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Gibbs

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[54] COMPOSITE CONTAINER

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[52] **U.S. Cl.**.....**220/17,** 220/63 R, 215/89

[51] **Int. Cl.**.....**B65d 25/14,** B65d 45/16

[58] **Field of Search**.....220/15, 17, 63 R, 220/42 B; 215/89

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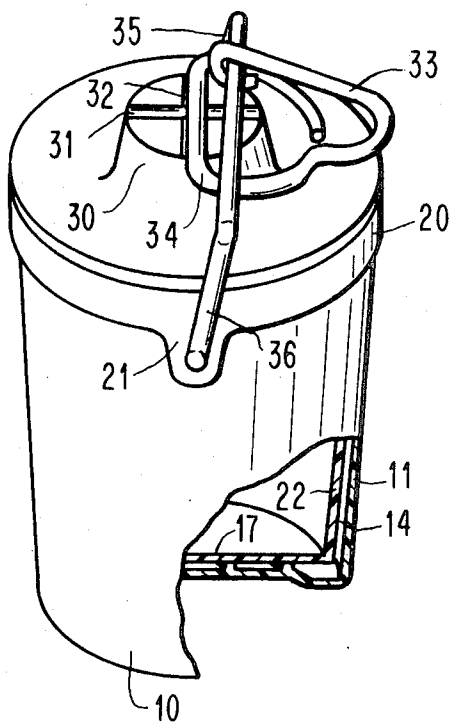
[57] **ABSTRACT**

A molded plastic container having a body member and a cap therefore employs a thin wall expendible inner liner for retaining the contents of the container. Rigidity of the body member and tight sealing of the cap against the liner and the body member is obtained by design features compatible with injection molding techniques.

3 Claims, 4 Drawing Figures



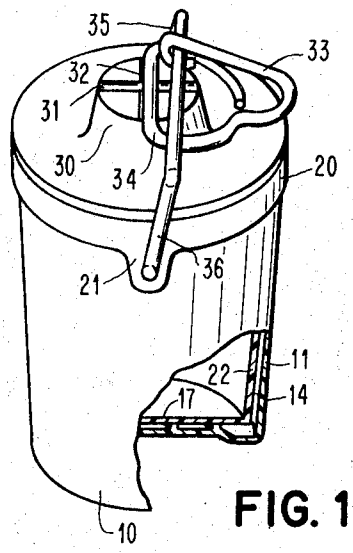


FIG. 1

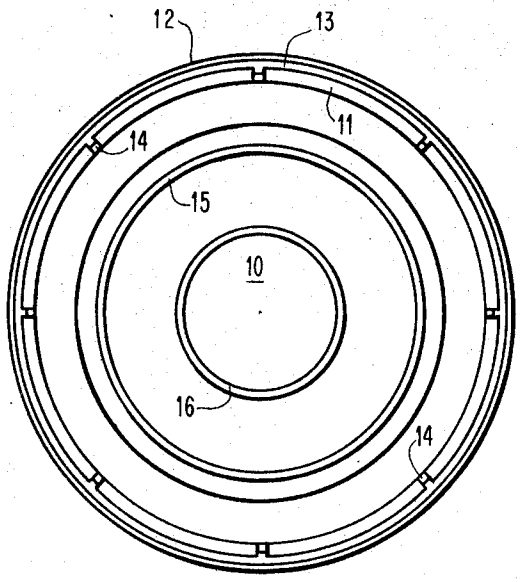


FIG. 2

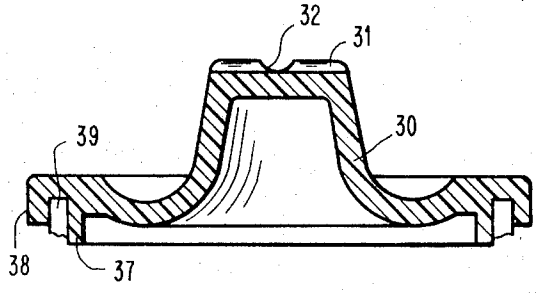


FIG. 3

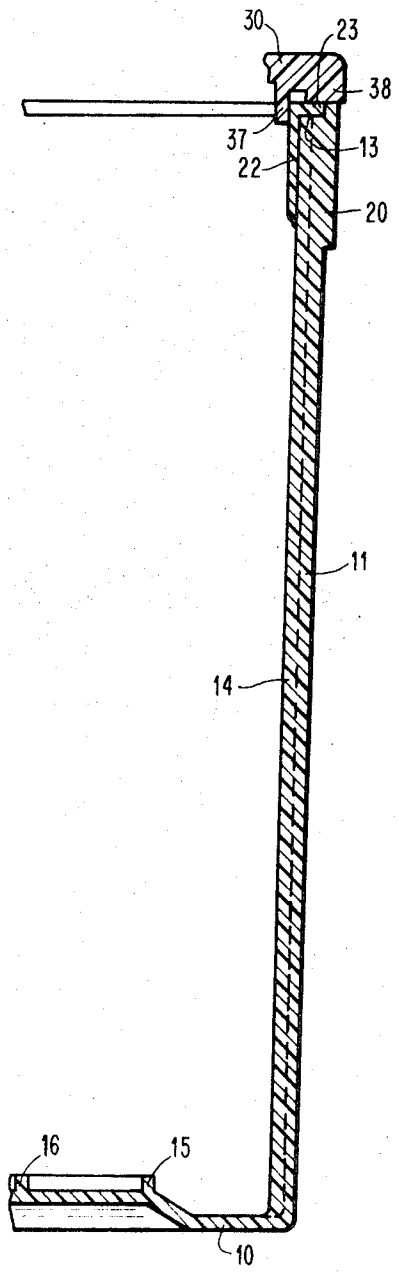


FIG. 4

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COMPOSITE CONTAINER

BACKGROUND OF THE INVENTION

The marketing of products in containers which employ an expendible inner liner associated with a reusable outer body member has long been practiced, but the full economic advantages of this practice frequently is not attained due to limitations in the structure of the liner, or of the body member, or of the sealing of the container to protect its contents. Various structural materials such as plastics, ceramics, metals or the like have, of course, been used for composite containers heretofore, but however without embodying the deliberate designing of the same to provide the advantages of the present invention.

SUMMARY

The present container comprises an interacting combination of a rigid body member with a bottom and a side wall having spaced ribs on its inner surface against which a thin wall removable liner may rest. The liner has a flange which fits into a recess at the upper edge of the body member, and a detachable cap is held in sealing relation against both the liner flange and the upper edge of the body member when this cap is subjected to pressure by a cap clamping means which is pivotally attached to the diametrically opposite side of the body member. A supplemental sealing action is provided by an inner rim of the cap which engages against the inner periphery of the emplaced liner and the rigidity of the body member necessary to resist the pressure of this inner rim is attained by an enlarged cross section of the body member wall at its upper edge.

Among the objects of the invention are the provision of an improved composite container having a removable inner liner; the provision of an improved cap member for a composite container and adapted for dual sealing of the cap to the inner liner solely and to the inner liner and the body member jointly; and the provision of an improved body member for a composite container and which embodies the necessary rigidity without employing an excess of structural material.

These and other objects and advantages of the invention will become more apparent as the description proceeds and when considered in conjunction with the accompanying drawings in which

FIG. 1 is a perspective view, with portions broken away, of an assembled container, and prior to sealing of the cap thereon.

FIG. 2 is a plan view of the container body member showing the interior of the same.

FIG. 3 is a diametrical cross section view of the cap, and

FIG. 4 is a sectional view taken longitudinally of the body member along a rib thereof, and showing the engagement of a portion of the liner and cap with the body member when the container is fully assembled.

Referring now to FIGS. 1 and 2, a composite container which, for example, may be used in the marketing of foodstuffs such as cheese, comprises an open top rigid body member having a bottom portion **10** and a tapered side wall portion **11** terminating at a relatively thick upper edge **12** having an interior shoulder **13** formed therein. The shoulder is offset downwardly from the plane of the thickened upper edge and provides an annular space into which the liner can be fitted

to enhance the dual sealing function of the cap. A plurality of symmetrically spaced longitudinal ribs **14** formed on the inner surface of the wall **11** extend between the shoulder **13** and the bottom **10**. The bottom, moreover, is dished upwardly in its central region for strengthening purposes, and is provided with a pair of concentric ribs **15, 16** against which the bottom **17** of the liner is adapted to rest.

As a significant feature, the upper periphery of the body member is formed with an integral band **20** of the material constituting that member, and to provide a thicker cross section than at other regions of the body member, and to afford hoop reinforcement at the open top of the member. Depending bosses of this band at diametrically opposite sides of the body member, one of which is shown at **21**, serve a further purpose as will later appear.

For cooperation with the described body member a thin wall, for example about 0.030 inch, open top liner with a bottom **17**, tapered side wall **22**, and outwardly extending peripheral flange **23** at its upper edge, is provided. As will be understood, when this liner is in place as part of the composite container the bottom thereof is resting on the bottom ribs **15, 16**; the side thereof is resting on the longitudinal ribs **14**; and the flange thereof is resting on the shoulder **13** with the upper face of the flange preferably coinciding with the plane of the upper edge of the body member, as seen in FIG. **4**. Insertion, or removal, of this liner is easily accomplished due to the tapered nature of the parts and to the air flow passages existing between ribs **14**.

Passing now to FIGS. **1** and **3**, a molded cap, which like the liner and the body member preferably is formed of a suitable plastic such as a high impact strength polystyrene material, is provided. This cap includes a central dome portion **30** having intersecting notches **31, 32** into which the resilient clamp **33** of a conventional clamping means is adapted to be selectively engaged when the bail **34** is moved past dead center. Bail **34** in turn is provided with lateral arms **35, 36** pivotally mounted at the ends in anchoring holes formed in the respective bosses of the band **20**.

The inner surface of the cap is dished and includes an inner rim **37** having a length sufficient to provide a firm engagement with the extreme upper inner periphery of the liner when the cap is in sealing position. As will be apparent, this rim thus serves as a backup seal to the sealing provided by engagement of the outer rim **38** of the cap jointly against the flange of the liner and the topmost edge of the body member. To provide flexibility between the respective rims the cap is undercut as at **39**. Preferably, the cap, liner and body member are formed of the same plastic material and having a durometer value giving an elasticity which provides proper sealing action.

The employment of the above-described container will be self-evident. When the contents of the liner are exhausted, all that is needed is to remove the expended liner and replace it with a filled liner of the same dimensions. The sealing action of the cap against the new liner will, of course, then be the same as with the original liner.

In view of the above disclosure it will be noted that the several objectives of the invention are achieved and other advantageous results obtained. Modifications of

the described elements of the structure may, of course, be resorted to within the scope of the appended claims.

What is claimed is:

1. A composite container comprising an open top rigid body member having a bottom portion and a side wall portion terminating in a peripheral upper edge having a shoulder formed therein at the inner periphery of said edge and offset downwardly from the plane of said edge to provide an annular space, a plurality of spaced ribs extending longitudinally of said body side walls on the inner surface thereof, an expendible thin wall open top liner having a bottom portion and a side wall portion terminating in an outwardly extending peripheral flange at its top edge, said liner wall portion being adapted to rest against said ribs with the liner flange resting against said shoulder and occupying said annular space, a cap having a peripheral lower outer rim adapted to fit closely and simultaneously against both said liner flange and the extreme upper edge of said body member when said liner is installed in said body member, and resilient clamping means pivotally mounted upon said body member and adapted selectively to press said cap against said flange, said body member having a thicker cross section adjacent the upper edge thereof than at other portions of said body member and serving to reinforce the rigidity of said body member and to provide a strong mounting for said cap clamping means.

2. A container as defined in claim 1 wherein said cap includes a peripheral inner rim adapted to project into sealing engagement with the upper inner surface of said liner when said peripheral outer rim is in contact with said liner flange.

3. A container as defined in claim 1 wherein each of said body member, said liner, and said cap are formed of high impact strength plastic material.

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