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CONTAINER AND COVER THEREFOR

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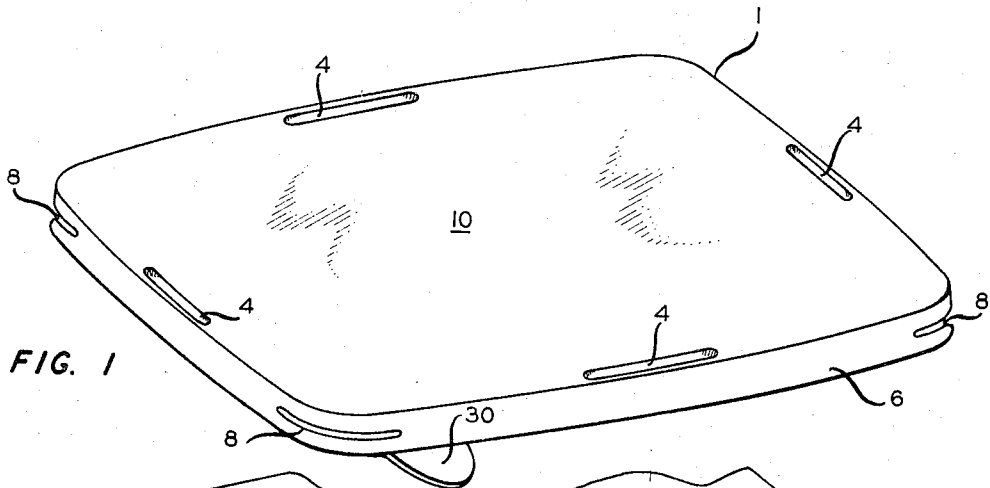


FIG. 1

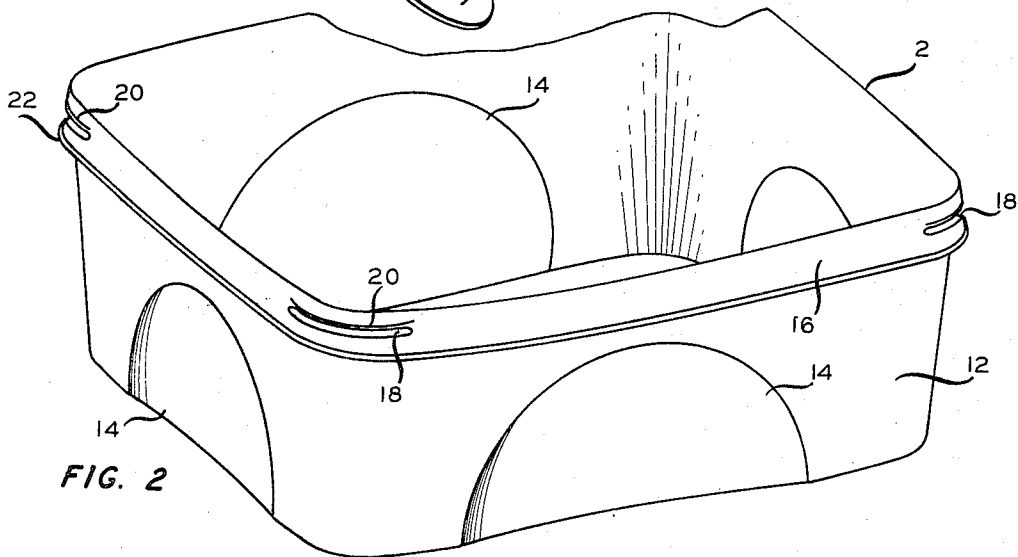


FIG. 2

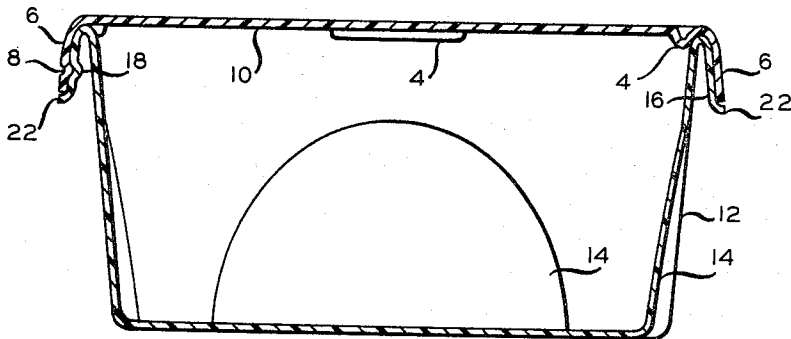


FIG. 3

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ABSTRACT OF THE DISCLOSURE

A flexible container has a flange extending downwardly around the top thereof, while the cover is provided with a corresponding depending flange. Both flanges are provided with indentations to interlock the flanges. The container flange has an outwardly extending lip on the bottom thereof to protect the lower edge of the cover flange. One of the flanges can be provided with slits adjacent the indentations to enhance the locking action. The cover can be provided with indentations which cooperate with the cover flange to reduce movement of the container walls.

This invention relates to a container and a cover therefor. In one of its aspects, the invention relates to a container with a flexible cover having a depending flange containing indentations in said flange, the container having a depending flange to resiliently contact the depending flange, indentations on the depending flange of the container, and a means for the removal of the cover. In another of its aspects, the invention relates to a container as hereinbefore described wherein the side walls of the container are bowed outward and each side wall contains an indented rib support covering a substantial portion of the side wall. In a still further aspect of the invention, the container as hereinbefore described is a thermoplastic container with a flexible depending flange having corner indentations and a horizontal slit in proximity to each corner indentation to lock onto the container a cover having a depending flange with indentations to correspond to the indentations in the depending flange of the container. In a still further aspect, the invention relates to a container as hereinbefore described wherein the cover has a flat surface with downward indentations around the edge to prevent the edges of the container from bowing inwardly. In a still further aspect, the invention relates to a container as hereinbefore described wherein the depending flange on the container has an outwardly extending lip on the bottom thereof to protect against accidental removal of the cover. In a still further aspect, the invention relates to a container as hereinbefore described wherein there is provided on the depending flange of the cover an outwardly extending flange to remove the cover when desirable.

Thermoplastic containers for frozen confections such as ice cream and the like have been used extensively due to the development of suitable thermoplastic materials. With the thinner, more flexible type of containers, problems have arisen with distortion of containers, especially when filled. This problem is particularly evident with rectangular or square containers which are more desirable than round containers because of the freezer space saved by the rectangular shaped containers. It has now been discovered that a large indentation in the side wall of a rectangular container will prevent or tend to retard distortion of the side walls of the containers when filled.

It is desirable for most covered containers that the cover be tight fitting. Flexible containers are subject to distortion when filled as hereinbefore described. Distortion of side walls causes the top surface of the containers to change shape and accordingly results in loss of a good seal between the container and the cover. It has now been discovered that a good seal can be maintained notwithstanding distortion of side walls by providing a depending

flange on a container to correspond to a depending flange on the cover.

Flexible containers with depending flanges are well known. One problem with such container covers is that the covers can be accidentally knocked off by striking the flange in an upward direction. I have now discovered that the flange can be protected from an accidental removal when handling by providing an outwardly extending lip on the container below the cover flanges.

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

It is an object of this invention to provide a flexible container with a tight fitting lid.

It is a further object of this invention to provide a flexible container being economical in volume and space without distortion or excess material. It is a still further object of this invention to provide a flexible container with a lid protected from accidental removal yet easily removed when desirable.

It is a still further object of this invention to provide a tight fitting lid which can be locked in place.

It is a still further object of this invention to provide a strengthened flexible container.

It is a still further object of this invention to provide a flexible container having a lid which prevents or retards inward bowing of the sides of the container.

It is still a further object of this invention to provide a flexible container having a self-locking flat cover.

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

According to the invention, there is provided a container, preferably made of thermoplastic material, having generally rectangular shape. Each side of the container has a large indentation which strengthens the side wall and minimizes distortion. Around the top edge of the container a depending flange is provided. The depending flange is provided with non-continuous indentations. A substantially flat cover having a depending flange is provided to fit the container. Indentations on the cover flange correspond to indentations on the container flange. Small slits on the container flange and/or the cover flange above and/or below the indentations lock the cover into place. An outwardly extending lip on the container flange protects the cover from being accidentally removed during handling. Indentations in the top surface of the cover minimize distortion of side walls.

The invention can be better understood by reference to the accompanying drawings which show an embodiment of the invention. FIGURE 1 is an isometric view of a lid according to the invention. FIGURE 2 is an isometric sectional view of a container according to the invention. FIGURE 3 is a section of the lid and container, showing a corner and side wall of the container, of the invention.

Referring now to the drawings, a cover 1 having a substantially flat surface 10 is provided with a depending flange 6 having non-continuous indentations 8. The indentations 8 in the cover flange are preferably at the corners, and preferably extend inwardly. Non-continuous indentations 4 are also provided in the top surface 10, as will be hereinafter described. A container 2 having side walls 12, is strengthened by large, inwardly bowed ribs 14. As can be seen from the drawings, the inwardly bowed ribs 14 cover a substantial portion of the side walls and strengthen the side walls without any thickening of the walls in that area. Container 2 is provided with a depending flange 16 containing non-continuous indentations 18. The indentations 18 are preferably at the corners of the container and are preferably inward indentations. As can be seen from FIGURE 3, the indentations 18 correspond

with the indentations 8 in the cover flange. Slits 20 are provided above indentations 18. The slits 20 lock the cover in place when indentations 8 correspond with indentations 18. An outwardly extending lip 22 is provided around the bottom portion of flange 16 to prevent accidental removal of cover 1 due to an upward force on flange 6. As can be seen from FIGURE 3, an upward force on the cover would be deflected by flange 22 and would not "catch" flange 6 and remove the cover. For easy removal of cover 1, there is provided tab 30. When it is desirable to remove the cover, tab 30 is grasped, pulled outwardly and upwardly, whereby the cover is easily removed. It is obvious that an upward force on tab 30 would not necessarily cause the cover to remove, thus accidentally, because tab 30 would flex.

The indentations 4 are preferably placed at about the midpoint of the sides of the cover 1, and, as can be seen in FIGURE 3, "catch" the top surface of the container between indentations 4 and flange 6. Thus, any tendency for the top of the container to move inwardly would be retarded or prevented by indentation 4.

It is obvious that indentations 8 and 18 can be outward indentations as well as inward indentations. The important feature is that indentations 8 coact with indentations 18 to provide a snap fit cover.

Slit 20 locks the cover in place by providing a sharper, more rigid surface against which indentations 18 must act. It is obvious that in the embodiment shown, i.e., inward indentations, that the slit 20 could be above indentations 8 on the cover flange 6. Similarly, if the indentations were displaced outwardly, slit 20 could be below indentations 18 on container flange 16 and below indentations 8 on cover flange 6.

It is obvious that the top indentations 4 can be placed in other locations than those shown. For example, the indentations could be non-continuous around the whole top cover, or could be placed only at the corners.

It can be seen that the strengthening rib 14, reduces the thickness requirements of the overall container, and avoids thickening of any portions of the side wall.

The arrangement of the depending flange on the container and the flange on the lid provide a tight fitting snap-on cover regardless of tolerance. This feature is due to the resilient flange on the container.

The container and lid can be made of any suitable material, not necessarily the same material. Thermoplastic materials are preferred. Suitable thermoplastic materials include polymers and copolymers of polyethylene, polypropylene, polybutene, and polystyrene. Examples of a preferred polyethylene are disclosed and claimed in U.S. Patent 2,825,721, issued Mar. 4, 1958, to Messrs. Hogan and Banks.

Example

A one-half gallon container with dimensions $7\frac{1}{16}$ " x $6\frac{1}{8}$ " x $3\frac{1}{4}$ " was constructed of high density polyethylene. The container had a downwardly extending flange and coated with a depending cover flange. A series of indentations at the corners of the container and cover flanges coupled with a series of slits above the indentations on the container flange provides a means for locking the cover onto the container. Downwardly extending indentations on the top surface of the cover near the edge prevented the walls of the container from buckling inwardly. The container had large indentations in the side walls which strengthened the side walls. The container looked substantially the same as that shown in the drawings and was used as a half gallon ice cream container.

It is within the scope of the invention to provide a container as hereinbefore described, having adhesive applied to the upper surface of the depending flange 6, so that when the container and cover are assembled, a water-tight seal would result. Similarly, adhesive could be applied to the under portion of depending flange 6 or to the groove of the cover, which groove contacts the

ridge of the container. The adhesive could be applied to the cover and the container flanges.

Variations and modifications 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 with a tight fitting snap-on lid has been provided, the container having strengthened walls, and a depending flange with an outwardly extending lip to protect the cover from being accidentally removed, the cover having a depending flange adapted to interlockingly engage the depending flange of the container; and there is provided a locking feature to lock the cover onto the container.

I claim:

1. A container having a tight fitting snap-on cover, said container comprising an open top flexible shell having a depending flange with an outwardly extending lip on the bottom thereof to protect the cover from being accidentally removed, said cover having a depending flange adapted to interlockingly engage the said depending flange on said container, said lip extending outwardly to at least the outer periphery of the lower edge of said depending flange of said cover and being positioned closely adjacent to and below the lower edge of said depending flange of said cover when said cover is interlocked with said container.
2. A container with a tight fitting snap-on cover as set forth in claim 1 wherein at least one of said container flange and said cover flange contains a means for locking said cover onto said container.
3. An approximately rectangularly shaped container having a downwardly extending flange around the top thereof, said flange having non-continuous indentations therein; an outwardly extending lip on the bottom of said flange to protect the lid from being accidentally knocked off; a corresponding approximately rectangularly shaped cover having a downwardly extending flange around the edge of said cover, said downwardly extending cover flange having indentations to coact with similarly placed indentations on said container flange to hold said cover in place.
4. A container and cover according to claim 3 wherein said non-continuous indentations on said container flange and said cover flange are at the corners.
5. A container and cover according to claim 3 wherein there are provided horizontal slits in proximity to said indentations.
6. A container and cover according to claim 3 wherein said indentations extend inwardly and there are provided horizontal slits above said indentations on said container flange.
7. A container and cover according to claim 3 wherein there is provided a large, inwardly bowed indented rib in at least one side wall of said container to strengthen said side wall.
8. A container and cover according to claim 3 wherein the top surface of said cover has downwardly extending indentations around the outer edge adapted to coact with the top of said container to prevent inward movement of the walls of said container.
9. A container and cover according to claim 3 wherein said cover flange contains an outwardly extending tab adapted to release said cover from said container when said tab is pulled.
10. A container and cover arrangement comprising substantially
 - (A) an open top substantially rectangularly shaped container having
 - (1) outwardly bowed side walls,
 - (a) each side wall having an inwardly bowed supporting ridge covering a large portion of said side wall and extending a major portion of the distance between the bottom and the top of each side wall,
 - (2) a downwardly extending flange around the top of said container, said flange having

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- (a) non-continuous indentations at the corners of said container,
- (b) horizontal slits above said indentations to lock the cover onto the container, and
- (c) an outwardly extending lip on the bottom of said flange to protect the cover from being accidentally removed;

(B) a substantially rectangularly shaped flexible thermoplastic cover having

- (1) a top surface having
 - (a) downwardly extending indentations around the outer edge adapted to coact with the top of said container to prevent inward movement of said container side walls,
- (2) a downwardly extending flange around the edge of said top surface, said downwardly extending flange of said cover having
 - (a) indentations at the corners thereof to coact with similarly placed indentations on said container flange to hold said cover in place, and

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- (b) in the area of one corner an outwardly extending tab adapted to release said cover from its locked position when said tab is pulled.

11. A container and cover according to claim 3 wherein at least one of said cover flange and said container flange has applied thereto an adhesive on at least a portion of the contacting area between said container and said cover.

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