illustrated in FIG. 1.

FIG. 3 is a longitudinal cross-sectional medial view of the product-enclosing portion of the package shown in FIG. 1 in which the bottom bubble portion is shown in its extended position.

In the embodiment shown in FIGS. 1 through 3, container, generally 10, includes a base 12, a resilient flexible helical shell 14 and screw cap 18. Helical shell 14 includes a substantially flexible, resilient wall member 20 in the form of a continuous helical bellows having a dome-shaped bottom 22 at one end thereof and a constriction 24 having neck 26 with discharge opening 28 passing therethrough at the other end. Outside threads 30 on neck 26 mate with inside threads (not shown because conventional) in cap 18.

Resilient wall 20 is in the form of helical bellows and is preferably blow-molded and is made up of flexible tough plastic. The plastic must be resilient, and wall 20 is manufactured in such a manner that the bellows are biased in the extended condition.

Due to the flexible nature of the plastic from which shell 14 is manufactured, domed end 22 can be involuted as shown in FIG. 2.

Base 12 includes chamber 32 having threaded mouth 34 which provides inside threads for mating with helical wall 20. Chamber 32 is large enough to permit seating, compression and storage of entire bellows 20 therein as base 12 is advanced along bellows 20 by the threading of base 12 onto bellows 20.

Base 12 includes closed end 36 having upwardly projecting boss 38 which extends well into, or beyond chamber 32.

Container component 14 is readily manufactured by blow-molding. Bubble bottom 22 makes possible the complete enclosure or confinement of the contents (not shown) within container portion 14. Moreover bubble bottom 22 is readily and conveniently involuted for extending into closure formed by bellows 14. In this position it cooperates with boss 38 in base 12 to assist in more completely expressing or extruding of the contents of container 14 when base 12 is advanced over container 14 to its limit. The cooperation of base 12 and threaded helical container component 14 is described in the aforesaid U.S. Pat. No. 3,155,281, the description of which is incorporated herein by reference thereto.

As perhaps best appreciated from consideration of FIG. 3 the bubble bottom 22 of container portion 14, prior to assembly into package 10, initiates from the lowermost extreme of a substantially cylindrical portion 40 having a diameter equal to the narrowest bore of helical bellows 20. Bubble bottom 22 tapers inwardly towards the axial center of container 14 and downwardly at intermediate portion 42, terminating at smoothly rounded end 44.

The bubble bottom 22 of the container 14 in accordance with this invention is readily manufactured by conventional blow-molding technique and container 14 having a configuration similar to that illustrated in FIG. 3 is readily stripped from the mold. Also, when bubble bottom 22 is involuted to reside within bellows 20 little strain and substantially no risk of damage to the container is incurred. Thus, unlike the hollow projection shown in FIG. 7 of the U.S. Pat. No. 3,155,281 which extends into the container, and which has 90° angles both at the bottom and top of the projection, and which is extremely difficult to manufacture by blow-molding and remove from the mold, and which would require a 180° twist at both the bottom and top corners in order to involute the projection into the container, the bubble bottom of this invention is easily molded, and requires relatively small angular flex in order to achieve low stress involution into the container.

Thus, in accordance with the use of this invention, blow-molded container 14 is initially produced in the configuration shown in FIG. 3 by injection molding. Bubble bottom 22 is then involuted to the dome-shaped configuration illustrated in FIG. 2, and base 12 is threaded onto container 14 as illustrated in FIG. 2. Container 14 is then filled with its contents and screw cap 18 is secured to provide filled package 10 as illustrated in FIG. 1.

To dispense the contents from package 10, cap 18 is removed and screw base 12 is threaded as indicated in FIG. 1 along the helical wall 20 of container 14. The interaction between base 12 and container 14 is de-

scribed in detail in U.S. Pat. No. 3,155,281 and that description is incorporated herein by reference thereto.

Hence, the contents of filled container 10 are dispensed by advancing the base 12 along container 14, thereby folding, or collapsing wall 20 within base 12. Domed bottom 22 occupies much of the space within base 12 and therefore assists in the more complete emptying of container 14 as wall is gathered within base 12.

When package 10 is emptied, base 12 can be reverse-threaded to the position shown in FIG. 2 and the container refilled and reused if desired.

The container is particularly useful and advantageous in the dispensing of condiments such as catsup, mustard, horse radish, and the like inasmuch as precise control over the amount dispensed is assured by the arc through which base 12 is rotated in dispensing the condiment. Obviously, this container is not limited in its application to use with these materials however.

I claim:

1. In a container for paste, and the like, comprising a hollow base member and a main chamber member, said main chamber member having a substantially flexible resilient annular wall member comprising a continuous helical bellows in the form of a helical thread having a central axis and biased to an extended position by the inherent resiliency of said wall member, said wall member including a short cylindrical wall portion which terminates downwardly at an annular bottom

edge portion which is situated in a plane substantially perpendicular to said axis, said thread terminating downwardly at said substantially cylindrical wall portion, said main chamber member having a closed bottom and having a discharge opening at the top, said wall member thread being adapted to be screwed directly into and collapsed within said hollow base member; said hollow base member having a threaded opening at the top thereof for threadingly engaging said thread, and chamber member stop means spaced from said threaded opening a sufficient distance to receive said wall member in collapsed condition within said base member, the improvement in which: the closed bottom of the chamber consists of a smoothly curving flexible bottom member which begins radially outwardly at said annular bottom edge portion of said wall member, angles abruptly radially inwardly toward the central axis of the container, then curves smoothly away from said plane of said edge portion, and inwardly with respect to the central axis of the container, and thereupon terminates in a smoothly rounded, closed central portion, said flexible bottom member being of sufficient flexibility to permit involution to a position within said wall member.

2. The improvement of claim 1 wherein said substantially cylindrical wall portion has a diameter substantially equal to the narrowest bore of the helical thread.

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