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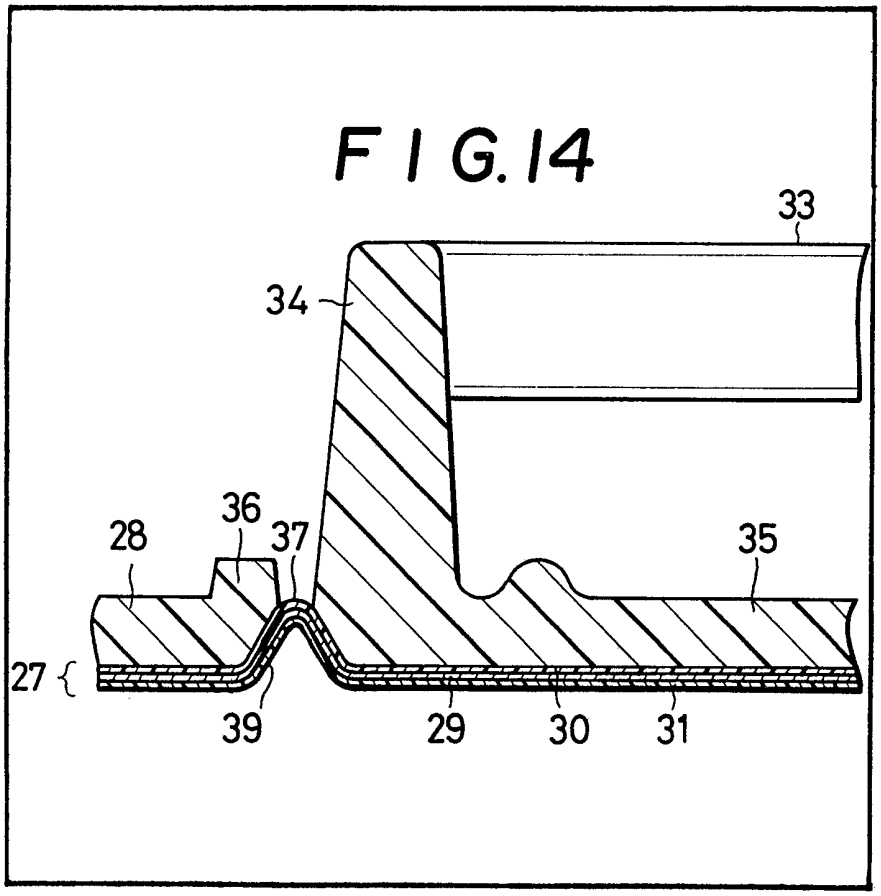
(54) **Easy-open containers**

(57) A container for food or drink comprises a main body and a lid, the lid having a laminated structure of at least an aluminium foil layer and a synthetic resin film layer, cutting means being provided for cutting at least a part of the lid, the cutting means comprising moulded bodies of a synthetic resin which are bonded to the synthetic resin film layer during a process of moulding the bodies on the lid. In one embodiment, not shown, the cutting means comprises a pull-tab and a cutting guide extending along at least an outer periphery of a cutting region, the guide and tab being located on opposite faces of the lid and being connected through an aperture in the lid. In the illustrated embodiment, a resin rib structure 28 is bonded to the resin layer 30 of the lid, and the cutting guide comprises a recessed portion 37 in the structure which corresponds to a groove 39 in the lid. Pulling on the tab 33 leads to fracture of the lid along groove 39. A rib 36 is provided to protect a user's lips when drinking. In further embodiments, a blade is embedded at the base of the tab to assist initial cutting.

FIG.14



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This print takes account of replacement documents later filed to enable the application to comply with the formal requirements of the Patents Rules 1982.

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FIG. 1

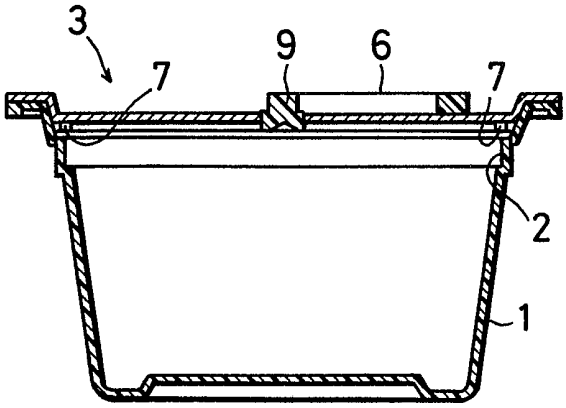

FIG. 2

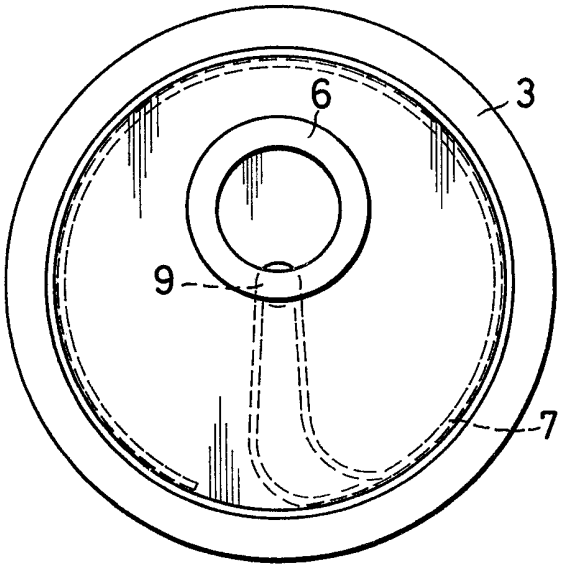

FIG. 3

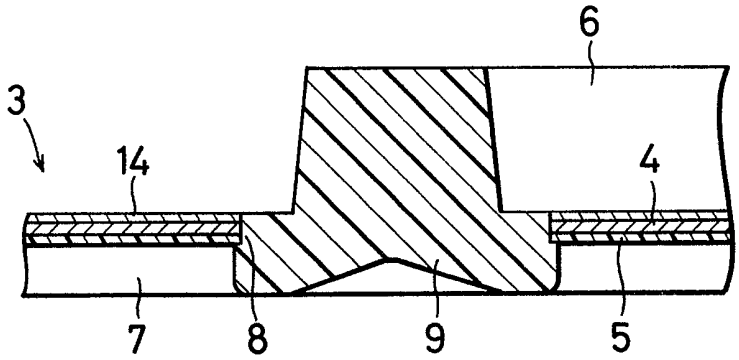

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FIG. 4

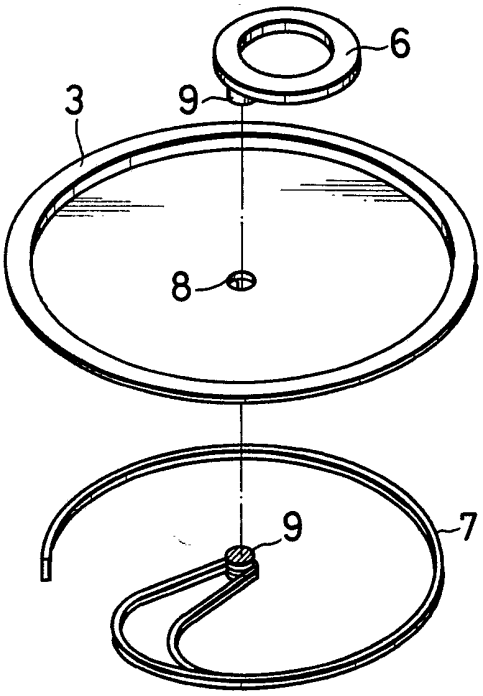

FIG. 5

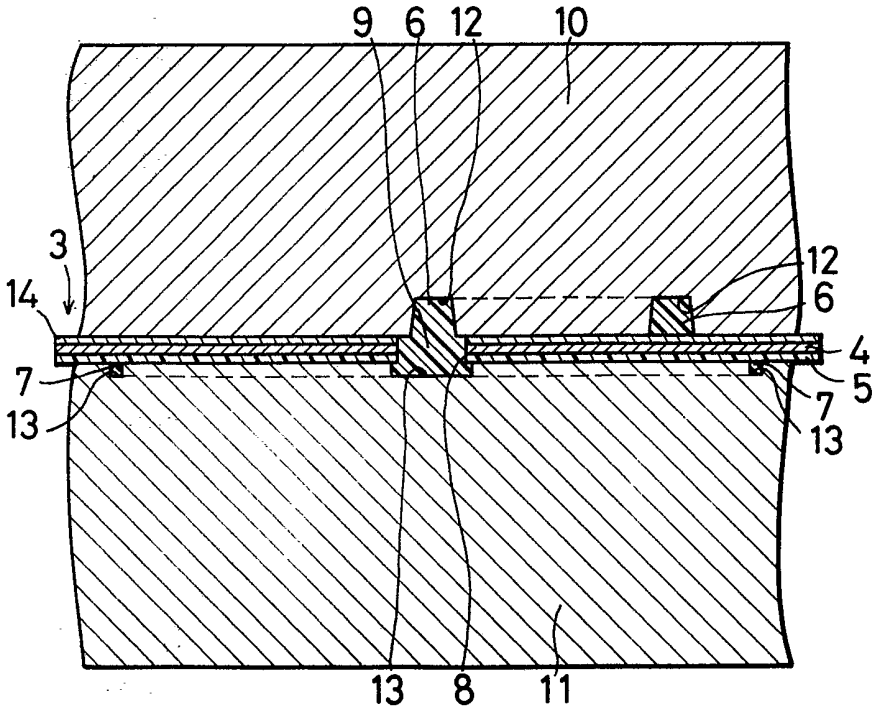

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FIG.6

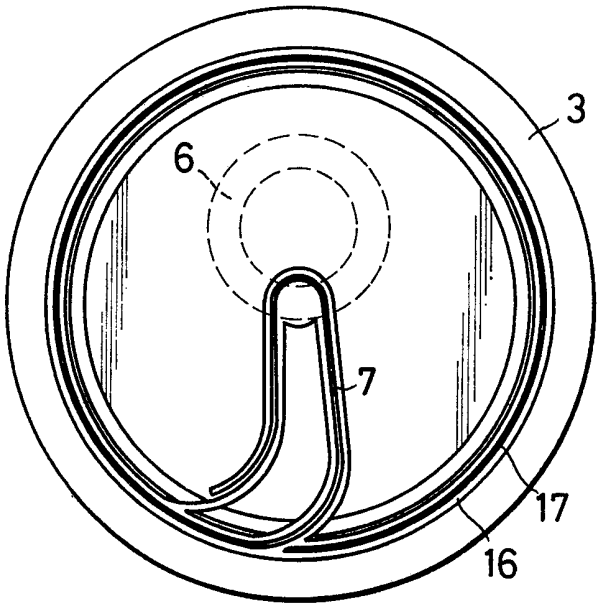

FIG.7

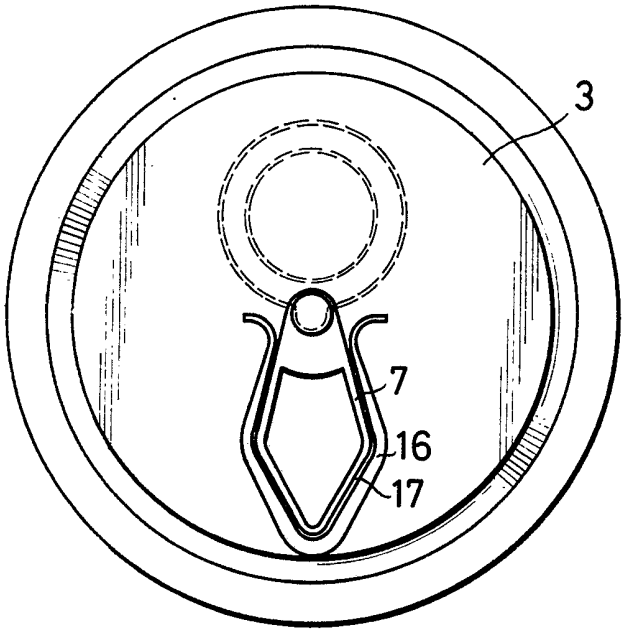

FIG.8

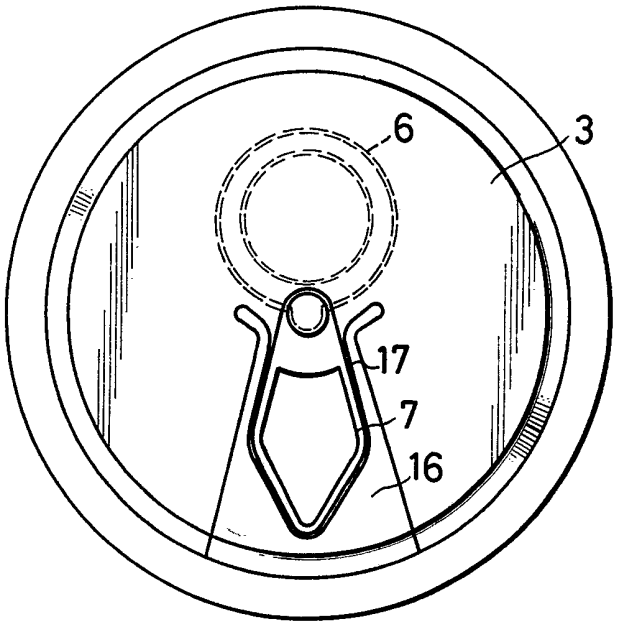

FIG.9

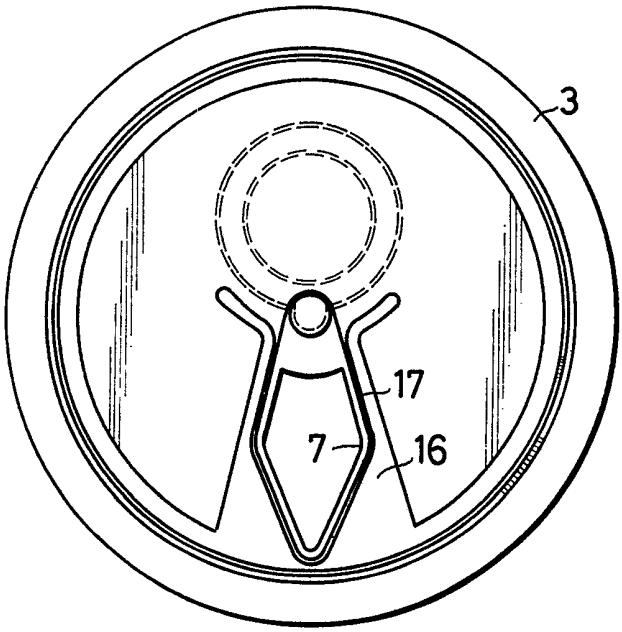

FIG. 10

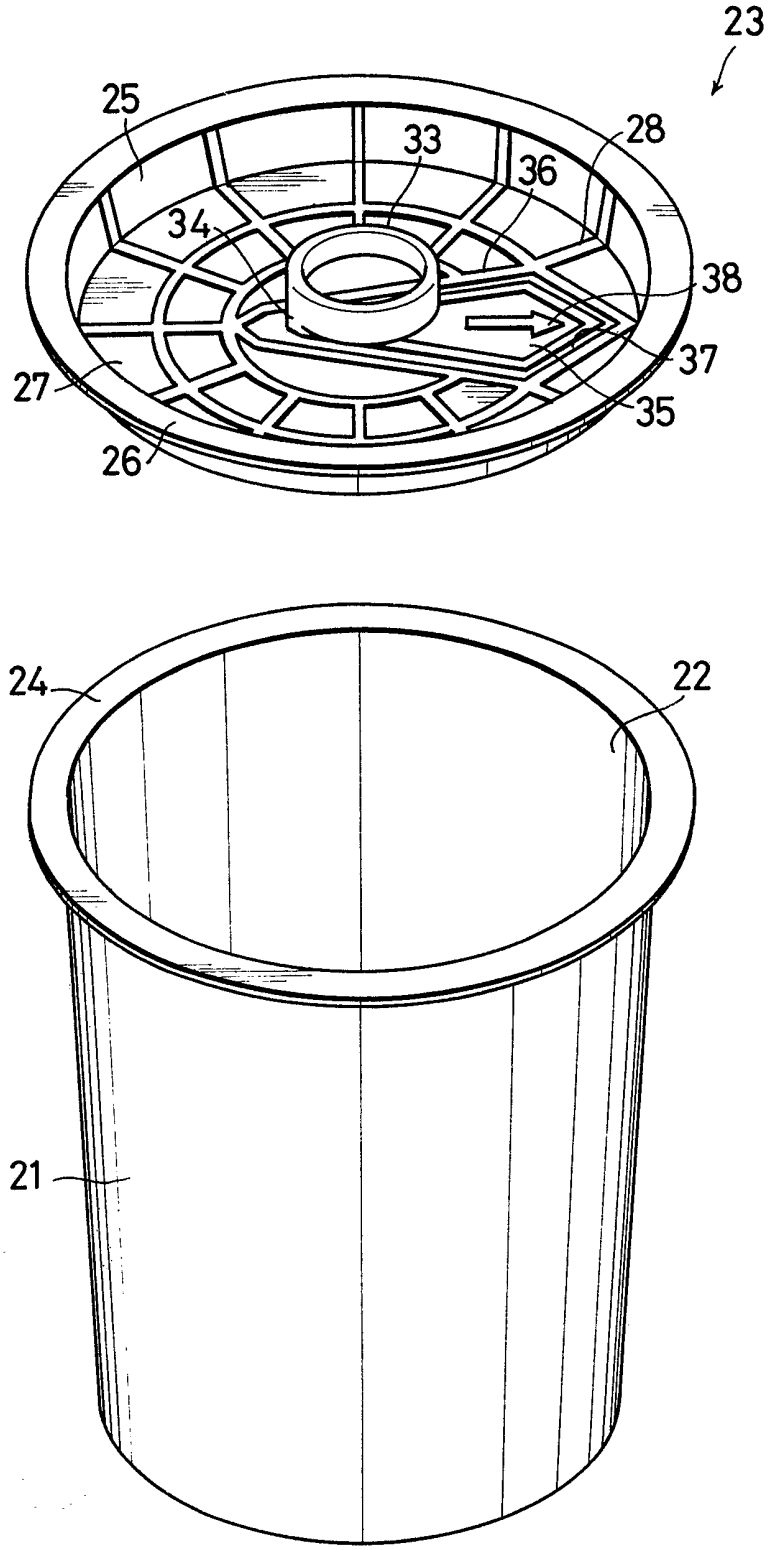

FIG.11

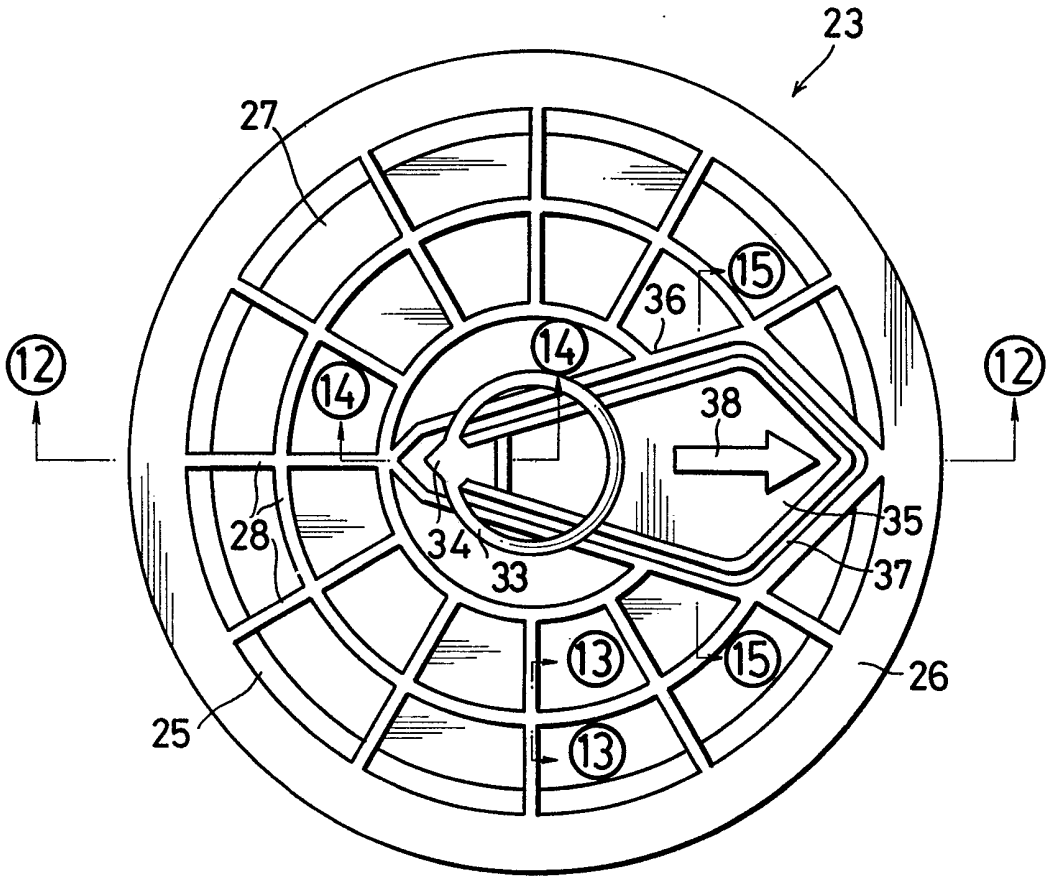
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FIG.12

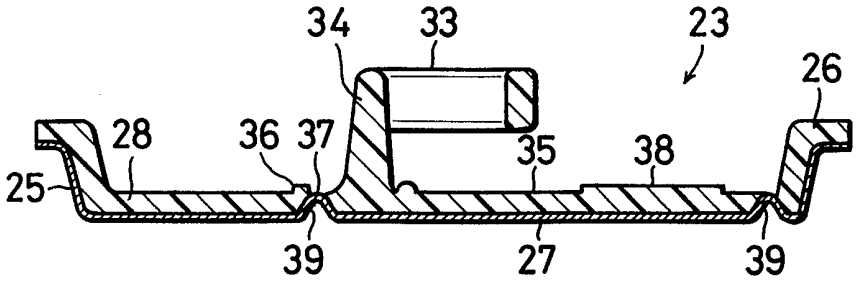
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FIG.13

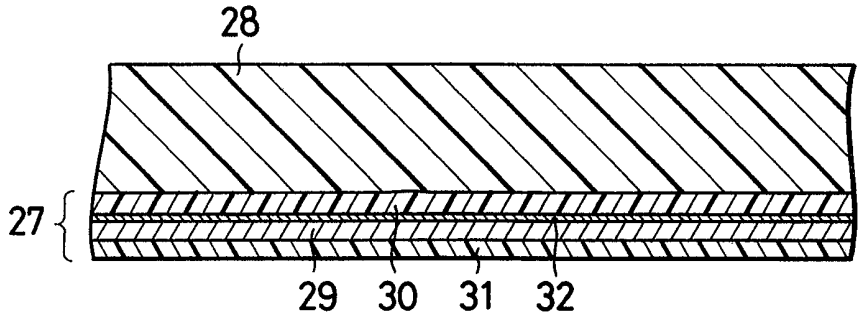

FIG.14

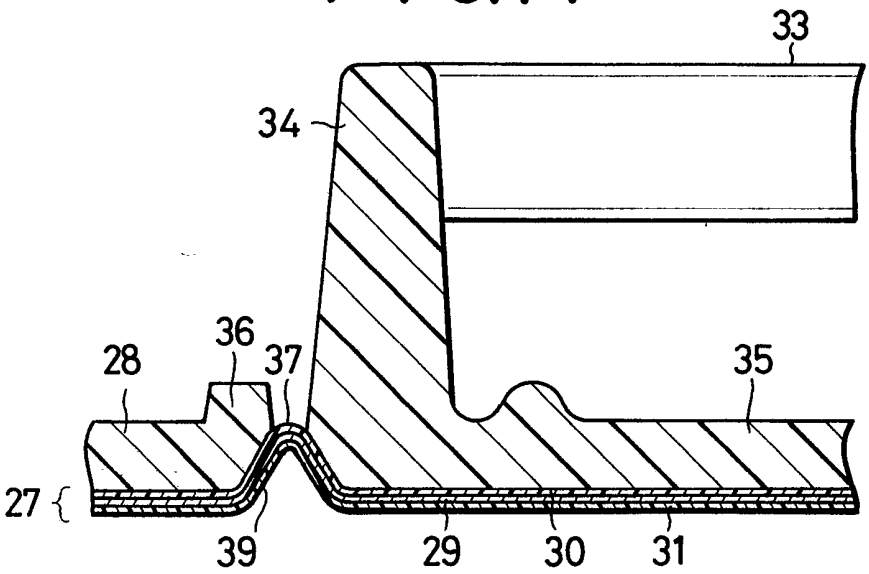

FIG.15

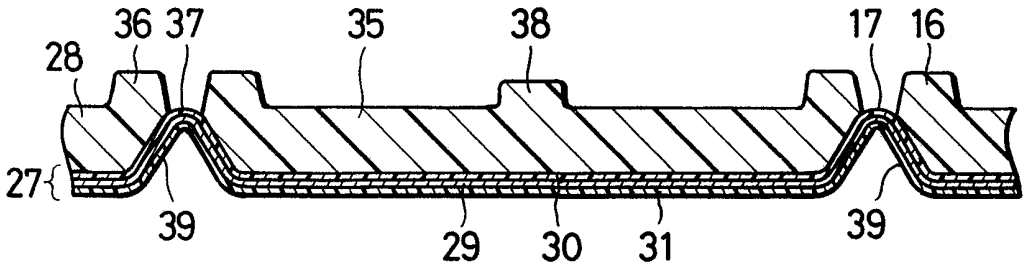

FIG.16

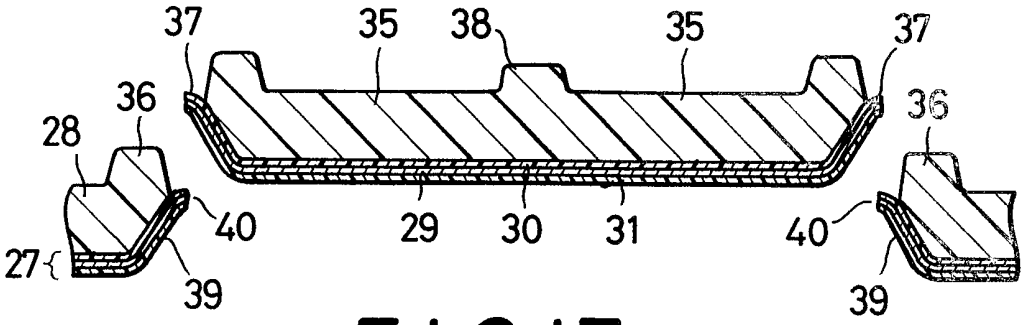

FIG.17

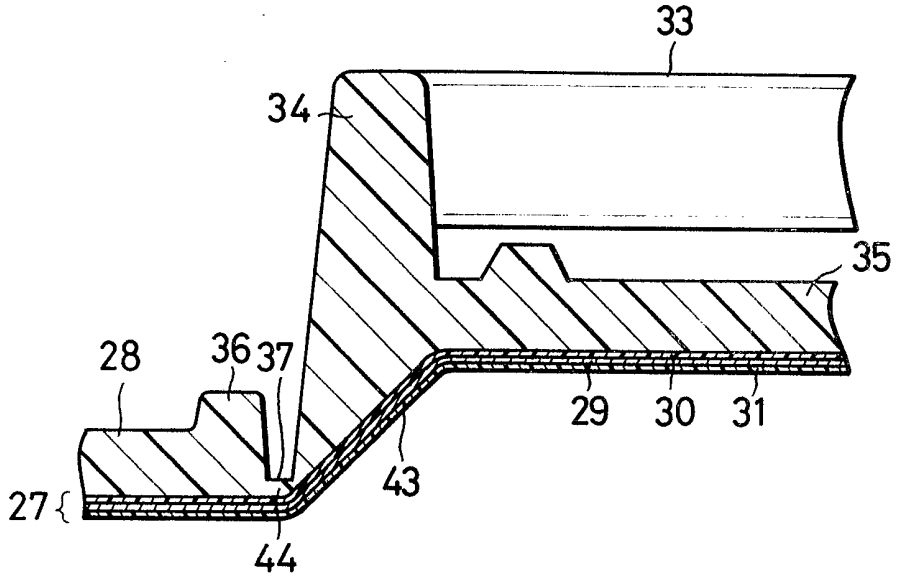

FIG.18

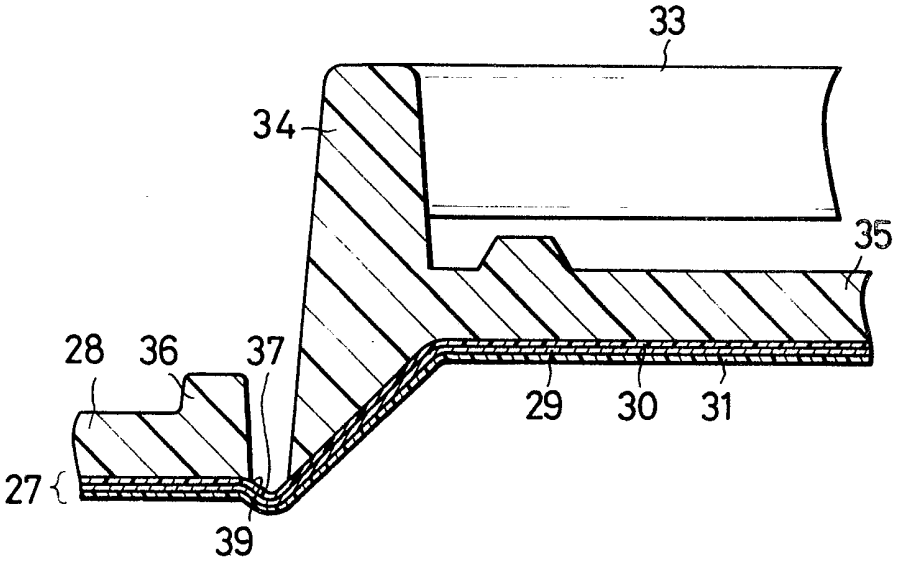

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FIG. 19

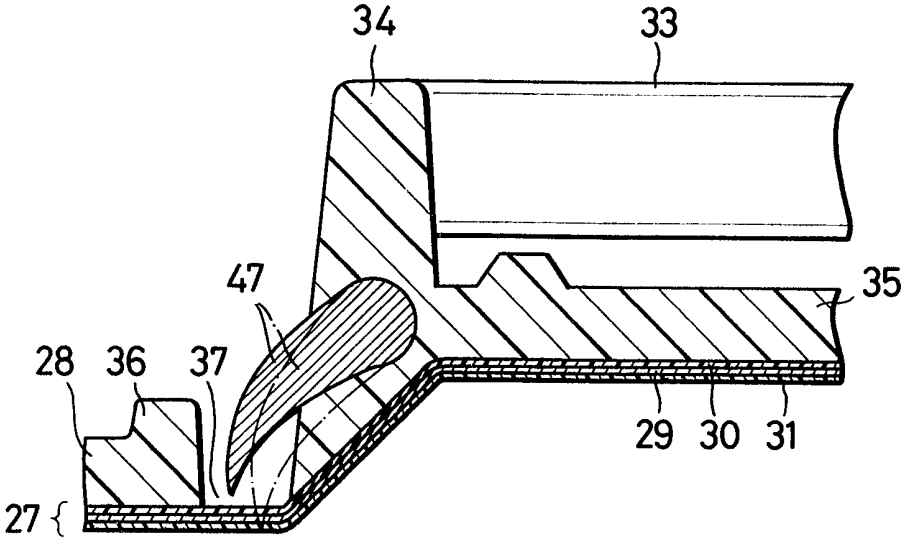

FIG. 20

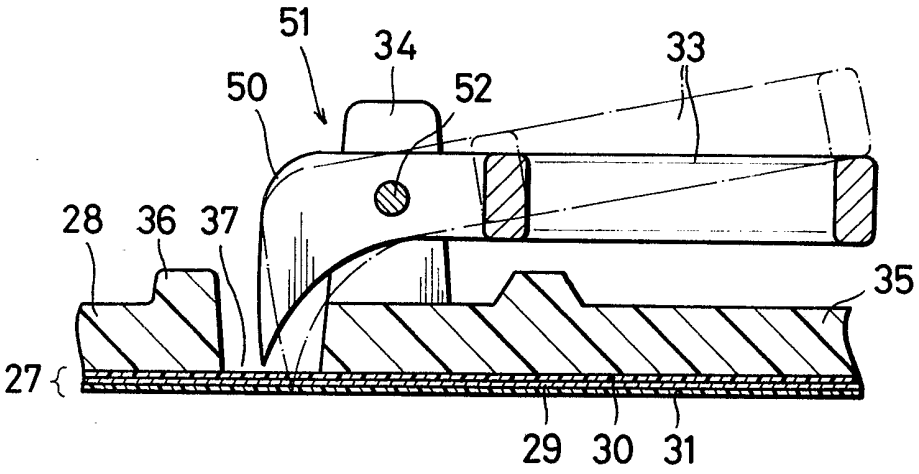

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FIG. 21

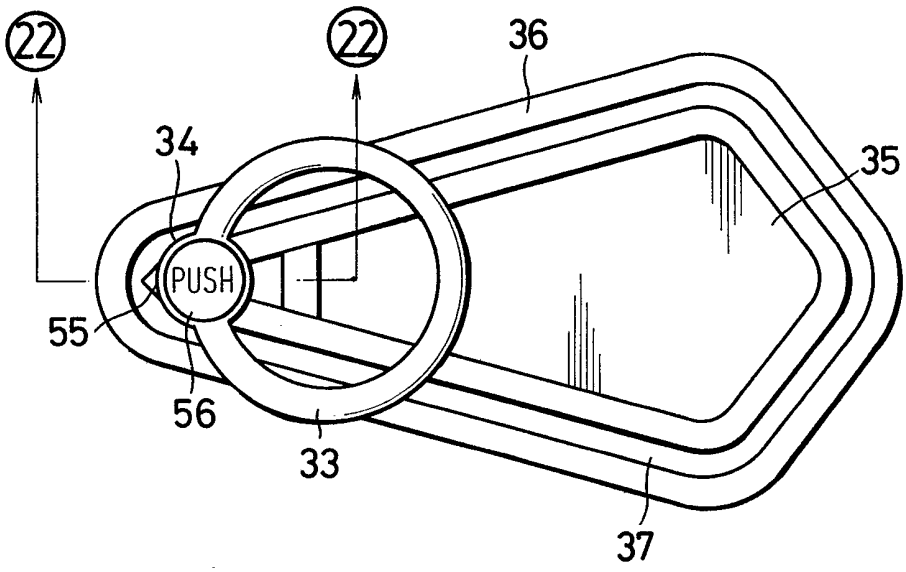
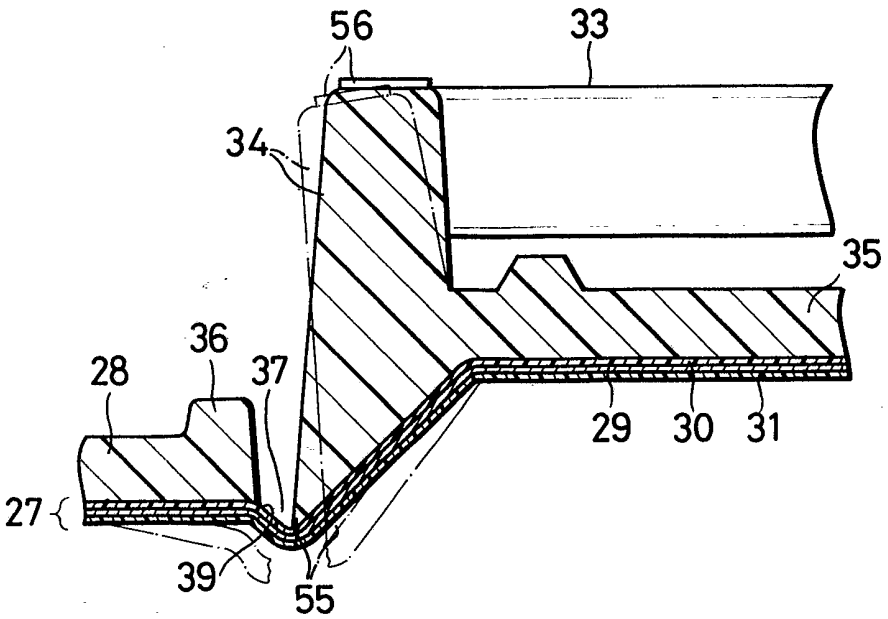


FIG. 22



SPECIFICATION

Containers

This invention relates to containers for holding articles or substances, for instance comestibles (food or drink).

Metal cans having pull-tabs are preferred for use in automatic vending machines for soft drinks or the like. This is because such metal cans are easy to open and allow retort sterilisation. However, a metal can having a pull-tab requires more parts, such as a pull-tab and a rivet for mounting the pull-tab, than a metal can without a pull-tab. Furthermore, a notch-shaped or thin cutting guide must be formed along a predetermined shape to allow opening of a lid upon pulling the tab. Conventional metal cans are heavy in weight and are incovenient to transport. There is also the problem of where to discard the empty cans.

For these reasons, paper or synthetic resin containers for holding soft drinks or food have been proposed. These containers are light in weight, easy to transport, and allow easy disposal after use. It has been proposed to mount a pull-tab on a container of this type as in the case of a metal can. However, at least that part of the lid which is to be opened when the pull-tab is pulled must be made of a synthetic resin material, which results in poor gas barrier properties. Paper containers cannot be subjected to retort sterilisation.

Another proposed container is prepared by forming a hermetically-sealed and heat-resistant container element from a laminate of synthetic resin films, a synthetic resin film and a paper sheet, a synthetic resin film and an aluminium foil layer, a paper sheet and an aluminium foil layer, and so on; filling the container element with desired contents; and sealing the opening of the container element with a lid comprising an aluminium foil layer or the like.

This type of container requires the use of a knife or the like to cut the lid in order to open it. In order to solve this problem, it has also been proposed to form a hole in the lid in advance and to seal a piece of aluminium foil tape with a pull-tab to this hole. However, with this container, the cut portion tends to form irregular sharp edges and may thus hurt the lips or hands of the user.

According to the present invention there is provided a container comprising:

a main body;

a lid covering an opening of the main body, the lid having a laminated structure of at least two kinds of material; and

a cutting means for cutting at least a part of the lid to form a cutting region, the cutting means comprising a cutting guide arranged along at least an outer periphery of said cutting region and a pull-tab mounted on the cutting guide, and said cutting means comprising moulded bodies of a synthetic resin which can be bonded to one of the two materials of the lid during a process of moulding the bodies on the lid.

Embodiments of the present invention described below provide containers in which an opening may be formed easily and smoothly in a lid along a cutting region of a predetermined shape when a pull-tab is pulled, which provides satisfactory gas barrier properties in the cutting region of the lid, which is safe to handle and which should not hurt the user at the cut edge of the cutting region of the lid.

The invention will now be further described, by way of illustrative and non-limiting example, with reference to the accompanying drawing, in which like reference numerals designate like elements, and in which:

Figure 1 is a longitudinal sectional view of a container according to a first embodiment of this invention;

Figure 2 is a plan view of the container shown in Figure 1;

Figure 3 is an enlarged sectional view of a lid of the container of Figures 1 and 2;

Figure 4 is an exploded perspective view of the lid of Figure 3;

Figure 5 is a longitudinal sectional view of a mould for forming a pull-tab and a thin cutting guide on the body of the lid;

Figures 6 to 9 are bottom views of respective modifications of the lid of the first embodiment of this invention;

Figure 10 is an exploded perspective view showing a container according to a second embodiment of this invention;

Figure 11 is a plan view of a lid of the container shown in Figure 10;

Figure 12 is a sectional view of the lid along a line 12—12 in Figure 11;

Figure 13 is an enlarged sectional view of the lid along a line 13—13 in Figure 11;

Figure 14 is an enlarged sectional view of the lid along a line 14—14 in Figure 11;

Figure 15 is a sectional view of the lid along a line 15—15 in Figure 11;

Figures 17 to 21 are sectional views, similar to Figure 15 when in an open state;

Figure 17 to 21 are sectional views, similar to Figure 14, of respective modifications of the lid of the second embodiment; and

Figure 22 is a sectional view along a line 22—22 in Figure 21.

Figures 1 to 5 show a container constituting a first embodiment of the present invention. The container is a disposable-type container for holding food. Referring first to Figure 1, the container comprises a cup-shaped main body 1 and a disc-shaped lid 3 covering an opening 2 at the top of the main body 1. The main body 1 has a multilayered laminated structure comprising a plurality of synthetic resin films and provides a satisfactory hermetic seal or gas barrier properties. The main body 1 may alternatively comprise a laminate of a synthetic resin film with a paper sheet, or a laminate of a synthetic resin film with an aluminium foil layer. In these cases, the resin film preferably faces outwardly of the main body 1.

Referring now to Figures 2 to 4, the lid 3 is of a multilayered structure, comprising an aluminium foil layer 4 and a resin layer 5. The resin layer 5 is of a multilayered laminated structure, comprising a plurality of synthetic resin films. A rustproof coating 14 is formed over the outer surface of the aluminium foil layer 4. The coating 14 is exposed to the upper side or outer surface of the lid 3, while the resin layer 5 is exposed to the lower side or the inner surface of the lid 3. The coating 14 need not always be provided.

The lid 3 has a ring-shaped pull-tab 6 and a cutting guide 7. The cutting guide 7 extends spirally outwardly from the center of the lid 3. The pull-tab 6 and the cutting guide 7 are connected by a connecting 9 portion extending through a small hole 8 formed substantially at the centre of the lid 3. The outer periphery of the lid 3 is heat-sealed to the outer periphery of the main body 1.

The pull tab 6 and the cutting guide 7 are formed in a manner shown in Figure 5. A sheet for forming the lid 3 is clamped between a pair of moulds 10 and 11. A polyethylene terephthalate resin is injected into cavities 12 and 13 defined by the moulds 10 and 11, respectively. The pull-tab 6 is formed on the upper surface of the lid 3 by the cavity 12, while the cutting guide 7 is formed on the lower surface of the lid 3 by the cavity 13. Since the cavities 12 and 13 oppose each other in the vicinity of the hole 8 of the lid 3, the connecting portion 9 is formed to extend through the hole 8 to connect the pull-tab 6 to the cutting guide 7.

Since the pull-tab 6 is formed on the coating 14, which is formed on the upper surface of the lid 3 and which is prevented from being joined to the polyethylene terephthalate resin, the pull-tab 6 is prevented from being joined to the lid 3 at places other than the connecting portion 9. Therefore, the pull-tab 6 can be pulled up with a finger and separated from the surface of the lid 3, so that a user may insert his finger into the ring-shaped pull-tab 6. In contrast to this, since the cutting guide 7 is formed on the resin layer 5 which is formed on the lower surface of the lid 3 and which may be joined to the polyethylene terephthalate resin, the cutting guide 7 is joined to the lid 3 by the resin layer 5. Accordingly, the lid 3 can be opened by means of the cutting guide 7. More specifically, when the pull-tab 6 is pulled upwardly and the user's finger is inserted into the pull-tab 6 to further pull it upwardly as mentioned above, the lid 3 is cut along the cutting guide 7 which is connected to the pull-tab 6 by the connecting portion 9. The lid 3 is opened along the cutting guide 7 and the contents (e.g. food) of the main body 1 may be taken out of the container.

According to the embodiment described above, a lid with a pull-tab can be sealed to a container other than a metal can, for example a plastics container, thus providing a container with a pull-tab 6 at low cost. Since the pull-tab 6, the cutting guide 7 and the connecting portion 9 can be formed integrally with the lid 3 the number of parts and/or the number of manufacturing steps may be decreased. The main body 1 and the lid 3 may be made of any material which can provide satisfactory gas barrier properties. If the diameter of the hole 8 is made small, and if the connecting portion 9 is formed together with the pull-tab 6 and the cutting guide 7 of a resin (for example polyethylene terephthalate resin) having excellent gas barrier properties, then a container is obtained which can provide an excellent hermetic seal. If the shape of the cutting guide 7 is varied, the shape of the opening to be formed thereby may be varied accordingly. Since a notch or a thin portion need not be formed in the lid 3 as in conventional pull-tab containers, the mechanical strength of the lid and its resistance to impact are improved. Since the main body 1 is made of a resin and the lid 3 is a laminate of the aluminium foil layer 4 and the resin layer 5, hot-water sterilisation or retort sterilisation may be performed.

Figure 6 is a bottom view of a first modification to the lid 3 of the container shown in Figures 1 to 4. According to this modification, a rib 16 is formed around the cutting guide 7 to be integral therewith. Since a narrow groove 17 is defined between the cutting guide 7 and the rib 16, the lid 3 can be easily cut along this groove 17.

Figures 7 to 9 are bottom views of respective further modifications of the lid 3 with cutting regions of different shapes. In these modifications, the cutting guide 7 is formed into a rhombic shape. In the modification shown in Figure 7, the rib 16 is formed around the cutting guide 7, thus defining the groove 17 therebetween. In the modification shown in Figure 8, the width of the rib 16 is lengthened towards the periphery of the lid 3, so that the mechanical strength of the part of the lid 3 around the cutting region is reinforced. In the modification shown in Figure 9, the rib 16 is formed at the cutting region and also extends along the outer periphery of the lid 3.

Figures 10 to 16 show a container constituting a second embodiment of the present invention. In this embodiment, a main body 21 of the container is formed into a cup-shape from, for example, a laminated paper sheet or a synthetic resin laminated body. The main body 21 has an opening 22 at the top. A flange 24 is formed at the outer periphery of the opening 22. The container also comprises a lid 23 which is of a substantially flat shape and has a step 25 at its outer periphery. A flange 26 is formed at the upper end of the step 25. The flange 26 of the lid 23 is sealed to the flange 24 of the main body 21, thus providing a closed container.

Referring now to Figures 11, 12 and 13, the lid 23 includes a sheet-like base material 27, and a rib structure 28 of a resin such as polyethylene formed on the outer surface of the base material by injection moulding. The base material 27 comprises a laminate formed from an aluminium foil layer 29 and resin layers 30 and 31 which are respectively formed on the upper and lower surfaces of the aluminium foil layer 29, the resin

layers 30 and 31 being of the same material as the rib structure 28. An aluminium foil adhesion layer 32 is disposed between the resin layer 30 and the aluminium foil layer 29. The resin layer 30 is formed to improve adhesion between the base material 27 and the rib structure 28 when the rib structure 28 is formed over the upper surface of the base material 27 by injection moulding. The resin layer 31 melts and thus seals the lid 23 to the main body 21 during heat sealing.

A ring-shaped pull-tab 33 is formed together with the rib structure 28 on the upper surface of the lid 23. The pull-tab 33 is connected through a connecting portion 34 to an island portion 35 formed on the base material 27. A protective rib 36 is formed on the upper surface of the base material 27 to surround the island portion 35. The protective rib 36 projects above the rib structure 28 and serves to protect the users' lips from injury. A slit-shaped cutting guide 37, defined by the absence of any resin structure or body, is formed between the protective rib 36 and the island portion 35 as shown in Figures 14 and 15. Instead of removing the resin structure, the resin structure may be made thin so as to form the cutting guide. The cutting guide 37 is formed in a continuous manner to surround the island portion 35. When the island portion 35 is pulled by means of the pull-tab 33 through the connecting portion 34, the base material 27 is cut along the cutting guide 37 and the lid 23 is opened. An arrow 38 to indicate the direction in which to pull the pull-tab 33 is formed on the island portion 35 by moulding.

A groove 39 is formed in the base material 27 of the lid 23 in correspondence with the cutting guide 37 so that the base material 27 may be easily cut along the cutting guide 37. The groove 39 is formed by bending the base material 27 to project upwardly, as shown in Figures 14 and 15. More specifically, the groove 39 is formed by bending the base material 27 along the injection moulding mould by the injection pressure of the resin when the resin bodies, i.e. the rib structure 28, the rib 36, the pull-tab 33, and the island portion 35, are formed on the base material 27. Therefore, the groove 39 can be formed easily and without requiring extra manufacturing steps by simply forming a projection in the injection mould corresponding to the groove 39 to be formed. When the lid 23 is opened, the groove 39 facilitates the initial opening of the lid 23. The step 25 around the lid 23 is formed by drawing the base material in to the injection mould in a similar manner as in the case of the groove 39.

The lid 23 covers the opening 22 of the main body 21 which holds, for example, a soft drink. The flange 26 of the lid 23 and the flange 24 of the main body 21 are bonded together by heat sealing or the like. During the heat sealing, the resin layer 31 exposed to the lower surface of the base material 27 melts and is bonded to the flange 24.

In order to drink the soft drink held in the main body 21, the lid 23 is opened by pulling the pull-tab 33. In the lid 23, the resin bodies such as the rib structure 28, the rib 36, the pull-tab 33, and the island portion 35, are formed on the outer surface of the base material 27. These resin bodies are made of polyethylene, which is the same material as that of the resin layer 30 exposed to the upper surface of the base material 27. Therefore, these resin bodies are strongly bonded to the base material 27 and may not easily be separated from the base material 27. Even when the pull-tab 33 is pulled, the pull-tab 33 and the island portion 35 may not be separated from the base material 27.

When the pull-tab 33 is pulled upwardly, the pulling force is transmitted to the island portion 35 through the connecting portion 34. Then, the island portion 35 and the underlying base material 27 are separated from the remaining portions of the lid 23, as shown in Figure 16, thus opening the container. Opening the container is accomplished by pulling the pull-tab 33 which causes cutting of the base material 27 along the cutting guide 37 formed between the rib 28 and the island portion 35 to form an opening 40. The groove 39 formed in the base material 27 facilitates cutting of the base material 27 along the cutting guide 37. The user can then drink the soft drink held in the main body 21 through the opening 40. Since the protective rib 36 is formed at the outer periphery of the opening 40, the user's lips cannot be brought into contact with the cut edge of the base material 27 (including the aluminium foil layer 29) when the user's lips are brought close to the opening 40. Thus, the user's lips will not be cut by the aluminium foil layer 29. Since the resin layers 30 and 31 are formed on the upper and lower surfaces of the aluminium foil 29, the resin layers 30 and 31 also serve to protect the user's lips from the cut edge of the base material 27. Thus, injury to the user's lips may be prevented and the lid 23 can be rendered safe.

In the lid 23 described above, the resin bodies are formed only on the upper surface of the base material 17, which includes the aluminium foil layer 29; a small hole or notch need not be formed in the base material 27. For this reason, the aluminium foil layer 29 guarantees excellent gas barrier properties. Furthermore, the resin is not able to flow between the upper and lower surfaces of the base material 27. Since the aluminium foil layer 29 is reinforced by the resin layers 30 and 31 which sandwich it, and the base material 27 is reinforced by the rib 28, the aluminium foil layer 29 may be thin. For example, an aluminium foil layer having a thickness of 40 microns or less may be used, without causing formation of pinholes. Furthermore, since the aluminium foil layer 29 is reinforced by the resin layers 30 and 31, the periphery of the base material 27 should not be curled.

A first modification to the second embodiment will now be described with reference to Figure 17. In this modification, a step 43 is formed in place

of the groove 39 in the base material 27 at the position corresponding to the cutting guide 37. The step 43 is formed with the injection mould used for moulding the resin bodies, i.e. the rib structure 28, the rib 36, the pull-tab 33, and the island portion 35. In addition to the step 43, a resin layer 44 is formed on the surface part of the base material 27 corresponding to the cutting guide 37. The resin layer 44 is formed integrally with the rib structure 28, the rib 36, the pull-tab 33 and the island portion 35, but the resin layer 44 is formed so that it is thin to facilitate easy cutting. Thus, similar effects may be obtained with the first modification.

Figure 18 shows a second modification to the second embodiment. In this modification, the groove 39 corresponding to the cutting guide 37 of the base material 27 faces in the opposite direction to the groove in the embodiment described above. In order to form the groove, the shape of the injection mould need only be reversed from that used in the embodiment. This modification is thus easy to put into effect.

Figure 19 shows a third modification to the second embodiment. In this modification, a blade 47 of metal with a sharp distal end edge is embedded in the connecting portion 34. When the pull-tab 33 is pulled upwardly the distal end of the blade 47 lowers to cut the base material 27, as shown by the broken line in Figure 19. The cutting operation of the base material 27 for opening the lid 23 is performed smoothly. The lid 23 is then cut along the cutting guide 37 from the position cut by the blade 47.

Figure 20 shows a fourth modification which is an improvement to that shown in Figure 19. In the lid 23, a pull-up lever 51 is pivotally mounted by means of a pin 52 on the connecting portion 34. The pull-up lever 51 comprises the pull-tab 33 and a metal blade 50. The lever 51 may be made of synthetic resin or metal. When the lever 51 is pulled upwardly, the metal blade 50 cuts a part of the base material 27 corresponding to the cutting guide 37, as shown by the broken line in Figure 20. Therefore, the cutting operation may be smoothly initiated as in the case of the modification shown in Figure 19.

Figures 21 and 22 show a fifth modification of the second embodiment wherein a projection 55 having a sharp distal end edge is formed at a lower part of the connecting portion 34. The projection 55 extends into the groove 39 formed in the base material 27. When an upper end of the connecting portion 34 is depressed downwardly, the projection 55 starts cutting the base material 27 from the position of the cutting guide 37, as shown by the broken line in Figure 22. This facilitates initiating the cutting operation of the base material 27. When the base material 27 is cut by the projection 55, the pull-tab 33 is then pulled upwardly to open the lid 23. Since the upper end of the connecting portion 34 must first be pushed when the cutting operation is begun, a display 56 "Push" is conveniently attached to the surface of the connecting portion 34.

According to the arrangements shown in Figures 11 to 22, when the pull-tab is pulled upwardly the lid is opened at a predetermined position by the cutting guide which is defined by a thin resin body or by the absence of any resin body. The protective rib of the same resin material formed along the periphery of the cutting portion protects the lips from injury. Therefore, a safe lid is provided and injury caused by the metal foil of the base material can be prevented. Since the resin bodies are formed on the upper surface of the base material including the metal foil, a small hole or notch need not be formed in the base material, so that the gas barrier properties of the container may be improved.

The present invention can of course be embodied in other ways than those described above by way of example. For instance, the invention is not limited to containers of the shapes shown in the accompanying drawings but may be similarly applied to containers of various other shapes. The present invention is also similarly applicable to containers holding contents other than food or drink. The laminated structure of the lid is also not limited to those examples described above but may be modified in various ways.

Claims

1. A container comprising:

a main body;

a lid covering an opening of the main body, the lid having a laminated structure of at least two kinds of material; and

a cutting means for cutting at least a part of the lid to form a cutting region, the cutting means comprising a cutting guide arranged along at least an outer periphery of said cutting region and a pull-tab mounted on the cutting guide, and said cutting means comprising moulded bodies of a synthetic resin which can be bonded to one of the two materials of the lid during a process of moulding the bodies on the lid.

2. A container according to claim 1, wherein the lid comprises a laminated structure of a first material exposed at an outer surface of the lid and a second material exposed at an inner surface of the lid, and the cutting means comprises a pull-tab arranged on the outer surface of the lid, a cutting guide arranged on the inner surface of the lid along at least the outer periphery of said cutting region, and a connecting portion extending through a hole formed in the lid so as to connect the pull-tab to the cutting guide, the pull-tab, the cutting guide, and the connecting portion comprising moulded bodies of a synthetic resin which cannot be bonded to the first material and which can be bonded to the second material.

3. A container according to claim 1, wherein the main body comprises a laminated structure comprising sheets or films of synthetic resins, paper, aluminium foil or a combinatin thereof.

4. A container according to claim 2, wherein the lid comprises a laminated structure of an aluminium foil layer as the first material and a

synthetic resin film as the second material.

5. A container according to claim 4, wherein a coating is formed on a surface of the aluminium foil layer.

6. A container according to claim 2, wherein the cutting region comprises a first region of a small area extending from substantially the centre of the lid, and a second region of substantially the entire area of the lid surrounding the first region, and the cutting guide comprises a first rib bonded to the inner surface of the lid, the rib surrounding an outer periphery of the first region and extending along an outer periphery of the second region.

7. A container according to claim 6, wherein the pull-tab is connected through the connecting portion to an end of the first region at substantially the centre of the lid.

8. A container according to claim 1, wherein the pull-tab is of a ring shape.

9. A container according to claim 1, wherein the cutting means comprises a moulded body of polyethylene terephthalate.

10. A container according to claim 1, wherein the main body and the lid are sealed by heat sealing to complete the container.

11. A container according to claim 2, wherein the lid comprises first and second ribs, the second rib is of the same material as a material of the cutting means and is formed on the inner surface of the lid to surround the outer periphery of a first rib, and a groove is formed between the first and the second rib and the cutting guide to define a cutting guide path.

12. A container according to claim 11, wherein the second rib further extends along the outer periphery of the lid.

13. A container according to claim 6, wherein the second rib surrounds the first and second regions.

14. A container according to claim 1, wherein the outer surface of the lid is made of a material which can be bonded to the cutting means during moulding of the cutting means.

15. A container according to claim 14, wherein the lid comprises a laminated structure of synthetic resin layers at the outer and the inner surfaces of the lid, and an intervening aluminium foil layer.

16. A container according to claim 14, wherein the cutting means comprises an island region which covers the cutting region and which is bonded to the resin layer at the outer surface of the lid, the pull-tab mounted to an end of the island region, a rib bonded to the resin layer at the outer surface of the lid to surround an outer periphery of the island region, and a cutting guide path of an elongate channel shape between the island region and the rib.

17. A container according to claim 16, wherein the outer surface of the lid is exposed to the cutting guide path of the elongate channel shape.

18. A container according to claim 16, wherein the moulded body of the synthetic resin forming the cutting means defines a thin portion at the cutting guide path of the elongate channel shape.

19. A container according to claim 16, wherein a groove having a V-shaped cross-section is formed in the lid along the cutting guide path.

20. A container according to claim 19, wherein the groove is recessed towards the outer surface of the lid.

21. A container according to claim 19, wherein the groove is recessed towards the inner surface of the lid.

22. A container according to claim 16, wherein the lid covered with the island region rises towards the outer surface of the lid, a loop-shaped step is formed along the outer periphery of said cutting region and a base portion of the step extends along the cutting guide path.

23. A container according to claim 21 or claim 22, wherein a groove recessed towards the inner surface of the lid is formed along an outer periphery of the base portion of the step.

24. A container according to claim 16 wherein the pull-tab is mounted to the connecting portion projecting from the end of the island region.

25. A container according to claim 24, wherein a blade of a metal with a sharp distal end edge is embedded in the connecting portion, a distal end of the blade extends towards the cutting guide path, and the distal end of the blade is arranged to cut into a part of the lid corresponding to the cutting guide path upon operation of the pull-tab.

26. A container according to claim 24, wherein the pull-tab is pivotally mounted to the connecting portion through a pin, a distal end of the pull-tab is sharp and extends towards the cutting guide path, and the distal end of the pull-tab is arranged to cut into a part of the lid corresponding to the cutting guide path upon operation of the pull-tab.

27. A container according to claim 16, wherein the cutting region is of a radial shape extending from a central portion of the lid, and the pull-tab is arranged at a part of the island region at substantially the centre of the lid.

28. A container according to claim 27, wherein a distal end of a portion connecting the island region with the pull-tab is sharp and projects towards the cutting guide path, and the distal end cuts into the lid when the portion connecting the island region with the pull-tab is pushed.

29. A container according to claim 16, comprising a network rib structure covering substantially the entire surface of the lid.

30. A container according to claim 29, wherein the rib structure comprises radial ribs and concentric ribs.

31. A container substantially as herein described with reference to Figures 1 to 5, Figures 1 to 5 as modified by any one of Figures 6 to 9, Figures 10 to 16, or Figures 10 to 16 as modified by any one of Figures 17 to 20 or Figures 20 and 21, of the accompanying drawings.

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