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(54) Breakaway closure for dispenser.

(57) A cartridge type dispenser for holding mayonnaise based sauces and the like. A tubular container (10) has a dispensing outlet on its bottom and a top rim (16) formed by a downturned lip (18). The container top is covered by a lid (22) having a wall (28) provided with a wiping rib (30) that acts against the inside surface of the container wall (14). A flange (36) which spans the rim (16) is joined to the wall (28) of the lid (22) along a perforation line that allows the flange (36) to be torn away. A peripheral skirt (40) on the flange (36) has a locking rib (44) which mechanically interlocks with the lip (18) of the container (10) to lock the lid (22) in place. The flange (36) and skirt (40) have a frangible tear strip (46) for initiating severance of the perforation line. When the perforation line has been torn, the lid (22) is released from the container (10) and can be pushed by a dispensing gun into the container (10) to dispense its contents.

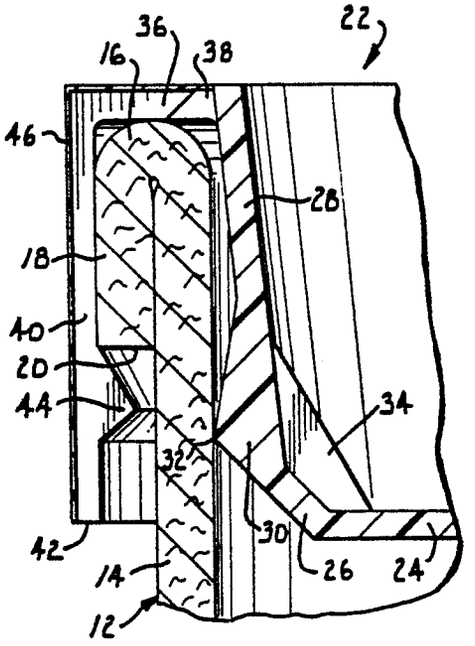

Fig. 4.

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BREAKAWAY CLOSURE FOR DISPENSER CARTRIDGES

This invention relates generally to disposable containers and more particularly to an improved cartridge type dispenser of the type commonly used to contain and dispense food sauces and the like.

Fast service food outlets use a variety of food sauces which are normally applied to foods in single servings. For example, barbecue sauce, mayonnaise, salad dressings and other sauces are often applied to hamburgers and other sandwiches and foods. Typically, the sauces are packaged in cartridge type containers and are dispensed incrementally from the containers by trigger operated dispensing guns which are similar to caulking guns. The dispensing gun includes a plunger which is advanced an incremental distance in the container each time an actuating trigger is squeezed. The plunger acts against a closure on one end of the container and pushes the closure into the container toward the opposite or bottom end through which the sauce is dispensed. The bottom end of the cartridge has a dispensing aperture through which the sauce is extruded as the plunger is advanced within the container. In this manner, each time the trigger is squeezed, the sauce is dispensed in a controlled amount which is selected to provide a single serving.

Examples of this type of cartridge are disclosed in U.S. Patent Nos. 4,373,646 and 4,432,473. Because cartridges of this general type require special closures, considerable difficulty and expense are involved in making and applying the closures to the top end of the containers. The closure must be inserted within the container and then have its flange heated and welded to the container rim. After the closure has been inserted and welded, its top edge and that of the container are together curled inwardly. These operations require the use of expensive and specialized machinery which significantly increases the overall manufacturing cost. Another problem is that the connection between the closure and container is essentially a heat welded connection which does not hold the closure in place to serve as a lid as securely as a mechanically interlocked connection. Problems have also been encountered in achieving effective and uniform wiping action of the closure against the container wall as it is advanced during dispensing of the product.

The present invention is directed to an improved cartridge type dispenser and especially to a uniquely constructed closure which functions both as a lid and also as a plug for dispensing of the container contents. It is a particularly important feature of the invention that the closure is securely locked on the container rim for service as a lid and yet can be broken away to release it from the container rim when the contents of the container are to be dispensed. This is achieved by providing the closure with a flange that is joined to the wall of the closure along a weakened perforation line. A skirt depends from the flange and includes a locking rib which mechanically interlocks with a down turned lip on the container rim to secure the closure in place. In one form of the invention a frangible tear strip on the skirt and flange can be broken in order to initiate tearing of the perforation line so that the skirt flange can be severed from the closure. The closure can thereafter be pushed against the container contents by the plunger of the dispensing gun.

It is another important feature of the invention that the wall of the closure includes a tapered wiping rib which remains in contact with the container wall in order to effectively dispense the container contents without significant leakage past the closure. The corner area of the closure where the wiping rib is located includes an inclined wall section and a plurality of gussets which reinforce the closure and assure that the wiping rib maintains uniform wiping contact against the wall of the container.

Among the other important objects of the invention are the provision of an indicator arrow for clearly indicating the location of the tear strip and the provision of a knurled surface adjacent to the tear strip in order to facilitate gripping of the closure skirt for breaking the tear strip.

In the accompanying drawings which forms a part of the specification and is to be read in conjunction therewith and in which like reference numerals are used to indicate like parts in the various views:

Fig. 1 is a top plan view of a cartridge type container constructed according to a preferred embodiment of the present invention;

Fig. 2 is a fragmentary elevation view of the upper portion of the container;

Fig. 3 is a fragmentary sectional view on an enlarged scale taken generally along line 3-3 of Fig. 2 in the direction of the arrows;

Fig. 4 is a fragmentary sectional view on an enlarged scale taken generally along line 4-4 of Fig. 2 in the direction of the arrows; and

Fig. 5 is a fragmentary sectional view similar to Fig. 4 but with the flange and skirt of the closure broken away and the plunger of a dispensing gun applied to the closure for dispensing of the container contents.

Referring now to the drawing in more detail, numeral 10 generally designates a cartridge type dispenser of the type commonly used in fast service food outlets to hold and dispense mayonnaise based sauces and other sauces and products having a similar consistency. The container 10 has a cylindrical container body 12 formed by a tubular sidewall 14 which may be constructed of any suitable material. Preferably, the sidewall 14 of the container is constructed of a food grade paperboard coated with polyethylene or another thermoplastic. The container body 12 is formed by rolling the sidewall 14 and suitably sealing the side seam (not shown) formed by the overlapping edge portions of the wall.

The container body 12 is provided on its bottom end with a disk of the type shown in U.S. Patent No. 4,432,473 to MacEwen which is incorporated herein by reference. As shown and described in the referenced patent, the bottom disk is provided with a dispensing orifice formed by a plurality of slits through the disk which converge at its center. A removable tape is initially applied to the dispensing orifice in order to keep it closed, and the tape can be removed when the contents of the container 10 are to be dispensed. Reference can be made to the MacEwen patent for a more detailed description of the bottom disk and dispensing outlet.

As best shown in Figs. 4 and 5, the opposite or upper end of the container body 12 has an outwardly rolled rim 16. The rim 16 is formed by a lip 18 which is an outwardly folded portion on the upper edge of the container wall 14. The lip 18 is located outwardly of the remainder of the container wall and terminates in a bottom edge 20 which is spaced somewhat below the rim 16.

In accordance with the present invention, the top of the container body 12 is initially covered by a closure or lid which is generally designated by numeral 22. The lid 22 is preferably molded in a single piece and is preferably formed of low density polyvinyl chloride, although other materials can be used. A flat circular disk 24 forms the body of lid 22 and is slightly smaller in diameter than the container body. Extending upwardly and outwardly from the periphery of disk 24 is a short inclined wall 26 which is generally frustoconical in shape. Lid 22 has a sidewall 28 which extends generally upwardly from the top of the inclined wall 26. At the intersection between walls 26 and 28, a thickened wiping rib 30 is formed on the lid. The wiping rib 30 tapers to a point 32 which is in continuous line contact with the inside surface of the container wall 14. A plurality of gussets 34 extend along the inside surface of wall 26 and between disk 24 and wall 28 at a location adjacent the wiping rib 30. The gussets 34 reinforce the corner area of the lid and serve to strengthen and make the lid more rigid in order to maintain the wiping rib 30 in uniform contact with wall 14.

The sidewall 28 of the lid fits rather closely within the container body 12, and the top end of wall 28 initially projects above the container rim 16. An annular flange 36 extends outwardly from the top end of wall 28 and is joined to the wall along a weakened perforation line formed by a plurality of spaced apart perforations 38. The perforation line defined by the perforations extends completely around the lid and provides a weakened area along which the flange 36 may be torn away from the wall 28.

Flange 36 is horizontal and spans the rim 16. A peripheral skirt 40 extends downwardly from the outer edge of flange 36. Skirt 40 is located on the outside of the container body 12 and fits closely against the outside surface of the lip 18. Skirt 40 has a free edge 42 located well below the bottom edge 20 of the lip. Skirt 40 is provided on its inside surface with a tapered locking rib 44 which is located immediately below lip 18 and which interlocks with edge 20 of the lip. Rib 44 tapers to a point which is located well inwardly of the outside surface of lip 18 in order to mechanically lock lid 22 in place on the top end of container 10. When locked in place on the container, lid 22 covers the top of the container to enclose its contents.

A frangible tear strip 46 is formed on skirt 40 and flange 36. The tear strip 46 intersects with the perforation line formed by perforations 38 and serves to facilitate initial tearing of the perforation line. The thickness of strip 46 is approximately .003 inch, and the tear strip is thus readily frangible so that it can easily be torn beginning at the free edge 42 of skirt 40. The tear strip is approximatley .03 inch wide, and the outside surface of skirt 40 is knurled at locations adjacent to the tear strip, as indicated at 48 in Figs. 2 and 3. The knurled surfaces 48 facilitate gripping of skirt 40 with the fingers as the tear strip 46 is being broken.

As shown in Fig. 1, an indicator arrow 50 is provided on the top surface of disk 24 and points directly toward the tear strip 46 in order to provide a clear visual indication of the location of the tear strip on the container. The arrow 50 may be formed by a textured surface.

In use, the container 10 serves to hold mayonnaise based sauces and other sauces and products which are to be dispensed incrementally in individual servings. After the container body 12 has been filled, the lid 22 is applied by conventional lid applying equipment. When the lid is in place as shown in Fig. 4, ribs 30 and 44 oppose one another on the inside and outside of the container wall, and the locking rib 44 is mechanically interlocked with

lip 18 in order to securely lock the lid in place on the container. For added security, the container can be passed through a conventional induction sealer which tack welds flange 36 to the rim 16. It should be noted that the lids can be applied by hand if desired.

Lid 22 prevents the contents of the container from spilling during handling and transport. When the contents are to be dispensed, the knurled surface 48 is gripped with the fingers and pulled upwardly in order to break the frangible tear strip 46. Continued pulling on skirt 40 tears flange 36 away from wall 28 along the perforation line formed by the perforations 38. When the perforation line has been completely severed, flange 36 and skirt 40 20 are detached from the lid and can be discarded.

The container can then be inserted into a conventional dispensing gun of the type illustrated and described in the aforementioned patent no. 3,432,473. As shown in Fig. 5, the plunger 52 of the dispensing gun fits against the top surface of disk 24 and also against the edges of gussets 34. Each time the trigger of the dispensing gun is squeezed, the plunger 52 is advanced an incremental distance, and this pushes lid 22 downwardly in container 10 in order to dispense an incremental amount of the contents through the dispensing outlet at the bottom of the container. As the lid is pushed downwardly in the container, the pressure of plunger 52 against the gussets 34 maintains rib 30 and particularly is point 32 in intimate and uniform contact with the inside surface of the container wall 14. Consequently, all of the contents are ultimately dispensed from the container and there is no appreciable leakage past the wiping rib 30.

It is thus apparent that the present invention provides a container in which the lid 22 is securely locked in place to prevent spilling of the container contents during transport and handling of the container. At the same time, the flange 36 and skirt 40 can be quickly and easily severed from the lid in order to unlock it from the container and release it so that it can be pushed downwardly by plunger 52 into the interior of the container during dispensing of its contents. The pressure of the pointed wiping rib 30, along with the reinforcement provided by the inclined wall 26 and the gussets 34, assures that leakage will not occur past the closure during the dispensing operation.

From the foregoing, it will be seen that this invention is one well adapted to attain all the ends and objects hereinabove set forth together with other advantages which are obvious and which are inherent to the structure.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

Since many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Claims

1. A lid (22) for a container (10) having a tubular wall (14) terminating at one end in a rim (16) and holding dispensable material to be dispensed through the other end, said lid (22) comprising: a closure (22) having a size to close the container (10) and presenting a wall (28) extending along the container wall (14) on the inside of the container (10); a flange (36) spanning the rim (16) of the container (10) and joined to said wall (28) of the closure (22) along a weakened tear line along which said flange (36) may be severed from said wall (28) of the closure(22); a peripheral skirt (40) on said flange (36) extending therefrom along the container wall (14) on the outside of the container (10), said skirt (40) having means for locking said closure (22) to the container (10) in covering relation to said one end thereof; and wiping means on said closure wall (28) for wiping against the container wall (14) when the closure (22) is forced toward said other end of the container (10) to dispense the dispensable material following severance of the flange (36) from the closure (22) along said tear line.

2. The invention of claim 1, including: a generally discoidal body (12) of said closure (22) intersecting with said closure wall(28); and a plurality of gussets (34) spaced apart from one another and each located at the intersection between said body (12) and closure wall (28).

3. The invention of claim 2, including an inclined wall (26) section of said closure (22) located at the intersection between said body (12) and closure wall (28).

4. The invention of claim 2, wherein said wiping means comprises a rib (30) on said closure wall (28), said gussets (34) being located adjacent said rib (30).

5. The invention of claim 4, wherein said rib (30) tapers to a point which contacts the container wall (14) for wiping of the dispensable material therefrom.

6. The invention of claim 1, wherein said wiping means comprises a rib (30) on said closure wall (28) located to wipe against the container wall (14) during movement of the closure (22) toward said other end of the container (10).

7. The invention of claim 6, wherein said rib (30) tapers to a point (32) which contacts the container wall (14) for wiping of the dispensable material therefrom.

8. The invention of claim 1, including a frangible tear strip (46) extending on said skirt (40) and flange (36) and intersecting with said tear line to facilitate initiation of a tear along the tear line.

9. The invention of claim 8, including an indicator (50) on said closure (22) indicating the location of said tear strip (46).

10. The invention of claim 8, including a knurled exterior surface (48) on said skirt (40) adjacent said tear strip (46) to facilitate gripping of the skirt (40) adjacent the tear strip (46).

11. The invention of claim 1, wherein: the rim (16) of the container (10) includes a lip (18) adjacent the container wall (14) on the outside of the container (10); and said locking means includes a locking rib (44) on said skirt (40) mechanically interlocked with said lip (18).

12. A container (10) for holding and dispensing dispensable materials, comprising: a container body (12) having a generally tubular wall (14) for holding the dispensable materials, said body (12) having a rim (16) presenting a lip (18) at one end and on opposite end through which the materials are dispensed from the container body (12); a lid (22) for the container body (12) having a lid body (24) for closing said one end and a wall (26) fitting against the container body wall (28) inside of the body (12), said lid (22) including a flange (36) spanning said rim (16) of the container body (12) and a skirt (40) extending from the flange (36) generally along the container body wall (28) on the outside thereof; locking means on said skirt (40) for interlocking with said lip (18) to lock said lid (22) on the container body (12); a tear line joining said flange (36) to said wall (26) of the lid (22), said flange (36) and skirt (40) being severed from the wall (26) of the lid (22) when said tear line is severed, thereby unlocking the lid (22) from the container body (12) and allowing the lid (22) to be forced within the container body (12) toward said other end for dispensing of the materials in the container body (12); wiping means on said wall (26) of the lid (22) for wiping against the container body wall (28) when the lid (22) forced toward said other end of the container body (12); and a frangible tear strip (46) on said skirt (40) and flange (36) intersecting with said tear line to facilitate initiation of a tear along the tear line.

13. The container (10) of claim 12, wherein said tear line comprises a plurality of perforations (38) spaced apart from one another and each extending through said flange (36).

14. The container (10) of claim 12, wherein said locking means comprises a locking rib (44) on said skirt (40) mechanically interlocked with said lip (18).

15. The container (10) of claim 14, wherein said lip (18) has a free edge (20) with which said locking rib (44) is interlocked.

16. The container (10) of claim 12, wherein said wiping means comprises a wiping rib (30) on said wall (26) of the lid (22), said wiping rib (30) being in wiping contact with the container wall (14) on the inside of the container body (12).

17. The container (10) of claim 12, including an indicator (50) on said lid (22) for indicating the location of said tear strip (46).

18. The container (10) of claim 12, including a knurled exterior surface (48) of said skirt (40) adjacent said tear strip (46) to facilitate gripping of the tear strip (46).

19. In a cartridge type dispenser of the type having a tubular container (10) for dispensing materials through one end of the container (10), the improvement comprising: a lip (18) on the end of the container (10) opposite said one end, said lip (18) being located on the outside of the container (10); a lid (22) for closing said opposite end of the container (10), said lid (22) including a lid body (12) fitting within the container (10) and a wall (28) extending from the body (12) along the container (10) inside of same; a flange (36) joined to said wall (28) along a tear line which may be severed to detach said flange (36) from said wall (28); a skirt (40) extending from said flange (36) on the outside of the container (10), said skirt (40) terminating in a free edge (42) and presenting a locking rib (44) which is interlocked with said lip (18) to lock the lid (22) on the container (10); a wiping rib (30) on said wall (28) of the lid (22) acting against the inside of the container (10) to wipe material there from when the lid (22) is forced toward said one end of the container (10) to dispense the materials there through following detachment of said flange (36) and skirt (40) from the lid (22) along said tear line; and a tear strip (46) extending on said skirt (40) and flange (36) from the free edge (20) of said skirt (40) to said tear line, said tear strip (46) being frangible to initiate severance of the skirt (40) and flange (36) along said tear line.

20. The improvement of claim 19, including means on said lid (22) for visually indicating the location of said tear strip (46).

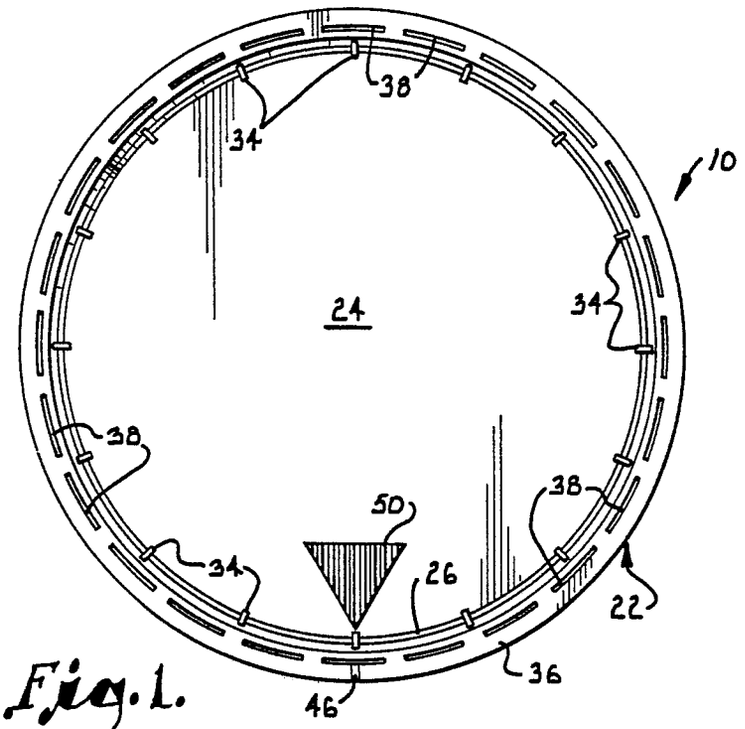

Fig. 1.

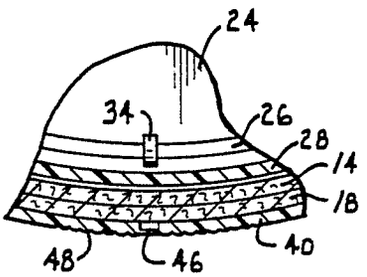

Fig. 3.

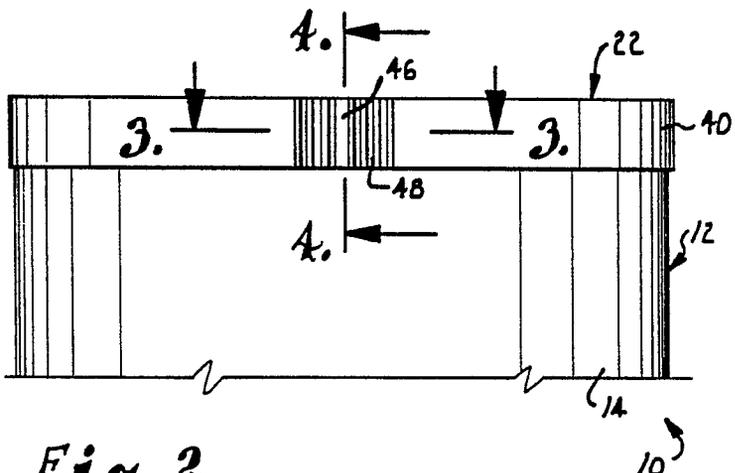

Fig. 2.

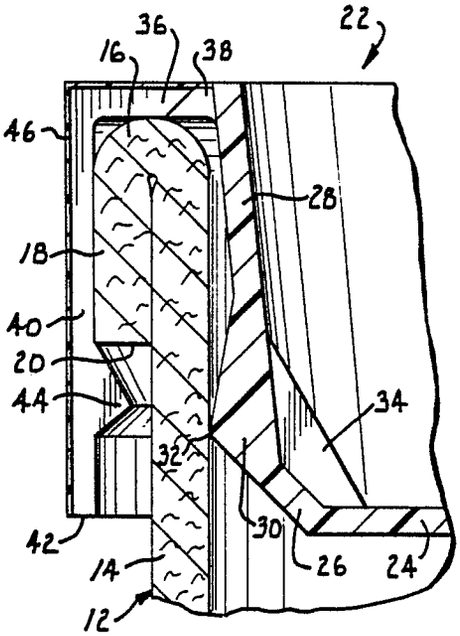

Fig. 4.

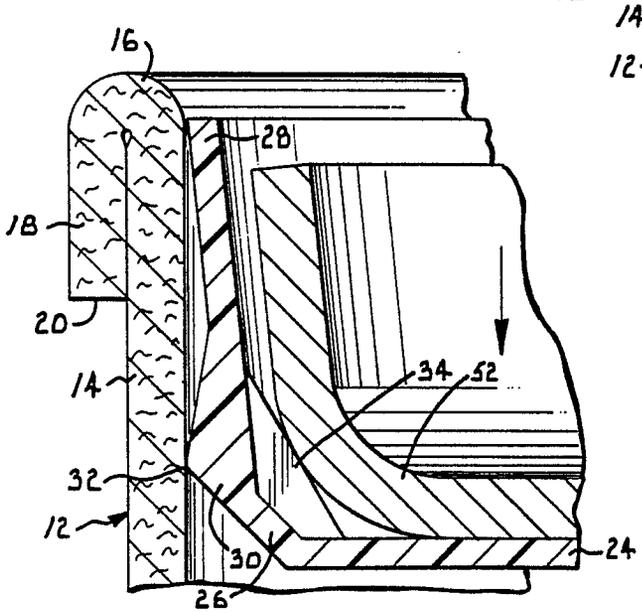

Fig. 5.