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3,320,993

CONTAINER AND COVER THEREFOR

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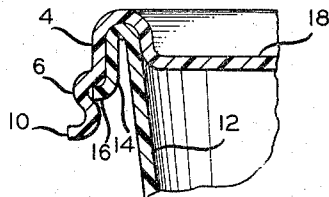


FIG. 4

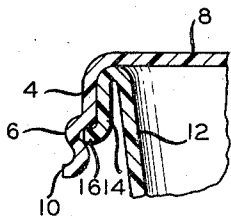


FIG. 2

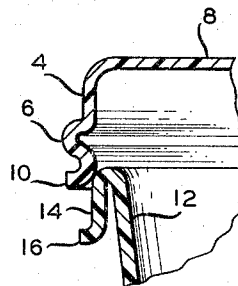


FIG. 3

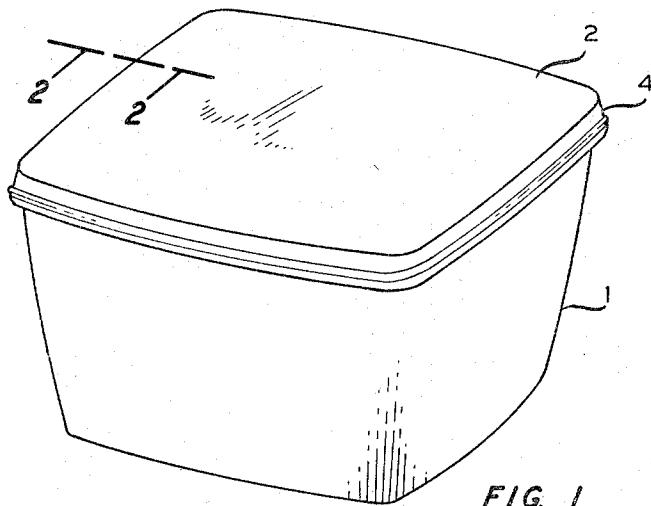


FIG. 1

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8 Claims. (Cl. 150—,5)

This invention relates to a container and a cover for dairy products and the like. In one of its aspects it relates to a substantially rectangular shaped thermoplastic container having a resilient depending flange with an outwardly extending lip on the bottom edge of the flange, and a substantially rectangular cover having an outwardly extending depending flange with an outward indentation to correspond with said outwardly extending lip on the bottom edge of the container flange. In another of its aspects the invention relates to a container as hereinbefore described wherein the lower portion of said cover depending flange has a greater outward angle with regard to the vertical than does the rest of the flange, thus allowing the lowermost flange portion to cam the cover in place on top of the container. In another of its aspects, the invention relates to a container as hereinbefore described wherein the container walls are bowed outwardly. In still another aspect, the invention relates to a container as hereinbefore described wherein the top surface of the lid is depressed to fit within the container and retard and/or prevent inward movement of the container walls.

Thermoplastic containers are becoming increasingly useful for packaging and storing of perishable food. Round containers are useful but rectangular or square shaped containers are more practical because of the economy of space. However, square containers present problems in that they tend to deform when material such as liquid, or freezing liquid, is placed therein, thus preventing a good seal between the lid and the container.

Various and sundry types of containers have been proposed and used. One prior art container has a thermoplastic bottom with an upwardly and outwardly extending resilient web having a bead on the end of the web. A deformable metal cover having a flange which fits under the bead has been used in combination with this thermoplastic container. However, a hook opener must be used to pry the lid off the container. Moreover, the cover flange impedes the reclosure of the container because the flange abuts the beaded web.

I have now discovered that a much improved container, avoiding the deformation problems, can be made by providing the container with a downwardly depending resilient flange having an outwardly extending lip around the top of the container, which lip is adapted to coact with a lip flange indentation to provide a snap-on lid.

By various aspects of this invention one or more of the following or other objects can be attained.

It is an object of this invention to provide an economical container for storing foods.

It is a further object of this invention to provide an economical container for packaging dairy products and the like.

It is a still further object of this invention to provide a cover and container combination wherein the deformation of the sides of the container have a minimal affect on the container seal.

It is a still further object of this invention to provide a reusable, easy opening thermoplastic container for perishable goods.

Other aspects, objects, and the several advantages of this invention are apparent to one skilled in the art from a study of this disclosure, drawing and the appended claims.

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According to the invention, there is provided a container, preferably made of thermoplastic, having a depending flange around the top thereof. The flange extends downwardly and outwardly and has an outwardly extending lip on the bottom edge thereof. A cover, having a flat, or recessed, top surface, is provided with an outwardly extending depending flange. The flange has a groove or outward indentation to coact with the outwardly extending lip on the container flange to provide a snap-on lid. The lower portion of the cover flange extends outwardly so that the cover will be guided into place when on the container.

The invention can be best understood by reference to the accompanying drawings, in which FIGURE 1 is a view in perspective showing a complete container and cover according to one embodiment of the invention. FIGURE 2 is a view taken along line 2—2 of FIGURE 1 showing the interaction of the container and cover. FIGURE 3 is a view similar to FIGURE 2 showing the guiding feature of the cover flange. FIGURE 4 is a view similar to FIGURE 2 showing a second embodiment of the invention.

Referring now to the drawings, a cover 2 having a depending lip 4 is positioned on a container generally designated by 1. As shown in FIGURE 2, container 1, having a wall 12 at the top portion thereof, has a depending flange 14 with outwardly extending lip 16. The cover has a depending flange 4 with an indentation or groove 6 adapted to coact with lip 16 to hold the cover in place on the container. The lower portion of flange 4 contains an outwardly extending portion which can have an angle with respect to the vertical greater than that of flange 4. As can be seen in FIGURE 3, portion 10 guides the cover portion over container flange 14, over rib 16, into place as shown in FIGURE 2. According to the first embodiment of the invention, the surface 8 of the cover is flat.

Referring now to FIGURE 4, the second embodiment of the invention is shown. In this embodiment, the cover has a recessed central portion 18 which prevents inward movement of container walls 12. The recessed cover 18 can also compress the materials in the container as well as serve as a surface for silk screening or for a label.

The shape of the containers is preferably rectangular or square. However, it is obvious that containers according to the invention can be made in other shapes, such as round, triangular, hexagonal, or any other shape. The sides of the containers can be flat, however, they are preferably bowed outwardly.

It can be seen from the drawings that the tolerances in making the container and cover need not be too closely observed. The container flange and lip 16 can be trimmed with a standard size cutter to provide a constant pressure against a standard size cover. Alternately, the length of 16 can be varied to vary the pressure against the cover indentation 6.

The cover and container can be formed by any known method. Vacuum forming of both the cover and container is preferred. However, blow molding and injection molding can also be used.

The containers can be made from any suitable thermoplastic material. Polyolefins and polystyrene are preferred. Most preferably, polyethylene and polybutene polymers and copolymers are used.

The size of the containers can vary greatly. For example, the containers can be used for one-half pint containers (or smaller) or can be used for standard ten gallon containers (or larger).

As a specific example, a six-inch square container was vacuum formed from 50 mil Marlex¹ 6002. The cover

¹ Phillips Petroleum Company trademark for polyolefin materials.

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was vacuum formed from 20 mil Marlex 6002. The final mil thickness of the vacuum formed container bottom was about 20 mils. Marlex 6002 is 0.960 density, 0.2 melt index high density polyethylene.

The thickness of the walls of the container can vary from about five mils to about 150 mils, depending on the size of the container. For normal size containers, about 20 mils final thickness is suitable.

It is obvious that dissimilar materials can be used for the container and for the cover. Also, the cover can be of a different thickness than the container.

Reasonable variation and modification are possible within the scope of the foregoing disclosure, the drawings, and the appended claims to the invention, the essence of which is that a container having a resilient depending flange with an outwardly extending lip is provided with a cover having an outwardly flared flange with a recess adapted to engage the container lip to provide a snap-on arrangement between the cover and the container.

I claim:

1. A container and cover therefor for use in packaging or storing foods, said container having at the top portion thereof a resilient depending flange extending downwardly and outwardly with an outwardly extending lip, said cover having a downwardly flared flange with an indentation adapted to engage said container lip so that a snap-on arrangement is provided between said cover and said container.

2. A thermoplastic container for dairy products and the like comprising a rectangular container bottom having a resilient depending flange extending outwardly and downwardly with respect to the top edge of the container bottom, said flange having on the bottom thereof an outwardly extending lip, a rectangularly shaped cover having a depending flange around the edge of said cover, said flange extending outwardly and downwardly, said flange having an outward continuous indentation or groove in said flange adapted to coact with said outwardly extending lip on the bottom edge of said container bottom flange.

3. A container according to claim 2 wherein said cover has a flat planar surface.

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4. A container according to claim 2 wherein said cover has a depressed planar surface adapted to retard inward movement of said container bottom walls, and said cover adapted to compress the contents within said container.

5. A container according to claim 2 wherein said depending flange on said cover contains an outwardly extending edge below said indentation or groove adapted to cam said cover over said outwardly extending lip into position.

6. A container and cover therefor comprising
(1) a rectangularly shaped container bottom having a resilient depending flange extending outwardly and downwardly with respect to the top edge of the container,

(a) said depending flange having an outwardly extending lip on the bottom edge thereof,

(2) a substantially rectangular cover having

(a) a flat planar surface,

(b) a depending flange around the edge of said cover, said flange extending outwardly and downwardly,

(1) an outward continuous indentation or groove in said flange adapted to coact with said outwardly extending lip on the bottom edge of said flange,

(2) an outwardly extending edge below said indentation adapted to cam said flange and cover into position over said outwardly extending lip on said container bottom flange.

7. A container and cover according to claim 6 wherein the side walls of said container are bowed outwardly.

8. A container and cover according to claim 6 wherein at least one corner of said container is not coplanar with the other three corners.

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FRANKLIN T. GARRETT, *Primary Examiner*.