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3,208,625

CONTAINERS FOR PRESERVES AND THE LIKE

Original Filed Jan. 23, 1956

FIG. 1

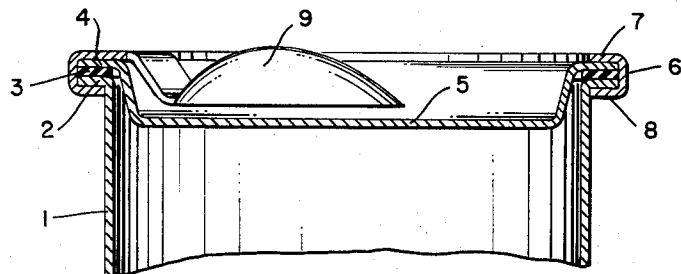


FIG. 2

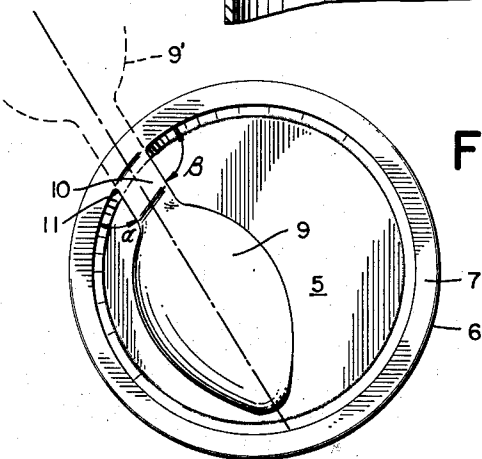


FIG. 3

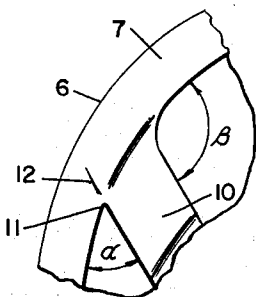


FIG. 4

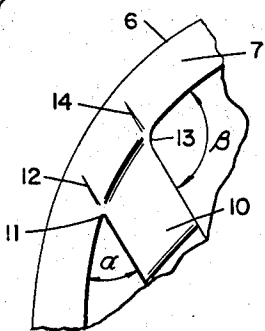
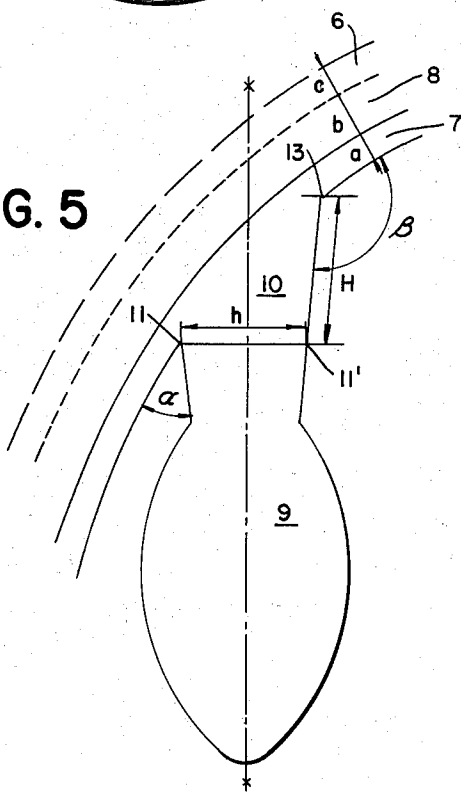


FIG. 5



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1

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CONTAINERS FOR PRESERVES AND THE LIKE

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Continuation of application Ser. No. 560,756, Jan. 23, 1956. This application May 1, 1962, Ser. No. 191,639

Claims priority, application Italy, Jan. 24, 1955, 526,691; Oct. 15, 1955, 543,627

3 Claims. (Cl. 220-47)

The present invention relates to containers with removable covers, particularly for substances such as preserves and the like, of the type in which the cover is fixed to the container by means of a closed ring of C-section having flanges directed towards the mouth of the container, which flanges embrace the projecting rims of the cover and the container respectively, rupture of the said ring and its removal being effected by tearing it with the aid of a small tongue which forms a complementary and integral part thereof.

This application is a continuation of application Serial No. 560,756, filed January 23, 1956 and now abandoned.

Known containers of this type have the disadvantage that considerable effort is required for tearing the ring. With the object of reducing this effort recourse has been made to the expedient of making the ring from aluminium. This expedient however, adversely affects good sealing between the container and its cover and increases the cost of the assembly without completely resolving the problem of reducing to satisfactory limits the effort required for opening.

The present invention has for object a container with cover of the above type which entirely resolves this problem. This container is characterised by the fact that the axis of the tongue which is used for opening and which projects from the upper flange of the C-section ring towards the interior of the said ring, is inclined with respect to that radius of the ring that passes through the central point of attachment of the tongue to its flange, the width of the tongue at the said point of attachment being determined in accordance with the above-mentioned inclination of its axis.

In this latter respect, experience has shown that it is suitable if this width measured perpendicularly to the axis of the tongue, is such that the distance, measured along this axis, between the extreme points of the zone of attachment of the tongue to the ring, is not less than the development of this ring in radial sense.

By satisfying these conditions there is obtained with the utmost certainty the feature that at the operation of opening the ring with the tongue bent towards the exterior, the rupture of the ring instead of commencing simultaneously at two points (the two sides of the zone of attachment of the tongue to the ring) as happens in known types, commences at one single point and exactly at that point which corresponds to the apex of the acute angle that one of the two sides of the tongue forms with the upper flange of the ring.

This point is in fact the one which is most suitable for commencing the tearing of the ring because it facilitates concentration of efforts which may be assisted, if necessary, by means of a slit. This enables the ring to be opened with minimum effort even if it is formed from ferrous material or in general has a resistance higher than that of aluminium.

The subject of the present invention is illustrated by way of example in the accompanying drawings in which:

FIGS. 1 and 2 show respectively a diagrammatic section of the upper part of a container according to the invention and a plan view of this container,

2

FIGS. 3 and 4 show on a larger scale two different arrangements of the fixing ring of the cover of the container, and

FIG. 5 shows on a still larger scale a diagram indicating graphically the conditions regarding width and inclination of the tongue with respect to the ring.

The container 1 has a projecting rim 2 to which is applied, with an interposed sealing ring 3, the rim 4 of the cover 5. Fixing of this cover to the container is effected in known manner by means of the ring 6 which is of C-section, the rims 2 and 4 and the sealing ring 3 being clamped between the flanges 7 and 8 of this ring.

The tongue 9 integral with the ring 6 may have any suitable shape, including that of a spoon as is shown in the drawing, and its longitudinal axis is inclined with respect to that radius of the ring 6 that passes through the central point of attachment of the tongue 9 to the flange 7 of the ring 6. The part 10 by which the spoon 9 is connected to the flange 7 thus forms with the edge of the flange 7 two angles α and β , such that α is less than β . In this way the tearing of the ring, with the tongue in the position 9', commences at the apex 11 of the angle α , since it is almost entirely at this point that the material of the ring reacts with internal forces to the exterior equal and opposite forces applied respectively to the container 1 and to the tongue in the opening operation. This concentration of forces at the point 11 is accentuated by the effect of the sharp angle and may be further augmented by a slit 12 (FIGS. 3 and 4) which starting from the apex of the angle α , follows the natural line of tearing. The angle β may also be sharp, with an apex 13 followed by a slit 14 (FIG. 4) so that the tearing in this case commences at two successive moments, starting at the point 11 and then proceeding at the point 13. However, the angle β will normally be radiused as shown in FIG. 3, so as to ensure that tearing commences adjacent angle α only.

As regards the width of the tongue, this has, at the point 11 of attachment to the flange 7 of the ring 6, a width h (FIG. 5) measured perpendicularly to its axis X-X, such that

$$H \geq a + b + c$$

where H is the distance between the other extreme point 13 of attachment of the tongue 9 to the flange 7 of the ring and the point 11' which is symmetrical with the point 11 with respect to the axis X-X, this distance corresponding substantially to the distance measured along the axis X-X between the extreme points 11 and 13 of the zone of attachment of the tongue 9 to the ring 6; a , b , and c are respectively the width of the flange 7, the side of the ring 6 and the flange 8 of the ring.

It is evident that the greater is h , the greater will be H for the same inclination of the axis X-X, whilst for the same length of h , H will increase in accordance with the increase in the inclination of the axis X-X. It is thus always possible quite easily in practice to adjust this inclination and the width of the tongue so as to keep them to convenient values which are suitable for satisfying the above-mentioned condition.

In order to make this condition more easily understood in a geometrical sense the ring 6 has been shown developed in plan in FIG. 5.

What is claimed:

1. In a container having a peripheral flange adjacent a top opening, a continuous sealing ring on said flange, and a cover disc positioned on said sealing ring, the improvements comprising a continuous peripheral closure ring positioned on said cover disc including a lower flange engaging the peripheral flange of said container and also including an upper flange engaging the marginal edge of said cover disc, said last named flange having a tongue formed integrally therewith and extending inwardly there-

3

from a substantial distance, the longitudinal axis of said tongue forming an acute angle with a tangent to said flange drawn through the point of intersection of said tongue axis with said upper flange, the width of said tongue being of predetermined dimension to define spaced points of juncture with respective sides of said tongue and said closure ring, the distance between parallel planes passing through said spaced points and perpendicular to the longitudinal axis of said tongue being at least equal to the total developed radial width of said ring, said tongue having an inner portion shaped to form the bowl of a spoon.

2. A transverse rupturable continuous closing ring for a container having a horizontal peripheral flange extending radially outwardly adjacent a top opening, said closing ring being of channel shaped cross section, the flanges of said channel shaped ring extending inwardly and lying in substantially parallel planes and being adapted to retain therebetween the horizontal peripheral flange of the container, and a rupturing tongue integral with one of said flanges and extending directly therefrom and in planes parallel with said parallel flanges, means for concentrating ring tearing forces applied to said tongue onto a single predetermined point on said ring to insure that rupture of said ring starts at said point, said means comprising said tongue having a longitudinal axis intersecting said ring and forming an acute angle with respect to a radius line between the center of said ring and the point of intersection of said axis and said ring, the width of said tongue being of predetermined dimension to define spaced points of junction with said closing ring, one of said spaced points being said previously mentioned predetermined point on said ring and being at the apex of an acute angle formed by one edge of said tongue and the inner edge of said one of said flanges and the other of said spaced points being the apex of an obtuse angle formed by the other edge of said tongue and the inner edge of said one of said flanges, the distance between parallel planes passing through said spaced points and perpendicular to said longitudinal axis being at least equal to the total developed width of said channel-shaped cross sectional ring the construction of said tongue and said ring being such that the ring tearing forces applied by said first mentioned means to said tongue onto said single predetermined point are permitted to continue from said single predetermined point through said one flange, the web and said other flange of said channel shaped ring before appreciable ring tearing forces are applied on the other side of said tongue, said closing ring being transversely rupturable from said single point in substantially radial directions from the inner edge of said one flange to the inner edge of said other flange as said tongue is pulled outwardly of said closed ring.

3. In a container having an outwardly extending peripheral flange adjacent a top opening, a continuous sealing ring upon said flange and a cover disc positioned on said sealing ring, the improvement comprising said cover

4

disc being formed with a central recessed portion, the upper surface of which lies below said peripheral flange, a continuous peripheral closure ring of C-shaped transverse cross-section and including a lower flange engaging the bottom surface of said peripheral flange of said container and also including an upper flange engaging the upper surface of the cover disc adjacent the edge of said cover disc and overlying the upper surface of said peripheral flange of said container, a web connecting the outer edges of said upper and lower flanges, said upper and lower flanges of said closure ring maintaining said disc, sealing ring and said peripheral flange of said container in tight closed relationship, said upper flange having a tongue formed integrally therewith and extending a substantial distance directly therefrom in planes parallel therewith and within said recess in said cover disc, the longitudinal axis of said tongue forming an acute angle with a tangent to said upper flange drawn through the point of intersection of said tongue axis with said upper flange, the width of said tongue being of predetermined dimension to define spaced points of juncture with respective sides of said tongue and said closure ring, the distance between parallel planes passing through said spaced points and perpendicular to the longitudinal axis of said tongue being at least equal to the total developed radial width of said ring, the construction and dimensioning of said peripheral closure ring and tongue being such that when said tongue is pulled outwardly of said peripheral closure ring, the ring tearing forces are applied upon the single point defined by the apex of an acute angle formed by the inner edge of said upper flange and the adjacent edge of said tongue, and said forces are permitted to continue from said single point, through said upper flange, the web and said lower flange of said peripheral closure ring before appreciable ring tearing forces are applied to the point defining an obtuse angle between the other edge of said tongue and the inner edge of said upper flange, said closure ring being transversely rupturable in substantially radial directions from the inner edge of said upper flange to the inner edge of said lower flange as said tongue is pulled outwardly of said peripheral closure ring.

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