

[54] CONTAINER AND LID

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[58] Field of Search..... 229/43; 220/23.6, 60 R;
206/508, 519, 520; 150/5

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[57] ABSTRACT

A flexible plastic container and lid are disclosed. The container is a generally cylindrical tub having a circular top opening with a top rim of an inverted, generally U-shaped cross-section. An annular bead is provided on the bight portion of the rim to engage the cover and provide a secure seal. The cover includes a central disc portion having an annular rim of an inverted, generally U-shaped cross-section with the inner leg of the U integral with the periphery of the disc. An annular head on the inner surface of the outer leg snap-locks with the container rim to releasably maintain the cover and container in assembled relation. An annular indexing rib is provided on the bight of the U-shaped cover rim to locate covers stacked on one another. The outer surface of the outer leg portion of the cover is rim tapered inwardly to facilitate stacking of the covers.

4 Claims, 3 Drawing Figures

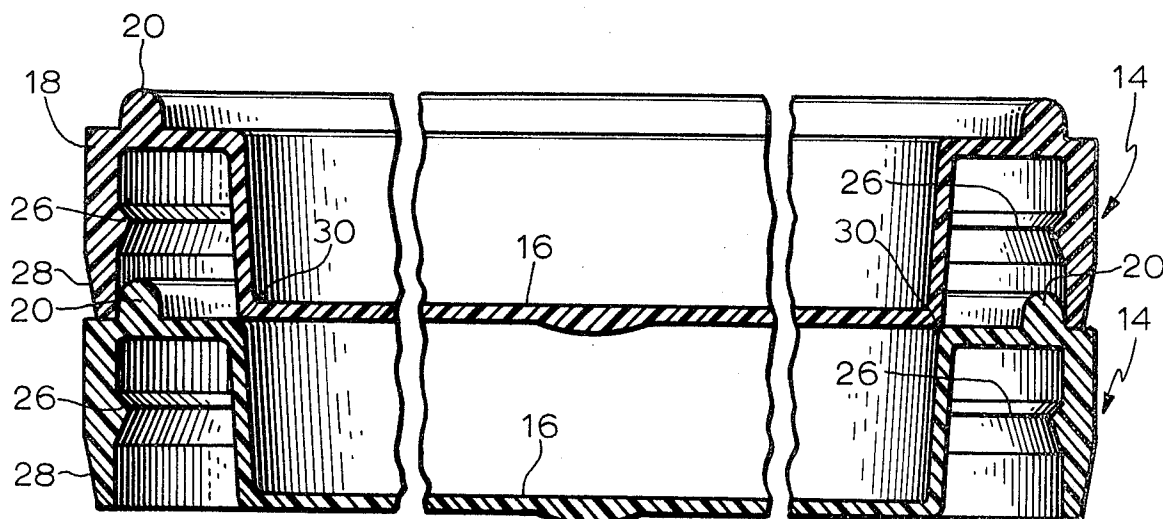


FIG. 1

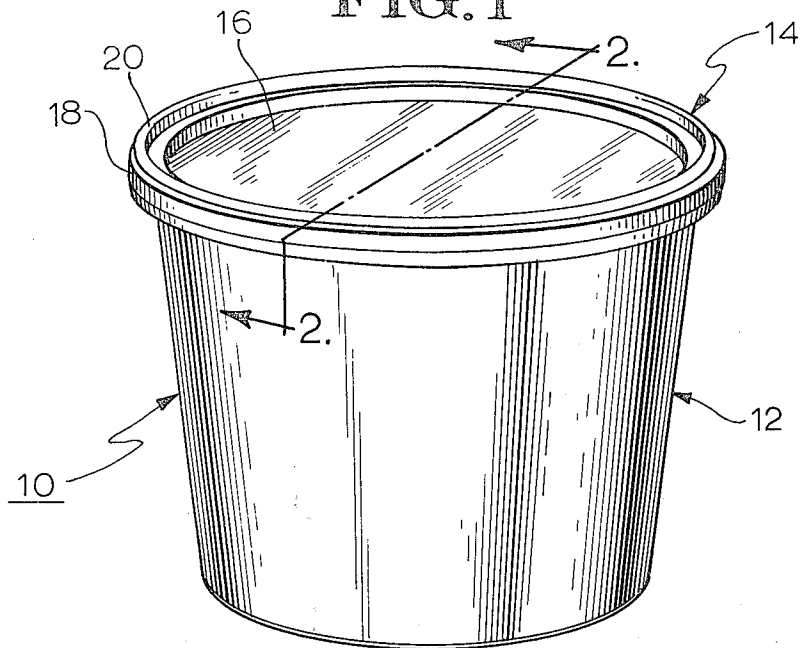


FIG. 2

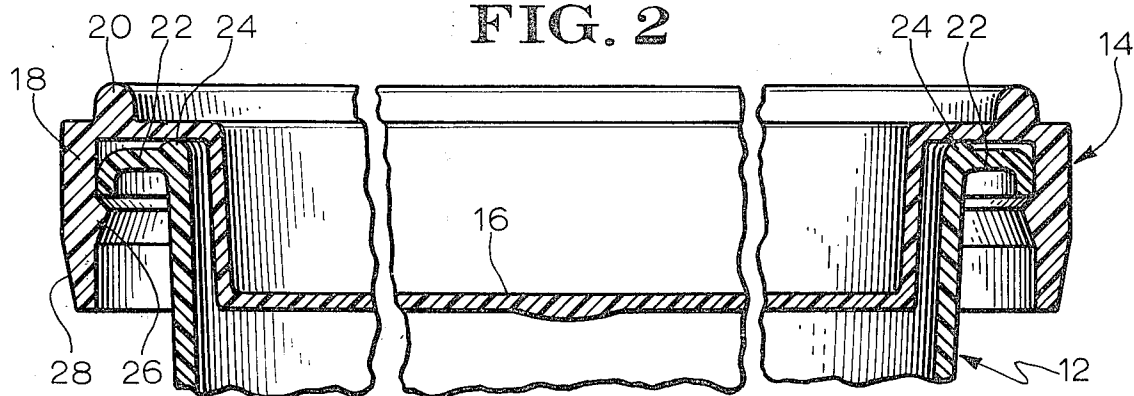
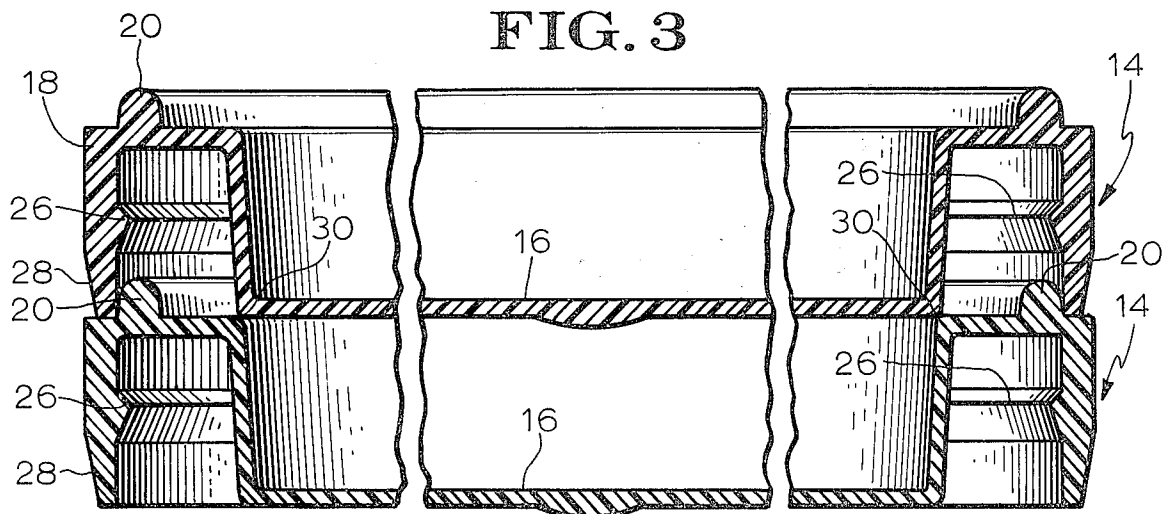


FIG. 3



CONTAINER AND LID

INTRODUCTION

The present invention relates generally to flexible, plastic containers and covers therefor. More particularly, the present invention is directed to an improved cover design that facilitates automatic handling and feeding, such as into automatic printing and automatic container filling machines. The invention is further directed to an improved container and cover that interfit in a secure, sealed relation.

SUMMARY OF THE INVENTION

The cover of the present invention is well suited for use in automatic feeding equipment such as used in conjunction with printing labels on the cover and in assembling the covers to the containers in automatic filling machines. The design of the covers are such as to prevent nesting or jamming of the covers when they are in stacked relation. A peripheral inward taper of the outer peripheral edge of the cover also facilitates proper vertical stacking.

The cover and container in assembled relation seal along two separate and spaced contact zones thereby assuring a secure and hermetic seal between the two components.

In summary, a first aspect of the invention is directed to a flexible cover for application to a container having a body portion extending upwardly from a base portion and having a circular top opening with a top rim of an inverted, generally U-shaped cross section. The cover comprises a planar central portion having a generally circular circumference, an annular rim portion of an inverted, generally U-shaped configuration, having an interior leg portion formed integrally with the circumference of the central portion. The cover rim further includes a bight portion carrying an annular indexing rib for positively locating a similar cover stacked on the first cover. The outer leg portion of the U-shaped cover rim terminates in a plane approximately co-planar with the planar central portion of the cover and the outer leg carries on its interior surface a circumferential bead for interlocking with the container rim to releasably retain the cover and container in assembled relation. The exterior surface of the outer leg of the cover rim is tapered in thickness toward the interior surface of the outer leg commencing at a predetermined point below the juncture of the bight and outer leg portions of the U-shaped rim for facilitating vertical stacking of the flexible covers.

The invention is also directed to a combination of a container and flexible cover in which the container is constructed as aforesaid, but further including an annular bead extending upwardly from the bight portion of the U-shaped rim. The cover is likewise constructed in the fashion aforesaid and is arranged such that the annular bead on the cover bight portion engages the interior surface of the intermediate bight portion of the cover rim portion for effecting an annular sealing ring between the cover and the container. This sealing ring is in addition to the seal formed between the cover rim and the circumferential head formed on the interior surface of the outer leg of the cover, thus providing two spaced and distinct sealing zones.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features of the present invention are set

forth with particularity in the appended claims. The invention together with further objects and advantages thereof may best be understood, however, by reference to the following description taken in conjunction with the accompanying drawings in the several figures of which like reference numerals identify like elements and in which:

FIG. 1 is a perspective view of a container and cover shown in assembled relation and embodying the teachings of the present invention;

FIG. 2 is an enlarged fragmentary and cross-sectional view taken along lines 2—2 of FIG. 1; and

FIG. 3 illustrates a pair of container covers in vertically stacked relation.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to FIG. 1, the container assembly 10 of the invention there illustrated comprises a container body 12 and a snap fit cover 14. The container 12 includes a generally planar base portion (not visible in the drawings) and a body portion extending upwardly and tapering gradually outwardly from the base portion. The upwardly extending body portion terminates in an open circular top and an outwardly flanged top rim portion, not visible in FIG. 1 but which will presently be explained.

The cover 14 is of a so-called "double dish" design, i.e., its disc-like center portion lies in an approximately common plane with the terminus of the depending outer edge of the cover. More specifically, the cover 14 comprises a generally planar central portion 16 with a generally circular circumference. An annular rim portion 18 of an inverted, generally U-shaped configuration surrounds the central portion 16 and an inner leg of the U-shaped rim 18 is formed integrally with the circumference of the central portion 16. The bight portion of the inverted, U-shaped cover rim 18 carries an annular indexing rib 20 for positively locating a similar cover stacked on the cover 14, as will be explained in greater detail below.

Referring now to FIG. 2, the structure of the top rim portion of the container 12 and the cover 14 may be appreciated in detail. Specifically, the container 12 includes a circular top opening with an outwardly flanged top rim 22 of an inverted, generally U-shaped cross section. There is provided on the bight portion of the cover rim 22 adjacent the interior leg of the U, an annular bead 24 for engaging the interior surface of a cover 14. The bead 24 provides a secondary seal between the cover and container thereby to assure a secure and hermetic seal between the cover and container.

As seen in detail in FIG. 2, the planar disc-like central portion 16 of the cover 14 is integrally joined to the base of the interior leg of the inverted, generally U-shaped annular rim portion 18. The bight portion of the U-shaped rim 18 is, of course, of a width greater than that of the outwardly flanged top rim 22 of the container 12 in order to permit the cover rim 18 to be inserted over the container rim 22. However, except for this practical limitation, the bight portion of the cover rim may, consistent with the present invention, be made of any desired width. The outer leg portion of the cover rim 18 is of a generally vertical orientation while the interior leg may or may not be vertical depending

upon detail design criteria which are independent of the present invention.

The outer leg portion of the cover rim 18 preferably terminates at its free end in a co-planar relationship with the central portion 16 of the cover. An annular bead 26 is carried on the interior surface of the outer leg of the cover rim portion 18 and is located so as to resiliently engage the outer edge of the container rim 22 and effect a secure but releasable interlocking of the cover and container. With the cover and container in an assembled or interlocked position as shown in FIG. 2, there is a secure pressure fit between the outer flange of the U-shaped container rim portion 22 and the interior surface of the exterior leg of the container rim 18. There is further formed a pressure fit or seal between the container and cover at the contact locus between the bead 24 and the interior surface of the cover rim 18. The two separate and spaced seals formed between the cover and container assure that the contents of the container 12 are well protected.

In accordance with the present invention, the outer leg of the cover rim portion 18 is tapered in thickness toward the interior surface of the outer leg, as indicated by the numeral 28 in the drawings. The taper 28 commences at a predetermined point below the juncture of the rim bight and the outer leg portion; the taper is useful in facilitating vertical stacking of the flexible covers. It is presently preferred that the taper 28 commence at a point approximately at the level of the lower side of the annular locking bead 26 and it is further preferred that the taper form an angle of approximately 5° with the vertical.

Referring now to FIG. 3, a pair of similar covers 14 are illustrated in a stacked relation. As there seen, the taper 28 insures a proper "toeing in" of the annular container skirts and minimizes the likelihood of jamming which might otherwise occur if the lower skirt portion of the upper cover 14 extended outwardly of the stacking shoulder of the bottom cover. Undesired nesting or interlocking of the stacked covers is obviated by assuring a firm contact between the lower interior rim of the upper cover 14 and the upper interior rim of the lower cover 14, the point of such contact being indicated by the numeral 30 in FIG. 3. Accordingly, it is clear that the dimension across the planar central portion is to be greater than the dimension spanning the upper interior rim. For a generally circular cover, as is shown in the preferred embodiments, the diameter of the planar central portion 16 is greater than the diameter of the circular interior space which spans the upper portion of the annular rim 18. Thus, the circular interior space which spans upper cover 14 will not nest with the lower cover 14 so as to interlock the covers together and preclude an effective handling of the covers in an automatic machine.

Although not illustrated in the drawing, it should be understood that the deep or double dish design provides a recessed storage compartment in the lid 16 to hold a napkin or utensils for use with the food carried by container 12. As further example, in the event that the container 12 is used for ice cream, a particular topping for the ice cream may be contained in the recess of the double dish cover. By forming vertical ribs integrally with the planar surface 16 of the cover, the recessed space may be subdivided into a plurality of compartments to hold more than one flavor topping, chopped nuts or the like. A flat planar lid contiguous

with the top surface or of the bight portion of the cover rim 18 may be used to close and seal this secondary compartment.

Again although not illustrated in detail in the drawings, it will be recognized by those skilled in the art that various forms of beads, flanges or ribs may be added to the exterior leg of the cover rim 18 in order to increase the gripping surface for lid removal, if such be desired.

While particular embodiments of the present invention have been shown and described, it is apparent that various changes and modifications may be made, and it is therefore intended in the following claims to cover all such modifications and changes as may fall within the true spirit and scope of this invention.

I claim:

1. A flexible cover for application to a container having a body portion extending upwardly from a base portion and having a circular top opening with a top rim of inverted generally U-shaped cross-section, said cover comprising a planar central portion having a generally circular circumference, an annular rim portion of an inverted generally U-shaped configuration having an inner leg portion formed integrally with said circumference of said central portion, a bight portion carrying an annular indexing rib for positively locating a similar cover stacked on said cover and having an outer leg portion terminating in a plane approximately co-planar with said planar central portion and carrying on the interior surface thereof a circumferential bead for interlocking with said container rim to releasably retain said cover and container in assembled relation and with the exterior surface of said outer leg being tapered in thickness toward said interior surface of said outer leg commencing at a predetermined point below the juncture of said bight and outer leg portion for facilitating vertical stacking of said flexible covers, and said planar central portion having a diameter greater than the diameter of the interior space which spans said annular rim at said bight portion.

2. The flexible cover of claim 1 in which said taper commences at a point below the mid-point of the length of said outer leg portion.

3. The flexible cover of claim 2 in which the upper section of said exterior surface of said outer leg lies in a vertical plane and in which the tapered portion of said exterior surface forms an angle of approximately 10° with said vertical plane.

4. A flexible cover for application to a container having a body portion extending upwardly from a transverse base portion and terminating in an outwardly flanged top rim portion of an inverted, generally U-shaped cross-section, comprising:

a planar central portion of a predetermined peripheral outline, and

a rim portion of an inverted, generally U-shaped configuration having an inner leg portion formed integrally with the periphery of said central portion, the bight portion of said U-shaped rim carrying an indexing rib of a predetermined configuration corresponding generally in outline to that of said predetermined peripheral outline for positively locating a similar cover stacked on said cover, the outer leg portion of said U-shaped rim terminating in a plane approximately co-planar with said planar central portion and carrying on the interior surface thereof a peripheral bead for interlocking with said container rim to releasably retain said cover and

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container in assembled relation and with the exterior surface of said outer leg being tapered in thickness toward said interior surface of said outer leg commencing at a predetermined point below the juncture of said bight and outer leg portions for fa 5

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cilitating vertical stacking of said covers, and said planar central portion having a greater dimension than the interior dimension spanning said U-shaped rim at said bight portion.
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