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3,396,868

CONTAINER

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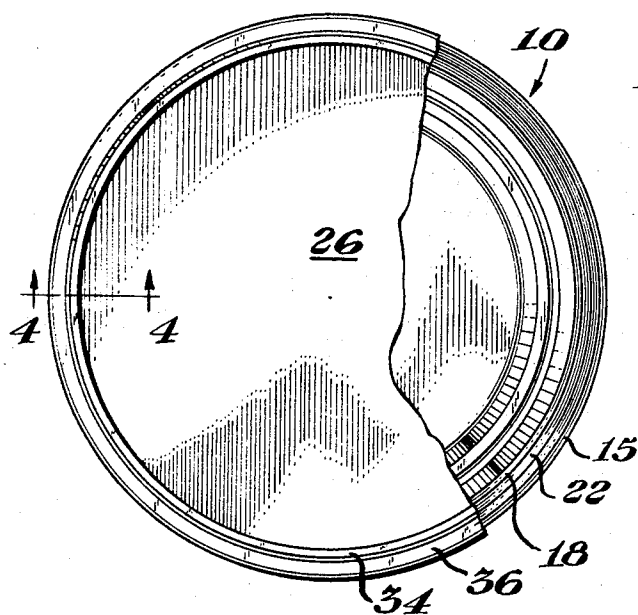


Fig. 3

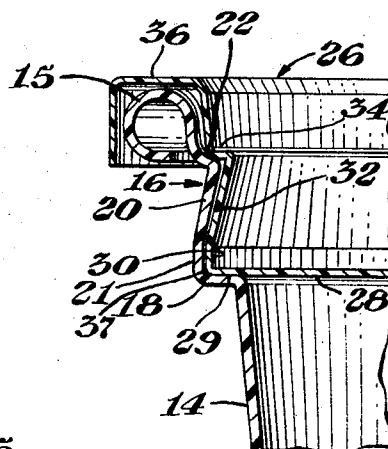


Fig. 4

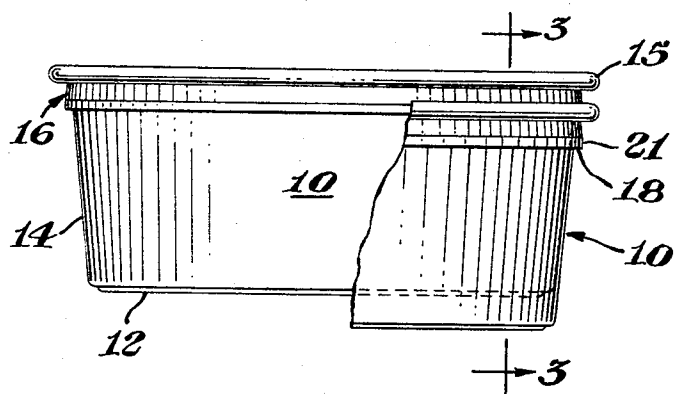


Fig. 1

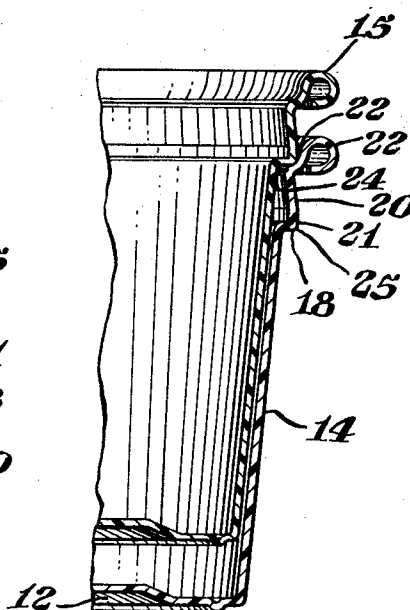


Fig. 2

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CONTAINER

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ABSTRACT OF THE DISCLOSURE

A nestable thin walled container for packaging cottage cheese, salads, ice-creams and other like products. The tub part of the container includes a high profile stacking ridge combined with a lid receiving groove which permits more positive and compact nesting of a plurality of such tubs, and more area for printing the side wall thereof. The container includes a lid especially designed to mate with the stacking ridge area of the tub.

Description of the invention

This invention relates to nestable thin walled containers such as tubs for packaging cottage cheese, salads, ice cream and other products, which containers are particularly well-adapted to be handled in stacks and dispensed one at a time in commercial filling machines. More particularly, this invention relates to a new container stacking feature such that containers stack together in a highly improved fashion. The stacking feature of this invention has also been designed for especially effective sealing between it and the container lid.

With the improved stacking feature of the present invention, empty containers or cups can be nested together in high stacks without jamming, whether handled or shipped in a horizontal or vertical position, and may be easily separated from each other by hand or by machine. The spacing between the containers in a stack is kept especially uniform.

In the past, stacking ridges which have been employed for containers or cups have generally comprised an inwardly projecting continuous shelf about the circumference of the container and, at a predetermined distance downwardly therefrom, an outwardly projecting continuous shoulder or ledge, the outside diameter of the shoulder being greater than the minimum inside shoulder of the shelf. When one such container is nested within the other, the shoulder of the upper container is supported by the shelf of the lower container. Such a prior art stacking technique is described in U.S. Patents Nos. 3,091,360 and 3,139,213, for example. The stacking ridge of such containers is located below and separate from the lid receiving area of the container.

The aforesaid prior method of stacking, and lid fit which went with such stacking concepts, have not been completely satisfactory. The prior method of stacking has not been positive enough to prevent occasional jamming of the thin walled containers. The stacking ridge has been located so far down the side wall that it has severely limited the printable area on the side wall of the container. The fit between the lid and the container periphery has not formed the most satisfactory seal and has often resulted in lid popping.

Accordingly, objects of this invention include providing a container with a highly improved positive stacking feature, more printable side wall area, a more effective seal between it and its lid, and a considerably less chance of lid popping.

Briefly, the above objects have been accomplished by providing a novel combined stacking ridge and lid receiving area of a container. The stacking ridge mates fully with the peripheral contour of the sealing portions

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of the lid so that an effective seal between the lid and container can be obtained without increasing the tightness of fit therebetween. The upper part of the lid receiving area includes an inwardly protruding projection to provide a positive stacking shelf for receiving a stacking shoulder at the bottom of another like container's lid receiving area. The back drafted mating sealing surfaces of the lid and container and high placement of stacking shoulder combine additionally to prevent unwanted lid disengagement.

Advantages of the present invention will be even more apparent in the ensuing description and drawing, in which like characters of reference designate corresponding material and parts in the different views thereof, in which:

FIGURE 1 is an elevational view of a pair of nested containers, with portions of the lowermost one being broken away, illustrating the principles of the present invention;

FIGURE 2 is an enlarged cross-sectional view of the nested containers taken along the reference line 3-3 of FIGURE 1;

FIGURE 3 is a top view of a container and lid, with a portion of the lid being broken away, illustrating the principles of the present invention; and

FIGURE 4 is an enlarged fragmentary cross-sectional view of the lid and container taken along reference line 4-4 of FIGURE 2.

Referring more particularly to FIGURES 1 and 2, each nested container 10 is cup shaped and has a bottom wall 12 and, extending upwardly therefrom, an outwardly inclined side wall 14. At the upper extent of the side wall 14 is a circumferentially extending combined lid receiving area and stacking ridge 16. Ridge 16 includes a shoulder 18 extending generally horizontally outwardly from the side wall 14 to outer edge 25. Extending generally vertically upwardly from edge 25 is a circumferential portion 21. Inclined inwardly from vertical portion 21 and thus at an angle reverse (as respects the vertical) from that of side wall 14 is a face section 20. Face section 20 merges with a shelf 22 at its upper edge 24. Shelf 22 extends outwardly and upwardly from the upper edge 24 and merges with rim 15 about the upper peripheral extent of the container 10.

With this arrangement, the outer edge 25 of the shoulder 18 extends outwardly of upper edge 24 so that a shoulder 18 can seat on shelf 22 of a next lower container to provide a positive stack between two such containers when nested together.

Another highly advantageous feature of the stack ridge 16 of the present invention is that it also forms the lid receiving area of the container and does so such that an effective but not unduly tight fit is achieved between the lid and the container. This is illustrated most clearly in FIGURES 3 and 4. If the fit between the lid and container is too tight, excessive stress cracking will occur. On the other hand, if the fit is not tight enough, excessive air may enter into the container, causing accelerated bacteria growth and thereby reducing shelf life. The hereinafter described invention avoids either circumstance.

Lid 26 includes an annular central base 28 which, at its outer extremity, presents land area 29 resting on shoulder 18 of the container 10. A generally vertical circumferential section 30 extends upwardly from land area 29 and then is inclined inwardly along section 32 at generally the same angle as the face section 20 of stacking ridge 16. A seat 34 extends generally horizontally outwardly from the upper end of section 32 a distance sufficient to nest in shelf 22. An inverted U-shaped rib receiving channel 36 extends from the outermost extent of seat 34. The sealing area between the lid 26 and container 10 extends from the lid land area 29 through seat 34 which mates

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with the corresponding container stacking shoulder 18 through the shelf 22, respectively. Thus, the stacking ridge 16 also serves the function of a lid receiving area. This makes for a simpler container construction and provides more side wall area for printing.

There also is less chance for lid popping than in the more conventional prior art containers because of the high placement of the shelf 22 and the angular disposition of the mating sections 22 and 32 thereof. For the lid to come out the bottommost edge 37 of section 30 must snap past shelf 22. Thus, a considerable distance must be traversed (entire length of portion 21 and face section 20) by edge 37 before lid popping can occur. As the lid moves upwardly greater resistance to its further upward movement results because of the wedge action between sections 20 and 32.

While certain representative embodiments and details have been shown for the purpose of illustrating the invention, it will be apparent to those skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope of the invention.

Accordingly, what is claimed as new is:

1. A nestable container comprising a bottom wall, a circumferential side wall extending upwardly and generally inclined outwardly from said bottom wall and ending in a peripheral rim at its upper extent, a combined stacking ridge and lid receiving area including said rim and the portion of said side wall immediately therebelow, a shoulder extending generally horizontally outwardly from the inclined portion of said side wall to form the lowermost extent of said combined stacking ridge and lid receiving area, a face section inclined inwardly and upwardly from said shoulder, a shelf extending outwardly and upwardly from said face section and into said rim and spaced downwardly from the top of said rim, whereby the outer extent of said shoulder is greater than the inner extent of said shelf so that the shoulder of one such container can seat on the shelf of a next lower like container to provide a positive stack between two such containers when nested together.

2. The container of claim 1 wherein a generally vertically disposed circumferential portion is located between said shoulder and said face section connecting them together.

3. A package including in combination, a container

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comprising a bottom wall, a circumferential side wall extending upwardly and generally inclined outwardly from said bottom wall and ending in a peripheral rim at its uppermost extent, a combined stacking ridge and lid receiving area including said rim and the portion of said side wall immediately therebelow, a shoulder extending generally horizontally outwardly from the inclined portion of said side wall to form the lowermost extent of said combined lid receiving area and stacking ridge, a face section inclined inwardly and upwardly from said shoulder, a shelf extending outwardly and upwardly from said face section and into said rim and spaced downwardly from the top of said rim, a snap-in removable lid closing said container after a product is located therein, said lid comprising a central annular base extending entirely across the opening of said container and having a peripheral land area thereof resting on the shoulder of said container, an upwardly and inwardly disposed section extending from said land area and closely juxtaposed with said face section and at generally the same angular inclination as said face section, a seat extending generally horizontally outwardly of said upwardly and inwardly disposed section and resting on said shelf, and a generally inverted U-shaped rib receiving channel extending from the outermost extent of said seat.

4. The package of claim 3 wherein said container has a generally vertically disposed circumferential portion connecting said shoulder and face section, and said lid has a generally vertically disposed circumferential section connecting said land area and upward and inwardly disposed section and being closely juxtaposed with said vertically disposed circumferential portion.

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