

[54] **EASY OPENING LID FOR CANS**

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[56]

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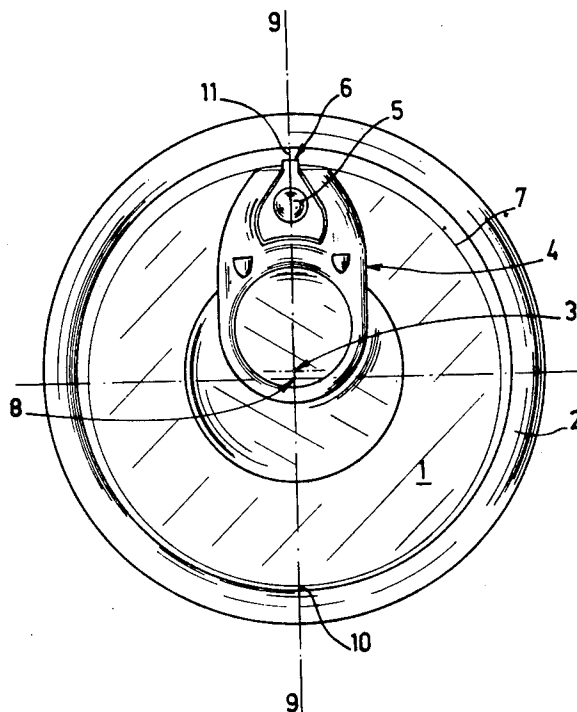
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**ABSTRACT**

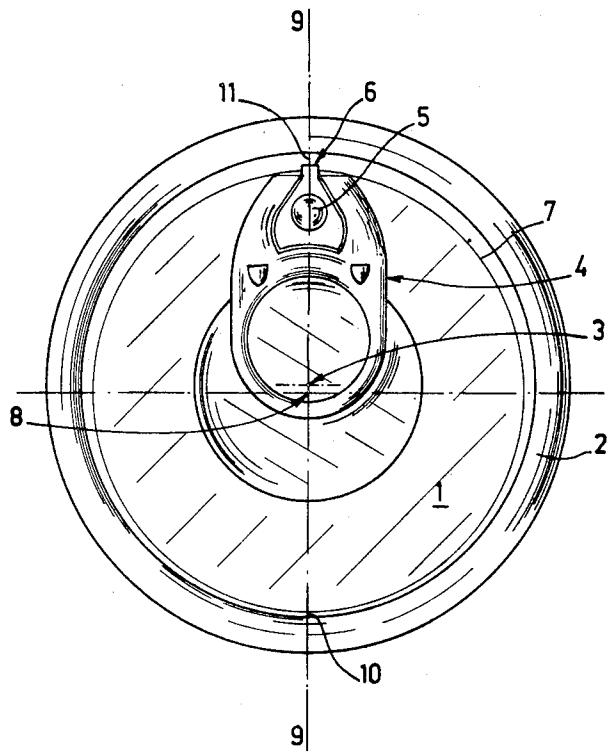
The invention relates to lids known as "easy complete opening lids" in which the tear line is in the form of a circle which is eccentric with respect to the lid.

**5 Claims, 1 Drawing Figure**



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## EASY OPENING LID FOR CANS

This invention relates to "easy opening" lids for cans and it relates more particularly to the arrangement of the tear line and attachments for easy opening lids on cans for preserves or other non-pourable as well as pourable content materials.

Lids of the type described are made available mainly in three different forms: two more or less spaced parallel tear lines which, between them, define a peripheral strip which can be torn off; a partial opening extending over only a portion of the lid surface; and finally, a single tear line along the rim of the lid which provides a complete open surface.

The latter form has a number of advantages for cans filled with more or less solid products but, in practice, problems arise with respect to the positioning of the gripping member, which is still called a tongue, relative to the tear line.

It is an object of this invention to produce a can of the type described in which the tear line for removal of a portion of the lid can be located along the rim of the lid for substantially complete removal of the lid without raising problems by reason of the location of the gripping member.

It is another object of this invention to produce a can of the type described which embodies a simple and efficient tear system for removal of the lid to provide a substantially completely open top.

These and other objects and advantages of this invention will hereinafter appear and, for purposes of illustration, but not of limitation, an embodiment is shown in the accompanying drawing which is a top plan view of a round lid embodying the features of this invention.

To permit passage of the serrated rollers of the crimping device which is used to fix the lid onto the can, the foremost portion of the "nose" of the tongue should be located a certain distance from the rim of the can.

Thus, a first concept resides in locating the nose of the tongue set back slightly from the tear line on the side of the detachable portion of the lid. Initiation of the tearing action is achieved by pressure exerted by the nose on the detachable panel as it causes tearing of the line. The force required to be exerted for this purpose is relatively great.

By enlarging the non-detachable portion of the lid, it is possible to position the nose above the tear line; the initiation is brought about by perforation of the line and this facilitates the operation. However, particularly in round cans, with the tear line parallel to the rim of the lid, the portion which remains interferes with the removal of the content material from the can, particularly in the extraction of pastes or other coherent products.

In addition, the positioning of the nose above the tear line has been found to be somewhat dangerous during the manipulation, since the slightest direct or indirect pressure exerted on the tongue may cause accidental rupture of the line.

This latter problem has been overcome by locating the tongue in such a way that its nose extends slightly beyond the tear line in the direction of the rim of the lid. With this solution, which has other advantages, it was found necessary to enlarge to a still greater degree the residual rim of the lid for the passage of the serrated crimping rollers.

In order to overcome this disadvantage and to maximize the opening in the round lid, the present invention provides an improvement which consists in arranging the tear line in the form of a circle which is eccentric with respect to the lid so that the tear line becomes tangential to the rim of the lid at a point diametrically opposite the nose of the tongue, with the spacing between the nose and the rim of the lid becoming sufficient to allow passage of the crimping rollers.

Referring now to the drawing for a fuller description of the invention, the lid 1 of a round cover is provided on its circumference with a flange 2 which, at the time of closing, is crimped onto the rim of the can by a suitable serrated roller. The geometrical center of the lid is the same as that of the flange 2.

A gripping member 4 is fixed to the lid close to the edge 2, as by means of a rivet 5. The gripping member is formed with a

pointed end or nose 6 that extends beyond the tear line 7 and which operates to initiate the rupture of the line 7 at the time that the can is opened. The tear line 7 is circular but the radius of the circle is less than the distance from the center 3 of the lid to the flange 2, the difference being designated by the letter  $r$ .

The center 8 of the circular tear line 7 is offset in the direction away from the nose from the geometrical center 3 of the lid, on a straight line 9—9 which passes through the center of the nose and the center 3 of the lid. It is offset by a distance which is slightly less than  $r$  so that at the point 10, which is diametrically opposite the nose 6, the tear line 7 most closely approaches the inside edge of the flange and is almost tangent thereto without merging with it.

On the diametrically opposite side 11, the distance between the nose 6 and the flange 2 is selected so that the knurled wheels or rollers of the crimping apparatus are able freely to pass. This result can be obtained while maintaining a tear line of simple geometrical form and this also makes easier the manufacture and the care of the tools which serve to make the incision in the lid.

After the gripping member 4 is raised to displace the nose to initiate rupture of the tear line, continued pull on the gripping member will be transmitted directly to the portion of the lid immediately adjacent the torn portion thereby to advance the separation along the tear line until the entire portion of the lid within the tear line is removed to expose the content material through the open top.

Another improvement which arises from the use of the lid, embodying the described features of this invention, is observed at the time that the can is opened. For example, round cans of small depth frequently contain paste. The fact that the part of the cover which is not torn off is reduced to a minimum at a certain point about its circumference will permit the consumer to slip a knife between the paste and the wall of the can. As the adhesion between the container and the content material is thus broken over a certain surface area, the paste mass can be removed very easily without being retained by the residual edge which is at its largest dimension only at the opposite side of the can.

It will be apparent from the foregoing that we have provided a novel concept in the arrangement of the tear line whereby maximum removal of portions of the lid can be achieved without introducing interferences with respect to the operation of the tools for crimping the lid onto the can.

It will be understood that changes may be made in the details of construction and arrangement without departing from the spirit of the invention, especially as defined in the following claims.

We claim:

1. A complete opening lid for round cans having a tear line along which the removable portion is torn from the lid and a nose portion for initiating tearing of the tear line, the improvement in which the tear line is in the form of a circle having its center offset from the center of the lid in the direction away from the nose whereby the tear line is spaced a minimum distance from the rim of the lid to a point diametrically opposite the nose and at a greater distance from the rim of the lid at the nose portion.

2. A lid as claimed in claim 1 in which the spaced relationship between the nose portion and the rim of the lid is sufficient to allow passage of the crimping roller for attachment of the lid to the can.

3. A lid as claimed in claim 1 in which the tear line diametrically opposite the nose is almost tangent to the rim of the lid.

4. A lid as claimed in claim 1 in which the center of the tear line is offset from the center of the rim of the lid by an amount less than the difference between the radius of the tear line and the radius of the rim.

5. A lid as claimed in claim 1 which includes a gripping member fixed to the removable portion of the lid within the tear line and in which the nose is rigid with the gripping member and extends over the tear line for a distance slightly beyond the tear line in the direction away from the center.