

Jan. 31, 1967

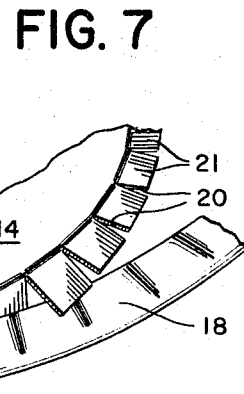
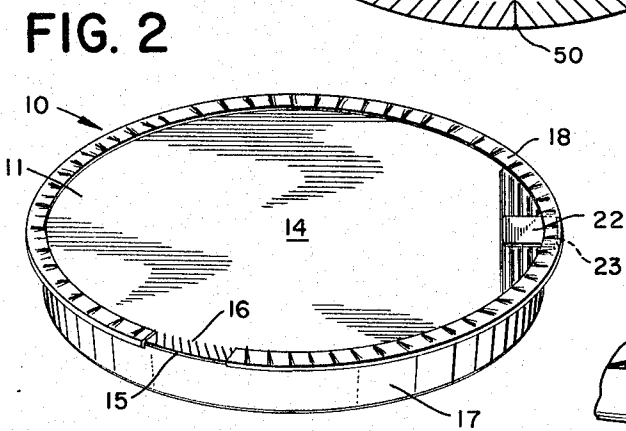
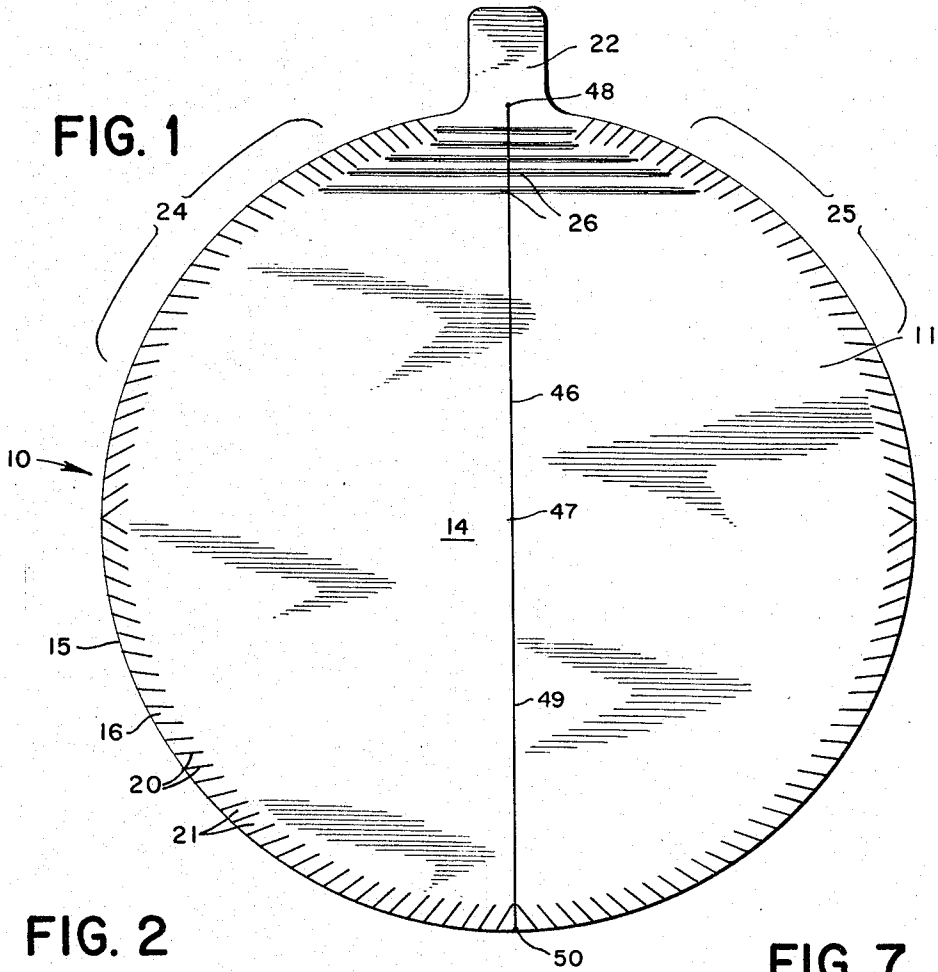
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3,301,465

EASILY OPENABLE PACKAGE AND CLOSURE THEREFOR

Filed Oct. 19, 1965

2 Sheets-Sheet 1



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FIG. 3

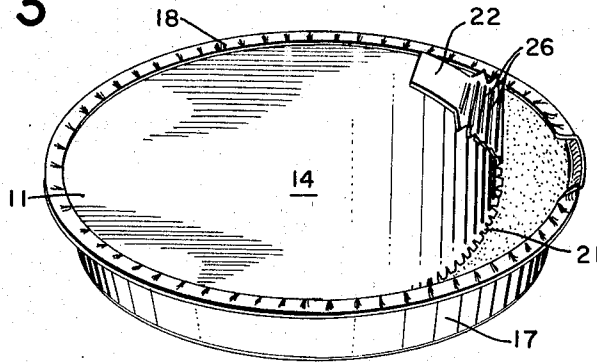


FIG. 4

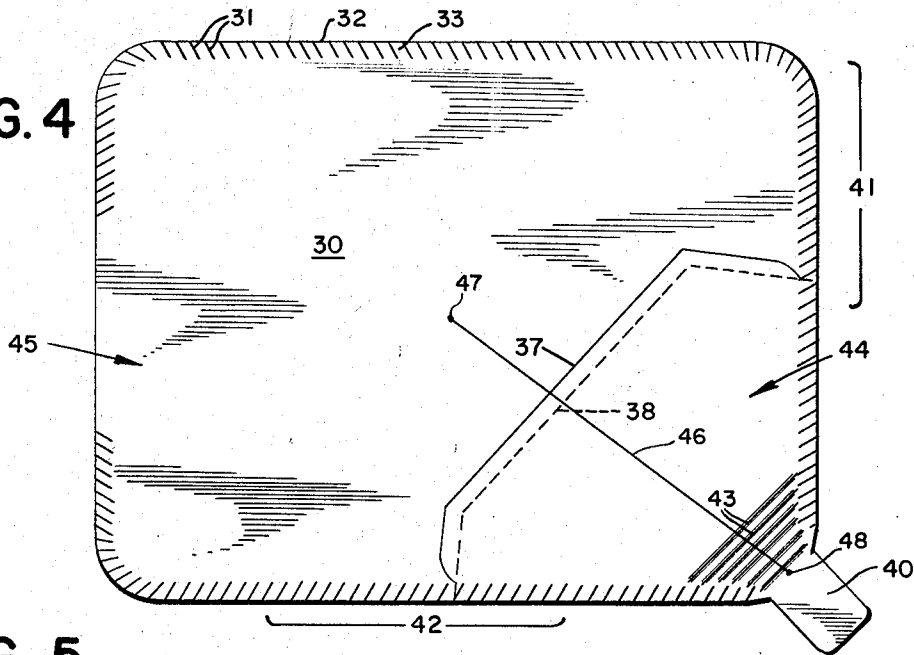


FIG. 5

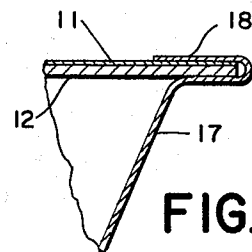
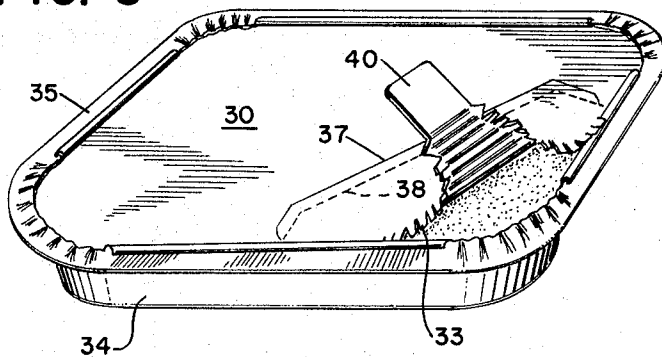


FIG. 6

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3,301,465

EASILY OPENABLE PACKAGE AND CLOSURE THEREFOR

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 Filed Oct. 19, 1965, Ser. No. 497,808
 11 Claims. (Cl. 229-43)

This is a continuation-in-part of my application Serial No. 340,907, filed January 29, 1964, now Patent No. 3,233,819.

This invention relates to a package consisting of a filled container which is closed by a container closure having separably displaceable fringe portions formed therein which permits ease of opening and it also relates to container closures per se; more particularly it relates to such containers and closure members in which scores cut into marginal portions of the closure member to define the fringe portions are oriented at an angle relative to a starting tab.

In packages, such as those which include a rigid foil container and a flat aluminum foil and paperboard laminated cover attached to the container by crimping a flanged portion of the container around the peripheral edge of the closure and are commonly used for packaging frozen goods and the like, it is desirable to have means incorporated in the construction of the package which permits the container to be easily opened by hand and ideally to be reclosable. In food packages of the type described it is common practice simply to crimp the flange portion of the container about the peripheral edge and against the marginal edge portion of the flat container closure. To open this type container it is necessary to lift the flange portion of the container away from at least a portion of the closure so that the edge of the closure can be grasped by hand to pull the closure forcibly from under the remainder of the crimped flange portion. This opening method not only is undesirable and inconvenient but it also usually results in a closure which is badly bent or torn so as substantially to preclude its re-use. It is an object of this invention to provide a container closure and a package incorporating a container closure in its construction which is formed to permit ease of removal from containers and yet retains all the requirements for good and effective closure of containers and ease of packaging.

Broadly stated, the container closure of the invention is comprised of a substantially flat closure member with a plurality of peripherally spaced scores cut through the closure member along its peripheral edge and extending into the body of the closure member along its marginal edge portion. Fringe portions which are separably displaceable out of the plane of the closure member are thereby defined by the marginal edge portions between the spaced scores and they extend in the same plane as the flat closure member. Tab means are also advantageously incorporated in the closure member for grasping of the closure. The scores are cut inwardly from the peripheral edge of the closure at an oblique angle to the peripheral edge at least along those peripheral portions which diverge away from the tab means to define fringe portions therealong which extend in the direction away from a line connecting the center of the closure and a peripheral point on the juncture of the tab means and the closure member. In preferred forms of the invention it is desirable to have the scores extending around the entire periphery at spaced intervals and to provide fold lines in the fringe portions to ease folding thereof out of the plane of the closure member.

The invention also relates to an easily openable package which is comprised of a container filled with contents and a container closure of the type described above that

is attached to the container by a flange portion of the container being folded around the peripheral edge of the closure and against the fringe portions so that upon lifting of the closure the fringe portions are individually removable from under the flange portion. In this package construction it is particularly desirable to include a tab portion which extends from an edge of the closure member and is folded back against the body of the closure member with a resulting tab fold located at the peripheral edge of the closure so that the flange portion of the container can be folded around the tab fold. The package can also be compartmented by providing pairs of cooperating score lines in the body of the closure member which permit portions of the closure member to be removed individually.

The simplicity of the construction of the container closure prevails throughout the description of the invention. A unitary sheet of, for example, an aluminum foil and paperboard laminate has rather closely spaced peripheral scores cut from the edge into the body of the closure to define fringe portions about the marginal edge portion of the closure. A pull tab can easily be formed in the closure by simply extending the marginal edge portion of the closure laterally outward. The closure can then be attached to rigid foil containers and the like in the usual manner by simply crimping a flange portion at the mouth of the container around the peripheral edge and against the marginal edge portion of the closure. No new or special equipment is needed to close containers with the closures of the invention. Its simplicity notwithstanding, the cover offers decided advantages over closures heretofore used in that it permits great ease of opening packages formed with the closures of the invention. Moreover, the closures of the invention are so easy to remove that they are not in any way damaged during removal, and this fact plus the novel construction permits re-use of the closures to reclose the containers by inserting the fringe portions under the flange portion once again.

Although the closure and the package of the invention have particular application to the packaging of foodstuffs such as frozen bakery goods, frozen pot pies, frozen dinners and the like, it is also intended that the package and closure can be used with products other than foodstuffs such as chemicals, powdered and granulated materials, small mechanical parts, etc., and therefore by "contents" as used in this application it is not intended that it be limited to foodstuffs but that it include any product or material which would be compatible with the normal packaging procedures.

A preferred embodiment of the invention is described hereinbelow with reference to the drawing wherein:

FIG. 1 is a top view of a substantially circular container closure;

FIG. 2 is a perspective of the container closure of FIG. 1 attached to a rigid container having a flange portion folded about the peripheral edge of the closure;

FIG. 3 is a perspective of the container of FIG. 2 with the closure partially removed;

FIG. 4 is a top view of a second embodiment of a container closure;

FIG. 5 is perspective of the closure shown in FIG. 4 partially removed from its rigid container;

FIG. 6 is an enlarged section taken substantially along lines 6-6 of FIG. 2; and

FIG. 7 is an enlarged fragmentary perspective of a marginal edge portion of a closure with the fringe portions being individually removed.

Referring initially to FIGS. 1, 2, 3 and 6 a container closure 10 is a substantially round and flat member constructed with a top surface 11 of aluminum foil ply and a bottom surface 12 of a paperboard ply which are

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laminated together. Of course other cover constructions than that shown can be used. For example a foil paper-board laminate with the foil at the bottom surface, or a laminate with foil on top and bottom surfaces, or paper-board alone, as well as other materials such as plastics and their combination can be used without departing from the invention. The closure 10 has a body 14 which comprises the major portion of the closure and has a peripheral edge 15 defining the outermost edge of the closure and a marginal edge portion 16 which is the portion of the cover immediately adjacent the peripheral edge of the closure.

A rigid aluminum foil container 17 which has a flange portion 18 at the mouth of the container is shown in FIG. 2 as having the closure 10 attached thereto by crimping the flange portion 18 around the peripheral edge 15 and down against the marginal edge portion 16. The construction thus far described has essentially the construction of container closures and packages heretofore used.

Cut through the closure member 10 along its peripheral edge 15 and extending into the body 14 of the closure member along its marginal edge portion 16 are scores 20 which are spaced peripherally from each other substantially along the entire periphery of the closure. Fringe portions 21 are defined between the spaced scores 20 by the marginal edge portions and the fringe portions are separably displaceable out of the plane of the closure.

A tab portion 22 extends laterally from the peripheral edge 15 of the closure 10 and provides means for grasping the closure to lift the closure and pull the fringe portions out from under the flange portion 18 of the container 17. As shown in FIG. 2 the tab portion 22 is preferably folded back against the body of the closure member with a resulting tab fold 23 located at the peripheral edge 15 of the closure so that in closing the container the flange portion 18 of the container 17 will be folded around the tab fold 23 and against a portion of the tab 22. As indicated in FIG. 2 the end of the tab 22 will still be exposed for ease of grasping to effect removal of the closure member.

To accurately define the invention, FIGURE 1 illustrates a straight line 46 which is positioned between a point at the center of the closure member 14 and a point 48 on the juncture of the tab and the closure member 14.

The scores 20 are shown as being cut at an angle to the periphery 15 of the closure, as it has been discovered that the angle at which the scores are cut into the closure significantly affects the ease with which the closure can be removed. In this embodiment the scores are inclined at an oblique angle from the peripheral edge at least along those peripheral portions 24 and 25 which diverge away from the tab 22 to define fringe portions therealong which extend in the direction away from a line 46 connecting the center of the closure 47 and a point on the juncture of the tab 22 and the closure member 14. That is to say, the fringe portions extend in an outward direction away from line 46 at least around a semi-circle or 180° with the tab located at the mid-point of the semi-circle or 90° from either end point of the semi-circle. In the embodiment of FIGURE 1 along the periphery of the other semi-circular half of the closure, the direction of the score cuts reverses and they are not inclined at an angle in a direction away from the line 46 connecting the center 47 of the closure member 14 but, instead, the fringe portions in the lower half of the closure member extend in the direction away from line 49 which connects point 47 with point 50 located on the periphery of the lower half of the closure member 22. The reason for reversing the score cut angle along the second half of the closure is further to facilitate final removal of the closure. It has been found that a score angle of 60° relative to a tangent drawn at the point where the score is cut into the periphery gave the desired improved ease of opening.

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Note that the scores 20 are simply slits in the closure member and no significant amount of material is removed in cutting. Thus, adjacent fringe portions abut each other; this fact, plus the preferred positioning of the fringe portions under the container flange insures sealing characteristics equivalent to a container having a closure with no cuts through it.

Formed in the body of the closure member from the top are fold lines 26. The fold lines 26, which are embossed into closure member to weaken the member in this area and ease bending, extend parallel to each other and substantially parallel to a tangent drawn at the periphery of the closure at the point where the tab portion 22 projects from the closure. Five fold lines, which progressively increase in length as the dimensions of closure increase, are shown, and they extend perpendicular to the direction in which the tab portion will be pulled in opening, and perpendicular to the lateral extension of the tab portion 22.

In opening the container, the user will grasp the tab portion 22 and begin lifting it and pulling it diametrically across the closure, thereby pulling the peripheral edge adjacent to the tab portion out from under the flange portion. As the tab portion 22 is pulled, the fold lines 26 easily permit bending of the closure at this point and the closure curls as shown in FIG. 3 until the tab portion is being pulled substantially parallel to the plane of the closure to effectively "roll" the fringe portions 21 from under the container flange. It is clear that the cuts must be in the direction of the pull so that the cuts are substantially in the direction of the line of force at each given point along the periphery of the closure. As the closure is being removed, the individual fringe portions 21 change by folding downwardly from the plane of the closure until they slip out from under the container flange portion 18; continued raising of the closure causes the freed fringe portion to extend laterally over the flange as the fringe tends to return to its former lateral extension; this is shown in FIG. 7.

To eliminate a jamming and closure tearing problem in removing approximately the last one-third of the diameter of the closure, the direction of the edge cuts was reversed along the last half of the closure as described above. By reversing the direction of the edge cuts, compensation is made for the change in the angle of force as the closure is turned over itself into a three-dimensional configuration, and uniform ease of removal of the cover is achieved.

Subsequent reclosure of the closure member can be effected by lifting the flange portion 18 of the container slightly and bending the fringe portions 21 and inserting them under the flange portion 18.

A second embodiment of the invention is shown in FIGS. 4 and 5. A rectangular closure 30 having peripherally spaced scores 31 cut through the peripheral edge 32 and into the body of the closure along the marginal edge portion 33 is shown mounted on a container 34 by crimping a flange portion 35 of the container around the peripheral edge of the closure and against the marginal edge portion thereof. Cut into the body of the closure member and extending in the plane of the closure member from one peripheral edge portion to a second peripheral edge portion are a pair of cooperating score lines 37 and 38. These score lines are cut into but not through the closure from opposite sides thereof and are offset from each other only slightly so that lifting of one portion of the closure member will cause a separation between the score lines 37 and 38. A tab portion 40 extends from one corner of the closure 30 and is folded back against the body of the closure member as was shown in the first embodiment.

The score cuts 31 in this embodiment are also inclined at an oblique angle to the peripheral edge at least along those peripheral portions 41 and 42 which diverge away from the tab 40 to define fringe portions therealong which

extend in the direction away from a line connecting the center 47 of the closure member and a point 48 on the juncture of the tab 40 and the closure member 30. The score cuts extend at an angle of about 60° relative to a peripheral edge and they extend around the periphery. Because of the generally rectangular shape, no difficulty was experienced in removing the final portion of the closure member and thus, no reversal in the direction of the score cuts was required or necessary.

A plurality of fold lines 43 are provided adjacent the tab 40. Like in the first embodiment, the fold lines extend parallel to each other and substantially parallel to a tangent drawn at the periphery of the closure at the point where the tab portion projects from the closure. Seven fold lines 43 are shown extending perpendicular to the tab and thus perpendicular to the direction of pull of the tab so as to weaken the closure along this portion to facilitate bending of the closure member during removal.

By means of this construction a first portion 44 of the closure 30 can be removed by lifting the tab 40 and removing the fringe portions from under the flange portion of the container and tearing the closure between the pair of cooperating score lines within the body of the container to remove only a small section of the closure. This construction is particularly desirable when, for instance, foodstuff is contained within the container which must be cooked before removal and it is desirable that some of the foodstuff be exposed to direct heat while other foodstuff must be covered during heating. Subsequently removal of the remaining portion 45 of the closure 30 can be effected by simply lifting the remaining portion so as to remove the fringe portions from under the flange portion in the manner described with respect to the first embodiment.

I claim:

1. A container closure comprising a substantially flat closure member, a plurality of peripherally spaced score cuts through the closure member along its marginal edge and extending into the body of the closure member along its marginal edge portion, fringe portions defined by the marginal edge portions between the spaced cuts and extending in the same plane as the flat closure member, said fringe portions being separably displaceable out of the plane of the closure member, a tab means on said closure member for grasping the closure, said score cuts being cut inwardly from the peripheral edge of the closure at an oblique angle to the peripheral edge at least along those peripheral portions which diverge away from the tab means to define fringe portions therealong which extend in the direction away from a line connecting the center of the closure member and a point on the juncture of the tab means and the closure member.

2. The container closure of claim 1 wherein said score cuts extend substantially around the entire periphery of the closure member.

3. The container closure of claim 1 wherein said container closure is substantially circular.

4. The container closure of claim 1 wherein said container closure is substantially rectangular.

5. The container closure of claim 3 wherein the container closure is substantially circular and the score cuts in that semi-circular portion thereof most remote from the tab means are reversely arranged relative to those score cuts in the semi-circular portion from which the tab means extends.

6. The container closure of claim 1 wherein said closure member carries cooperating score lines cut in the plane of the closure member to permit a portion thereof to be removed.

7. The container closure of claim 1 wherein said fringe portions carry fold lines for easy folding of the fringe portion out of the plane of the closure member.

8. An easily openable package comprising a container, contents contained in said container, and a container closure which comprises a substantially flat closure member, a plurality of peripherally spaced score cuts through the closure member along its marginal edge and extending into the body of the closure member along its marginal edge portion, fringe portions defined by the marginal edge portions between the spaced cuts and extending in the same plane as the flat closure member, said fringe portions being separably displaceable out of the plane of the closure member, a tab means on said closure member for grasping the closure, said score cuts being cut inwardly from the peripheral edge of the closure at an oblique angle to the peripheral edge at least along those peripheral portions which diverge away from the tab means to define fringe portions therealong which extend in the direction away from a line connecting the center of the closure member and a point on the juncture of the tab means and the closure member, and a flange portion of said container folded around the peripheral edge of the closure and against the fringe portions such that upon lifting of the closure by the tab means the fringe portions are individually removable from under the flange portion and the closure is correspondingly removed from the package.

9. The package of claim 8 wherein said tab portion extends from an edge of the closure member and is folded back against the body of the closure member with the resulting tab fold located at the peripheral edge of the closure.

10. The package of claim 8 wherein said fringe portions carry fold lines for easily folding the fringe portions out of the plane of the closure.

11. The package of claim 8 including cooperating score lines cut in the plane of the closure member to permit a portion of the closure member to be removed.

No references cited.

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