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Dibrell

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[54] **NON-SPILL CONTAINER CLOSURE**

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[73] Assignee: **Nospil Limited,** Los Angeles, Calif.

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[52] **U.S. Cl.**..... **220/90.4,** 222/485, 222/511

[51] **Int. Cl.**..... **A47g 19/22**

[58] **Field of Search**..... 220/90.2, 90.4, 90.6, 42 C, 220/44 R; 229/1.5 B, 43; 222/545, 482, 511, 485

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[57] **ABSTRACT**

An improved non-spill drinking cup cover is formed in one section wherein a radially extending central web portion is joined a reentrantly-shaped rim section in the cover member. The juncture of the web portion with the rim section defines a relatively deep annular trough extending around the cover section in constant relationship with the outer periphery of the rim section. A plurality of slits in the web portion of the cover member define a plurality of radially extending fingers which are normally integral with the web portion of the cover member. The radially extending fingers are urged downwardly and away from the web portion of the cover member when a user presses down on any part of the central area of the web portion in the cover member and thus resiliently deforms the cover member. The downward extension of the radially extending fingers away from the web portion of the cover member exposes a series of liquid discharge slots in the web portion. The annular trough may then be filled with liquid, from the cup interior, discharged through slots in the web by conventionally tilting the cup, and the user may drink from any angular position on the rim of the annular trough. The cover member may be formed of thermoforming plastic or other thin flexible, resilient materials.

Sanitization of the closure drinking surface may be achieved by providing the external surface of the closure with a strippable sanitary coating of plastic film that may be stripped from the surface of the closure by a user just prior to consumption of the liquid content of the container.

1 Claim, 3 Drawing Figures

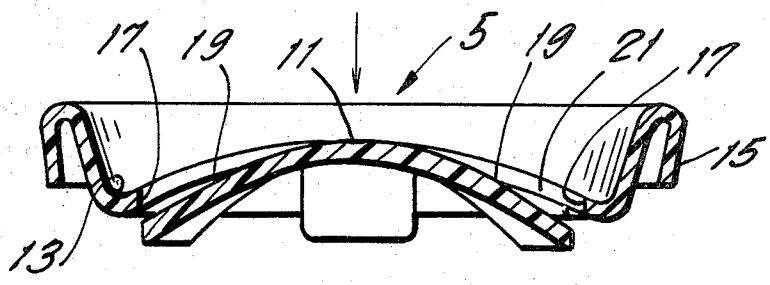


FIG. 1

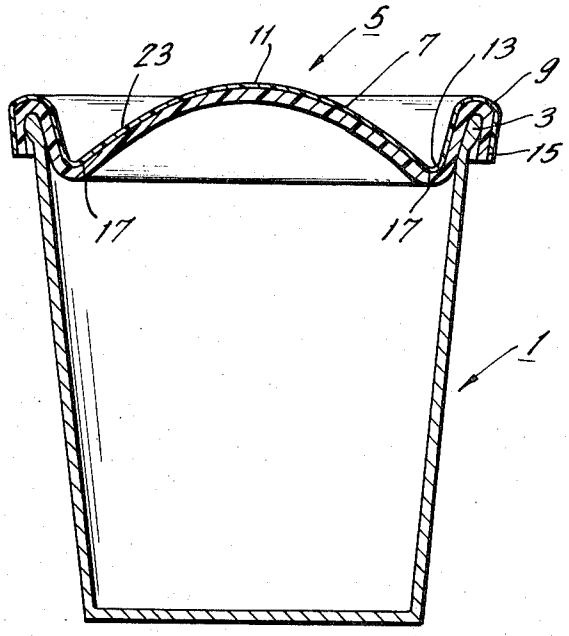


FIG. 2

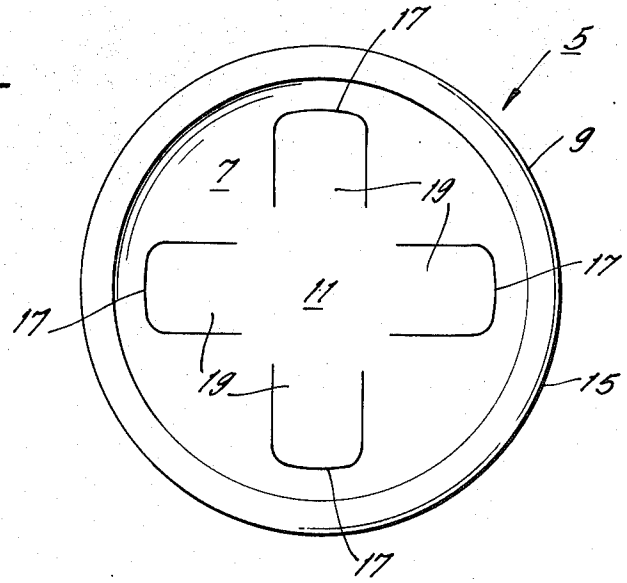
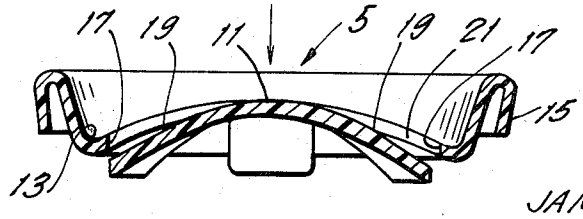


FIG. 3



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NON-SPILL CONTAINER CLOSURE

BACKGROUND OF THE INVENTION

This invention relates to non-spill drinking cup closures and more particularly to non-spill drinking cup closures formed from a single cover section having a sealable liquid discharge slot integral with the cover member that permits a user to drink conveniently from a container while the closure or cover is in position.

This application discloses structural improvements over the drinking cup closures shown in copending applications Ser. No. 631, now U.S. Pat. No. 3,635,380, to Fitzgerald, filed Jan. 5, 1970, entitled "Container Closure" and Ser. No. 171,680, now U.S. Pat. No. 3,727,808 to Fitzgerald, filed Aug. 13, 1971, entitled "Non-Spill Drinking Cup Top."

A non-spill drinking cup cover that will gain commercial acceptance and is economically feasible has been sought for a number of years. A commercially practicable cover of the non-spill type would have numerous applications. For instance, such covers are particularly useful to consumers who, while in motion or in a moving vehicle, desire a liquid drink that might otherwise spill from the container if it is necessary to remove the cover portion. A failure to provide a satisfactory non-spill container cover through which a consumer, while in motion, can drink, and fear of spillage has, in the past, discouraged the consumption of hot liquids, in particular, during travel. Non-spill covers may typically be used as closures for hot coffee containers offered for sale to boat, bus, or train riders.

Non-spill container covers proposed in the past, such as the Fitzgerald closures, generally require at least two separate parts, which raises the cost of such covers, particularly when the cover is of a disposable design. In addition, prior art container covers, other than the Fitzgerald closure, are provided with severely restricted drinking areas, and a user is aware that he is not drinking from the familiar cup rim. This awareness prompts a psychological reaction that tends to discourage consumption.

It is also recognized that people may be reluctant to consume liquid beverages through a non-spill cover unless they have some assurance that the closure is sanitary. Therefore, it is an object of this invention to provide a sanitary non-spill container closure through which liquids can be consumed without spillage.

It is a further object of this invention to provide a non-spill cover for a container through which liquids may be discharged or sealed within the container with the means for discharging or sealing the liquid contents integral with the cover member.

Yet a further object of this invention is to provide a non-spill container cover through which the liquid contents of a container may be consumed and which simulates consumption of the beverage from a familiar cup rim.

Other objects and advantages of this invention will become apparent from the more detailed description of the invention that follows:

SUMMARY OF THE INVENTION

In accordance with present invention, a non-spill drinking cup closure is formed in one section. Each closure is generally circular in shape to permit manufacture by conventional vacuum-forming equipment utilizing simple and inexpensive dies. The closures may be shipped in bulk and nested to facilitate packaging.

This single member cover comprises a radially extending central web portion that is joined to a reentrantly shaped rim section in the cover member. The juncture of the web portion with the rim section defines a relatively deep annular trough extending around the cover section in constant relationship with the outer periphery of the rim section.

A plurality of slits in the web portion of the cover member define a plurality of radially extending fingers which are normally integral with the web portion of the cover member. The radially extending fingers are urged downwardly and away from the web portion of the cover member when a user presses down on the central portion of the cover member or web portion and resiliently deforms the cover member. The downward extension of the radially extending fingers away from the web portion of the cover member exposes a series of liquid discharge slots in the web portion. The annular trough may then be filled with liquid from the cup interior, discharged through slots in the web by conventionally tilting the cup, and the user may drink from any angular position on the rim of the annular trough. The container closure of this invention may be sanitized after the member is formed.

The member may, in general, as when removably applied to a foamed plastic or plastic coated paper cup be sanitized by encasement in a suitable thermoplastic wrapping. The entire cover member may be encased in the sanitary wrapping or it may be preferable to sanitize only the exterior surface of the closure, e.g., the surface of the closure that receives mouth contact.

Sanitization may be achieved by providing the external surface of the closure with a strippable sanitary coating or film. Any conventional thermoplastic material with low toxicity, low taste and odor level, flame resistance, good clarity, permanent thermoplasticity and heat sealability may be used to sanitize the non-spill closures. For example, polyvinyl chloride, polyethylene, styrene-butadiene, and polyvinyl acetate latexes are suitable thermoplastic materials which may be used to sanitize the cup closures. When the cup closure is provided with a strippable sanitary coating, such as of polyvinyl chloride, it may be preferable that the glass transition temperature of the closure member or substrate be somewhat higher than the glass transition temperature of the thermoplastic material applied to the substrate.

After the sanitized closure is placed in position on a liquid-filled container, the sanitary coating may be stripped from the external surface of the closure member, by a user, just prior to consumption of the liquid contained in the container.

The external surface of the container closure may be encased in a strippable film sheet rather than being coated. When a sheet is used to sanitize the closure, it is preferable that the thermoplastic material used be heat shrinkable. For example, a biaxially oriented polyvinyl chloride film may be placed on the closure substrate and heat sealed along the periphery of the closure rim to protect the external closure surface. The protected closure then may be fixed to an open liquid-filled container, and the sanitary film may be stripped from the lid, by a user, just prior to consumption of the liquid contents of the container.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a cross-sectional view through the axis of a disposable container having thereon the non-spill cover of this invention.

FIG. 2 is a top plan view of the non-spill cover member of FIG. 1.

FIG. 3 is an enlarged cross-sectional view of the non-spill closure member of FIG. 1, which shows a user depressing the central part of the cover member to allow liquid to flow into the annular trough formed exteriorly on the rim portion of the cover.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to FIGS. 1 and 2, member 1 is a conventional disposable drinking container, cast or molded, for example, from a high molecular weight polymeric material. Container 1 may be of any shape, form, or design and may be prepared from any material adapted for use as a liquid container. In general, and as shown in FIG. 1, containers of this type usually have a circular cover seat 3. Non-spill cover lid 5 engages and is secured to container 1 along the periphery of container cover seat 3. The geometrical design of cover lid 5 may be altered to suit the form of the cover seat to which it is engaged. Sanitary coating or film 23 protects the external or drinking surface of cover lid 5 against contamination by undesirable matter. In FIG. 3 the sanitary protective coating is stripped from the external drinking surface of closure 5, since a user is about to consume the contents of the container.

Non-spill cover lid 5 includes radially extending central web portion 7, which joins reentrantly shaped rim section 9 to the center 11 of the cover member. Reentrantly shaped rim section 9 may be of the type used on conventional lids to fit and secure cover 5 to cover seat 3 in container 1 with a press-fit. Other means of securing cover member 5 to container 1 could be used instead of the press-fit rim 9, for example, the interior surface of rim 9 may be threaded for screw-like connection.

The juncture of web portion 7 with rim section 9 defines a relatively deep annular trough 13, which extends around cover section 5 in constant relationship with the outer periphery 15 of rim section 9.

As best shown in FIG. 2, a plurality of slits 17 in web portion 7 of cover member 5 define a plurality of radially extending fingers 19, which are normally integral with web portion 7 of cover member 5. As shown in FIG. 2, radially extending fingers 19 are in their normal position and in position to seal cover member 5 and prevent spillage. When, as shown in FIG. 3, a user or consumer presses down on extension 11 in cover member 5 and resiliently deforms cover member 5, radially extending fingers 19 are urged downwardly and away from web portion 7 of cover member 3, The downward extension of radially extending fingers 19 away from web portion 7 exposes a series of liquid discharge slots 21 in web portion 7. Annular trough 13 may then be filled with liquid, from the cup interior of container 1, discharged through slots 21 in web 7 by conventionally tilting container 1, and the user may drink from annular trough 13 in any angular position along rim 3. When the user relaxes bulbous central extension 11, radially extending fingers 19 return to their normal or sealing position to close liquid discharge slots 21.

It will be understood by those skilled in the art that cover member 5 can be manufactured by standard equipment of the type presently used to manufacture drinking container lids. Thus, member 5 may be formed using standard vacuum-forming techniques, as applied to conventional plastics, such as high density polyethylene and the like, used in the manufacture of container lids. The polymeric materials from which the lids are formed are preferably of the type that cure into relatively rigid, self-supporting structures capable of undergoing the elastic deformation required to open discharge slots 21 in lid member 5 when pressure is exerted on central extension 11. Since lid 5 is preferably circular, dies needed for its production may be prepared easily. Slits 17 defining radially extending fingers 19 may be formed concomitant with the preparation of lid 5, or slits 17 may be etched or stamped into lid 5 after lid 5 is formed.

Although there has been described a preferred embodiment of this novel invention, many variations and modifications will now be apparent to those skilled in the art. Therefore, this invention is to be limited, not by the specific disclosure herein, but only by the appended claims.

What is claimed is:

1. A container closure comprising:
   a. a reentrantly-shaped rim section connectable to the cover seat of an open container;
   b. a pressable central portion;
   c. a radially extending central web portion, having at least one slit therein, joining the reentrantly shaped rim section to the central portion; and
   d. at least one radially extending finger defined in the web portion by the slit therein and being normally integral with the web portion and responsive to depressions of the pressable central portion by elastically deforming from a normal or sealed closure position to a liquid discharge position.

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