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(54) Container lid formed as a laminate having a built-in opening feature, and container incorporating same

(57) A lid for a container having a built-in opening feature comprises a flexible laminate comprising an upper layer and a lower layer, a pair of radially spaced concentric lines of weakness being formed in the upper and lower layers, respectively, wherein the upper and lower layers in an annular region between the lines of weakness are readily peeled apart, and wherein the upper and lower layers outside the annular region are laminated together with an adhesive providing a bond with a greater peel strength than that required to separate the layers in the annular region. An integral strap is formed in the upper layer by a U-shaped cut line. A distal end of the strap opposite from the two ends of the cut line is within an adhesive-free region of the laminate. The ends of the cut line are in an adhesively laminated area of the laminate.

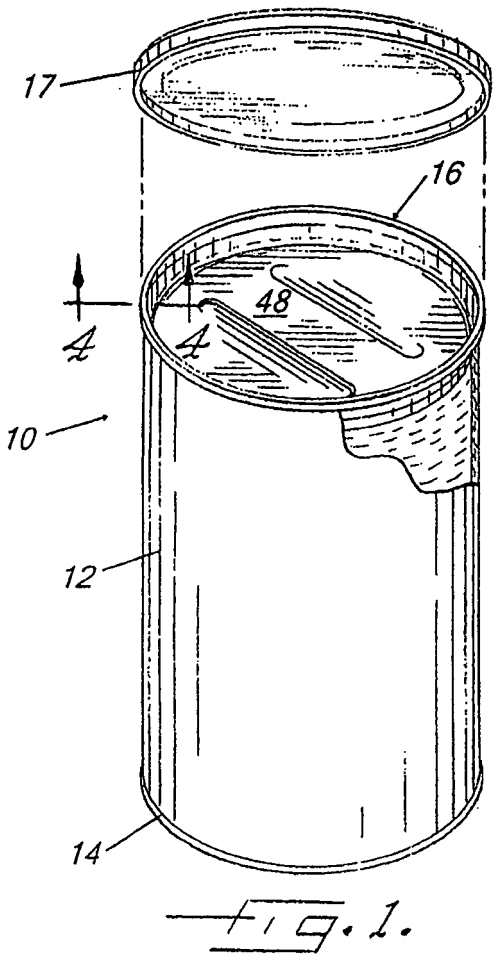

Fig. 1.

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to containers sealed with flexible lids formed from materials such as polymer film, aluminum foil, paper, and the like.

[0002] It is known to seal a container with a lid formed from a heavy-gauge aluminum foil having a heat-sealable material on its underside. The lid is shaped to include a cylindrical skirt that extends upwardly from an outer periphery of a center panel of the lid, such that the heat-sealable material is on the radially outwardly facing side of the skirt. The skirt is heat-sealed to a generally cylindrical inner surface of the container body adjacent the open end of the container, the center panel of the lid thus being recessed below a top edge of the container body. The lid includes a line of weakness such that the center panel can be torn free of the skirt, at least part of which remains attached to the container body. A pull tab is attached to the top surface of the center panel to aid the user in tearing out the center panel. The pull tab typically is heat-sealed to the center panel. For example, a container and lid generally as described above are disclosed in U.S. Patent No. 4,744,484 to Grabher.

[0003] A difficulty associated with such container lids arises because of inevitable variations in the strength of the bond between the tab and the center panel. Such variations are due to mechanical process and material variations that are difficult to control or eliminate. Additionally, it has been found that the tab bond strength tends to diminish with aging of the lid. Accordingly, it can be expected that some proportion of the lids produced according to the conventional process will have a tab bond strength that is less than the force required to detach the center panel from the skirt. When the user pulls on the tab of such a lid, the tab will tend to come off the center panel and the user will then have to resort to other means to open the container, such as puncturing the lid with a sharp implement and then tearing out the lid in pieces. This is inconvenient for the user.

BRIEF SUMMARY OF THE INVENTION

[0004] The present invention addresses the above needs and achieves other advantages, by providing a lid formed as a laminate having a built-in opening feature. In accordance with one embodiment of the invention, a lid for a container comprises an upper layer of flexible sheet material laminated by an adhesive to a lower layer of flexible sheet material to form a laminate. The laminate includes an adhesive-free region in which the adhesive is absent between the upper and lower layers. The upper layer includes a pair of spaced cut lines defining an integral pull strap in the upper layer. Each of the cut lines extends from a first end to a second end. The first ends of the cut lines define a first end of the strap at which the strap is integrally joined to the rest of the upper layer; similarly, the second ends of the cut lines define an opposite second end of the strap that is integrally joined to the rest of the upper layer. At least a middle portion of the strap's length is within the adhesive-free region. In some embodiments, the laminate is shaped to have depressions adjacent the opposite edges of the strap to facilitate grasping the strap.

[0005] In some embodiments, the first ends and the second ends of the cut lines are outside the adhesive-free region in an adhesively laminated area of the laminate. When the strap is pulled to detach the lid, the pulling force is exerted on the adhesively laminated area. Thus, the strap has the strength of the adhesive bond, and the tear-resistance of the strap is not a limiting factor. As a result, the upper layer of the laminate can be thinner than would otherwise be needed if the tear-resistance of the upper layer were the limiting factor.

[0006] Alternatively, the first ends and/or the second ends of the cut lines can be within the adhesive-free region.

[0007] The laminate in some embodiments can include at least one line of weakness radially inward of the outer edge of the laminate, the line of weakness delineating a removable portion of the laminate that is severable along the line of weakness from an outer peripheral portion of the laminate. In some embodiments, the laminate is shaped to form a generally cylindrical skirt that includes the outer peripheral portion. The skirt can be adhered to an inner surface of a container to close the container. Pulling on the pull strap causes the laminate to sever along the at least one line of weakness for detaching the removable portion so as to open the container.

[0008] In one embodiment, a pair of radially spaced concentric lines of weakness are formed in the laminate, an outer one of the lines of weakness being formed in the upper layer and an inner one of the lines of weakness being formed in the lower layer. Each line of weakness comprises a cut extending partially or entirely through the thickness of the respective layer, and allows the layer to sever along the line with little or no force. An annular region is thus defined between the lines of weakness. The upper and lower layers outside the annular region are laminated together with an adhesive providing a bond with a sufficient peel strength to keep the layers from separating when the lid is pulled to detach it from the container, and hence the lower layer severs along the inner line of weakness and the layers then separate from each other in the annular region until the outer line of weakness is reached. The upper layer then severs along the outer line of weakness so that the lid comes free of the container.

[0009] The separability of the layers in the annular region in some embodiments can be provided by disposing a readily peelable adhesive in the annular region between the layers. In other embodiments, the separability is achieved by providing no adhesive in the annular region. Thus, the layers are adhered to each other outside the annular region but are not adhered in the annular

region.

[0010] The upper layer of the lid can be a monolayer or a multilayer structure. For instance, the upper layer can be a single layer of polymer film such as polyester (e.g., PET). Alternatively, the upper layer can be a laminate of a polymer film such as polyester and a barrier layer such as aluminum foil.

[0011] In embodiments employing adhesive in the annular region, the adhesive preferably is a pressure-sensitive adhesive (PSA). Outside the annular region a different adhesive, such as a conventional laminating adhesive, is employed. The PSA "bridges the gap" between the lines of weakness. Preferably, the PSA also extends somewhat outward of the outer line of weakness and somewhat inward of the inner line of weakness so that slight errors in the locations of the lines of weakness because of manufacturing tolerances will not result in either line of weakness being in a location where the stronger laminating adhesive is present.

[0012] In operation, the strap is pulled upwardly, which exerts a pulling force having an upward component and a component generally radially inwardly away from the skirt on each end of the strap. Initially, a portion of the skirt adjacent one or both of the ends of the strap begins to detach from the container body until the at least one line of weakness is reached, and then the laminate begins to sever along the at least one line of weakness, eventually resulting in the removable portion of the lid coming free of the portion that remains affixed to the container body. In those embodiments having the radially spaced inner and outer lines of weakness formed respectively in the lower and upper layers, the lid first severs along the inner line of weakness. Further pulling of the strap away from the skirt causes the upper layer to begin separating from the lower layer in the annular region between the lines of weakness. In those embodiments in which no adhesive is present in the annular region, the upper layer will immediately separate from the lower layer up to the outer (upper) line of weakness. In other embodiments in which PSA is present in the annular region, the PSA allows the layers to readily peel apart. When the outer (upper) line of weakness is reached, the upper layer begins to sever along the outer line of weakness, and the removable portion finally is completely detached from the outer peripheral portion of the laminate, which remains attached to the container body.

[0013] The invention also provides a container having a lid as described above.

[0014] In an alternative embodiment of the invention, the laminate for forming the lid includes an inner line of weakness in the lower layer as described above, but the outer line of weakness is omitted. The upper and lower layers are adhered over their entire surfaces with an adhesive such as a low bond-strength adhesive or PSA. The lid is formed such that the skirt terminates at its top end on the inner surface of the container body. In operation, the strap is pulled upwardly causing a portion of the skirt adjacent each end of the strap to begin to detach from the container body until the inner line of weakness is reached, and then the lower layer begins to sever along the inner line of weakness. Further pulling of the strap causes the upper layer to peel away from the lower layer until the top end of the skirt is reached, at which point the removable portion of the lid comes free of the container.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

[0015] Having thus described the invention in general terms, reference will now be made to the accompanying drawings, which are not necessarily drawn to scale, and wherein:

FIG. 1 is an exploded view of a container incorporating a lid in accordance with one embodiment of the invention;

FIG. 2 is a top elevation of the lid;

FIG. 3 is a cross-sectional view through the lid along line 3-3 in FIG. 1;

FIG. 4 is a greatly magnified cross-sectional view along line 4-4 in FIG. 1;

FIG. 5 is a diagrammatic depiction of a method for making a lid in accordance with one embodiment of the invention;

FIG. 6A is a perspective view illustrating a first step of a procedure for opening the container in accordance with one embodiment of the invention;

FIG. 6B is a view similar to FIG. 6A, showing a further step of the opening procedure; and

FIG. 7 is a cross-sectional view taken along line 7-7 in FIG. 6B, showing the lid after its detachment from the container body.

DETAILED DESCRIPTION OF THE INVENTION

[0016] The present inventions now will be described more fully hereinafter with reference to the accompanying drawings in which some but not all embodiments of the inventions are shown. Indeed, these inventions may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will satisfy applicable legal requirements. Like numbers refer to like elements throughout.

[0017] A container **10** in accordance with one embodiment of the invention is illustrated in FIG. 1. The container comprises a tubular container body **12,** a bottom end closure **14** affixed to a bottom end of the container body, and a top end closure or lid **16** affixed to a top end

of the container body. The lid **16** has a built-in opening feature facilitating removal of a portion of the lid to gain access to the contents of the container. After the initial opening, a separate overcap **17** or the like can be engaged on the top end of the container body to keep any remaining contents from being exposed to the atmosphere.

[0018] The lid **16** is formed from a laminate of flexible sheet materials. As further described below, the laminate is die-cut to produce a disk-shaped laminate or lid blank that is subsequently shaped by suitable tooling into a form as best seen in FIGS. 2-4. The lid has a generally planar center panel **18** and a generally cylindrical skirt **20** that extends upwardly from an outer periphery of the center panel. A top end of the skirt can be shaped to curl outwardly and downwardly so as to define a channel **22** (FIG. 4) that receives the top edge of the side wall **24** of the container body. The center panel **18** is recessed below the top edge of the container body side wall **24,** as best seen in FIG. 4. The skirt **20** is bonded to the inner surface of the container body side wall **24** to seal the top end of the container closed.

[0019] With reference to FIG. 5, a method is now described for producing a laminate from which the lid **16** is made. The laminate is constructed from a lower layer **26** of flexible sheet material and an upper layer **28** of flexible sheet material. The lower layer **26** preferably comprises a polymer film that is heat-sealable to a heat-sealable material disposed on the inner surface of the container body side wall. Suitable examples of such heat-sealable polymer films include but are not limited to polyolefins such as polypropylene, polyethylene, and the like, or an ionomer resin such as SURLYN® or the like. Alternatively, the lower layer **26** can comprise a metal foil (e.g., aluminum foil) having a slip coat of a heat-sealable material on its lower surface. The upper layer **28** preferably comprises a polymer film. Suitable examples of polymer films for the upper layer include but are not limited to polyester such as polyethylene terephthalate (PET), metallized PET, oriented polypropylene (OPP), metallized OPP, or the like. If desired for barrier and/or appearance reasons, the upper layer can be metallized by vapor-depositing a thin layer of substantially pure metal such as aluminum onto one surface of the film. The upper layer alternatively can comprise a multilayer laminated structure such as a polymer film laminated to a barrier layer (e.g., aluminum foil). The upper and lower layers are adhesively laminated together to form a laminate **30.** The melting temperature of the upper layer desirably should be higher than that of the lower layer by a sufficient margin to ensure that heating of the laminate for heat-sealing the lower layer to a container body side wall does not cause melting of the upper layer.

[0020] In one embodiment, a lower surface of the upper layer **28** that faces the lower layer is pattern-printed with an adhesive **34.** The adhesive **34** is a laminating adhesive formulated to bond the layers together with a relatively high bond strength such that the layers bonded together by the adhesive are not readily peelable from each other. The laminating adhesive can be, for example, a two-component polyurethane adhesive system, such as Tycel 7900/7283 available from Henkel. The laminating adhesive **34** is applied to the upper layer in such a manner that a sufficiently large proportion of the surface is covered by the adhesive to permit the upper layer to be adhesively attached to the lower layer **26** at a downstream laminating station. The laminating adhesive **34** is not applied to an annular region **36** of the upper layer. In this embodiment, the annular region **36** is free of adhesive. The annular region **36** is dimensioned to occupy the area of the skirt **20** of a lid fashioned from the laminate **30.** The adhesive **34** is applied to those areas outside the annular region **36,** except that a region **38** that lies within the interior of the annular region **36** is kept free of adhesive for reasons soon to become apparent. Thus, the laminating adhesive must be applied by an apparatus capable of accurately applying the adhesive in a predetermined pattern, in registration with the pressure-sensitive adhesive but not covering it. A suitable adhesive application device can be a gravure roll.

[0021] In another embodiment, a lower surface of the upper layer **28** that faces the lower layer is pattern-printed with a first adhesive **32** as well as with a second adhesive **34.** The first adhesive **32** is applied to the annular region **36** of the upper layer. The second adhesive **34** is applied to those areas outside the annular region **36,** except that a region **38** that lies within the interior of the annular region **36** is kept free of adhesive as in the prior embodiment above. The first adhesive **32** is formulated to allow the layers bonded together by the adhesive to be readily peeled apart with relatively low peel force. The first adhesive advantageously can comprise a pressure-sensitive adhesive (PSA). Pressure-sensitive adhesives are often based on non-crosslinked rubber adhesives in a latex emulsion or solvent-borne form, or can comprise acrylic and methacrylate adhesives, styrene copolymers (SIS / SBS), and silicones. Acrylic adhesives are known for excellent environmental resistance and fast-setting time when compared with other resin systems. Acrylic pressure-sensitive adhesives often use an acrylate system. Natural rubber, synthetic rubber or elastomer sealants and adhesives can be based on a variety of systems such as silicone, polyurethane, chloroprene, butyl, polybutadiene, isoprene, or neoprene. When the laminate of the invention is to be used for food packaging, the pressure-sensitive adhesive generally must be a food-grade composition. Various pressure-sensitive adhesives are approved by the U.S. Food and Drug Administration for use in food packaging, as regulated by 21 CFR Part 175. A preferred food-grade pressure-sensitive adhesive for use in the present invention is Jonbond 743 available from Bostik Findley. Additives (e.g., particulates or the like) can be added to the pressure-sensitive adhesive to reduce the tenacity of the bond, if desired. The second adhesive can comprise a laminating adhesive as previously described.

[0022] As evident from FIG. 5, the lower and upper layers **26, 28** advantageously comprise continuous lengths of material drawn from supply rolls (not shown) and advanced by web-handling equipment through a series of work stations at which different operations are performed on the layers. Thus, for example, the upper layer **28** is advanced to a pattern-printing station at which the adhesive **34,** or both adhesives **32, 34,** is/are pattern-printed onto the lower surface of the upper layer using suitable equipment such as a gravure roll or the like. The adhesive is applied in a recurring pattern that repeats at intervals ***d*** (referred to as the "index distance") along the length of the upper layer so that multiple lids can be die-cut in proper register from the laminate **30** in a continuous manufacturing process. The upper layer **28** advantageously has a repeating eye mark **40** or other feature that is present on the layer at intervals equal to the index distance ***d*** and is detectable by an optical detector (not shown) or the like for purposes of controlling the timing of certain operations during the production of the laminate. After the adhesive application at the adhesive-application station, the layers **26, 28** are brought together in superimposed relation and laminated together at a laminating station (not shown) to form the laminate **30.**

[0023] The laminate is then advanced to a cutting station (not shown) at which a pair of lines of weakness are formed in the laminate. More specifically, an inner line of weakness **42** is formed in the lower layer **26.** The inner line of weakness **42** comprises a cut extending partially, or preferably entirely, through the thickness of the lower layer, and can be formed by mechanical technique such as die-cutting (so-called "kiss" cutting). Alternatively, the line of weakness can be formed by use of a laser. The use of lasers for scoring through polymer films and laminates is generally known, for example as described in U.S. Patent No. 5,158,499, incorporated herein by reference. The depth of the score line formed by the laser can be regulated by regulating the power output or beam intensity of the laser beam, the width or spot size of the laser beam, and the amount of time a given spot on the film surface is irradiated by the beam. These factors generally are selected based on the characteristics of the material being scored. Some materials are more readily scored by lasers than other materials, as known in the art. At any rate, the line of weakness **42** weakens the lower layer so that severing of the lower layer will occur preferentially along the line of weakness. The inner line of weakness extends in a closed loop about a center point of the annular region **36.** Preferably, the inner line of weakness **42** is circular and is concentrically positioned with respect to the annular region **36,** and is slightly greater in radius than the radially innermost extent of the annular region **36.**

[0024] An outer line of weakness **44** is formed in the upper layer **28.** The outer line of weakness **44** comprises a cut extending partially, or preferably entirely, through the thickness of the upper layer, and can be formed by mechanical technique such as die-cutting or by use of a laser. The line of weakness **44** weakens the upper layer so that severing of the upper layer will occur preferentially along the line of weakness. The outer line of weakness **44** extends in a closed loop about the center point of the annular region **36,** and advantageously is circular and is concentrically positioned with respect to the inner line of weakness **42** and larger in radius than the inner line of weakness. The outer line of weakness **44** preferably is slightly smaller in radius than the radially outermost extent of the annular region **36.**

[0025] Additionally, at the cutting station, preferably the upper layer **28** is die-cut or laser-cut along a pair of generally parallel cut lines **46** that extend through the full thickness of the upper layer, so as to form an integral pull strap **48** in the upper layer. At least the majority of the lengths of the cut lines **46** are located in the adhesive-free region **38** of the laminate so that the strap **48** can be lifted away from the lower layer **26** and grasped and pulled to open the container. Proper registration of the lines of weakness **42, 44** and cut lines **46** with respect to the adhesive-free or PSA region **36** and the adhesive-free region **38** is achieved through the detection of the eye marks **40** on the laminate with an optical detector (not shown) and suitable control of the cutting equipment based on signals from the optical detector, as would be understood by one of ordinary skill in the art.

[0026] After the cutting station, the laminate is die-cut to cut out the individual lids from the laminate. For each lid, the laminate is cut along a circular cut line that is greater in radius than the outer line of weakness **44** and is concentric with respect thereto.

[0027] With reference to FIG. 4, as noted, a lid **16** is shaped by suitable tooling so that an outer peripheral portion of the disk-shaped laminate forms a cylindrical skirt **20** having a diameter corresponding to an inner diameter of the container body side wall **24.** The lid can be shaped prior to being placed onto the container, although this generally will be practical only for laminates that can hold a deformed shape after the deforming forces are removed, such as laminates having a layer of aluminum foil or the like.

[0028] Alternatively, the lid shaping can be accomplished concurrently with placing the lid onto the container.

[0029] The skirt **20** is heat-sealed to the inner surface of the container body side wall, which typically includes an impervious liner (not shown) whose inner surface has a heat-sealable material. If desired, the shaping of the lid to form the skirt and the heat-sealing of the skirt to the side wall can be accomplished substantially simultaneously. Preferably, the full axial extent of the skirt is heat-sealed to the container body side wall, including a portion **50** of the skirt extending below the inner line of weakness **42.**

[0030] In operation, as illustrated in FIGS. 6A and 6B, the lid **16** is opened by lifting, grasping, and pulling the strap **48** generally upwardly. The portion **50** of the skirt begins to detach from the inner surface of the side wall

24, beginning at the bottom end of the portion **50** and proceeding up toward the inner line of weakness **42.** When the inner line of weakness **42** is reached, the lower layer **26** begins to sever along the inner line of weakness **42,** such that now the upper layer **28** is able to start separating from the lower layer. The upper layer **28** thus begins to separate from the lower layer **26** along the annular region **52** defined between the lines of weakness **42, 44.** The layers in the annular region **52** are either unadhered to each other or are joined by the PSA so that the upper layer readily separates from the lower layer, finally reaching the outer line of weakness **44.** At that point, the upper layer **28** severs along the outer line of weakness, and the center panel **18** of the lid and the part of the skirt up to the outer line of weakness **44** are removed (FIG. 7). The part of the skirt above the outer line of weakness **44** remains attached to the container body side wall, as does a portion of the lower layer **26** between the lines of weakness **42, 44.**

[0031] Accordingly, the opening mechanism of the lid relies on the separation of the layers **26, 28** in the adhesive-free or PSA region **36.** The force needed to separate the layers in the region **36** is low enough so that the lid will open reliably, eliminating or at least greatly reducing the incidence of opening failures caused by inadvertent tab detachments or the like. The provision of an integral strap **48** further aids in preventing such failures, and saves on material and process costs ordinarily required for making and attaching a separate tab.

[0032] As noted, with reference to FIG. 3, to allow easy grasping of the strap **48,** the laminate preferably includes an adhesive-free region **38** in which a portion of the upper layer **28** encompassing at least a middle portion of the strap is not adhered to the underlying layer of the laminate. Additionally, in some embodiments of the invention, the center panel **18** of the lid can be formed to include depressions **60** adjacent the opposite side edges of the strap **48** to facilitate the initial grasping of the strap to lift it away from the underlying layer **26** of the lid.

[0033] Polymer films tend to tear easily, and hence there is a risk that when the strap **48** is pulled to detach the lid from the container, one end of the strap may tear away from the lid, or even both ends of the strap may tear away from the lid. It would then be more difficult to remove the lid because there would not be any easily graspable part of the lid. The user may have to resort to using a tool to puncture and tear through the lid in order to remove it. This is undesirable.

[0034] To address this potential problem, a lid in accordance with a further embodiment of the present invention is generally similar to the lid **16** of FIG. 3 as previously described, but is modified such that the ends of the cut lines **46** defining the strap are located outside of the adhesive-free region **38,** in an adhesively laminated area of the laminate. When the strap is pulled to detach the lid, the pulling force is exerted on the adhesively laminated area. Thus, the strap has the strength of the adhesive bond, and the tear-resistance of the strap is no longer the limiting factor. As a result, the upper layer **28** of the laminate can be thinner than would otherwise be needed if the tear-resistance were the limiting factor. This embodiment can substantially reduce or eliminate the incidence of straps tearing free of the lids before opening is successfully accomplished.

[0035] When the upper layer **28** comprises a polymer film and the lower layer **26** comprises a metal foil with a heat seal slip coat on its lower surface, the inner line of weakness **42** advantageously can be omitted. The outer line of weakness **44** can extend through nearly the entire thickness of the laminate. When the strap is pulled to open the container, the lid severs along the line of weakness **44,** leaving a portion of the laminate above the line **44** still attached to the container, the remainder of the lid coming free of the container.

[0036] Many modifications and other embodiments of the inventions set forth herein will come to mind to one skilled in the art to which these inventions pertain having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. For example, while the lid **16** shown and described above has a circular peripheral shape, the present invention also encompasses lids of other shapes such as oval, rectangular, etc. In this regard, terms used herein such as "annular", "radial", "concentric", and the like, are intended to apply to all such shapes rather than being restricted to circular lids. Therefore, it is to be understood that the inventions are not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

Claims

1. A lid for sealing a container, the lid comprising:

a flexible laminate comprising an upper layer and a lower layer, the laminate having an outer peripheral edge and at least one line of weakness comprising a closed loop spaced radially inward of the outer peripheral edge so as to delineate a removable portion of the laminate severable from an outer peripheral portion of the laminate;

wherein the upper layer of the removable portion is cut along a pair of spaced cut lines to define a strap, each cut line extending from a first end to an opposite second end, the first ends of the cut lines defining a first end of the strap, the second ends of the cut lines defining an opposite second end of the strap, the strap being integrally joined to the upper layer at the first and second ends of the strap;

the adhesive being absent in an adhesive-free region

underlying at least a middle portion of the strap so that the middle portion of the strap can be lifted from the lower layer and pulled to cause the laminate to sever along the line of weakness.

2. The lid of claim 1, wherein the first ends and the second ends of the cut lines defining the strap are located outside the adhesive-free region in an adhesively laminated area of the laminate.

3. The lid of claim 1, wherein an outer peripheral region of the laminate is shaped to include a generally cylindrical skirt such that the lower layer of the skirt faces radially outward and the upper layer of the skirt faces radially inward.

4. The lid of claim 3, wherein the at least one line of weakness is located in the skirt.

5. The lid of claim 1, wherein the lower layer comprises a heat-seal layer forming a lowermost surface of the lid.

6. The lid of claim 5, wherein the upper layer comprises a polymer film.

7. The lid of claim 6, wherein the lower layer includes an aluminum foil layer.

8. The lid of claim 1, wherein the lid is shaped to include depressed areas adjacent opposite edges of the pull strap to facilitate grasping the pull strap.

9. A container comprising:

a container body comprising a side wall having a top edge encircling an opening of the container body, the side wall having an inner surface;
a lid formed of a flexible laminate comprising an upper layer and a lower layer, the lid comprising a central panel that is generally disk-shaped and a generally cylindrical skirt joined to an outer periphery of the central panel and extending upwardly therefrom such that the lower layer of the skirt faces radially outwardly, the skirt being bonded to the inner surface of the container body, the laminate having an outer peripheral edge and at least one line of weakness comprising a closed loop spaced radially inward of the outer peripheral edge so as to delineate a removable portion of the laminate severable from an outer peripheral portion of the laminate;

wherein the upper layer of the removable portion is cut along a pair of spaced cut lines to define a strap, each cut line extending from a first end to an opposite second end, the first ends of the cut lines defining a first end of the strap, the second ends of the cut lines defining an opposite second end of the strap, the strap being integrally joined to the upper layer at the first and second ends of the strap;
the adhesive being absent in an adhesive-free region underlying at least a middle portion of the strap so that the middle portion of the strap can be lifted from the lower layer and pulled to cause the laminate to sever along the line of weakness.

10. The container of claim 9, wherein the first ends and the second ends of the cut lines defining the strap are located outside the adhesive-free region in an adhesively laminated area of the laminate.

11. The container of claim 9, wherein the lid is shaped to include depressed areas adjacent opposite edges of the pull strap to facilitate grasping the pull strap.

12. The container of claim 9, wherein the at least one line of weakness is located in the skirt and comprises an outer line of weakness formed in the upper layer and an inner line of weakness formed in the lower layer at a position spaced below the outer line of weakness, wherein the upper and lower layers in an annular region of the skirt between the outer and inner lines of weakness are readily separated by exerting a peel force on the upper layer, and wherein the upper and lower layers outside the annular region are laminated together with an adhesive providing a bond with a greater peel strength than the peel force required to separate the layers in the annular region.

13. The container of claim 12, wherein the lower layer of the skirt is bonded to the inner surface of the container body such that a peel force required for peeling the skirt from the inner surface of the container body exceeds the peel force required for peeling the upper layer from the lower layer in the annular region of the skirt.

14. The container of claim 12, wherein the adhesive outside the annular region bonds the upper and lower layers together such that a peel force required for peeling the layers apart outside the annular region exceeds the peel force required for peeling the skirt from the inner surface of the container.

15. The container of claim 12, wherein a portion of the skirt below the inner line of weakness is bonded to the inner surface of the container.

16. The container of claim 12, wherein the lower layer of the lid comprises a heat-seal layer forming a lowermost surface of the lid.

17. The container of claim 16, wherein the lower layer further comprises an aluminum foil layer, and the heat-seal layer comprises a slip coat of heat-seal

material applied to the aluminum foil layer.

18. The container of claim 12, wherein the upper layer of the lid comprises a polymer film.

19. The container of claim 12, wherein a pressure-sensitive adhesive is disposed between the upper and lower layers in the annular region.

20. The container of claim 19, wherein the adhesive outside the annular region comprises a laminating adhesive.

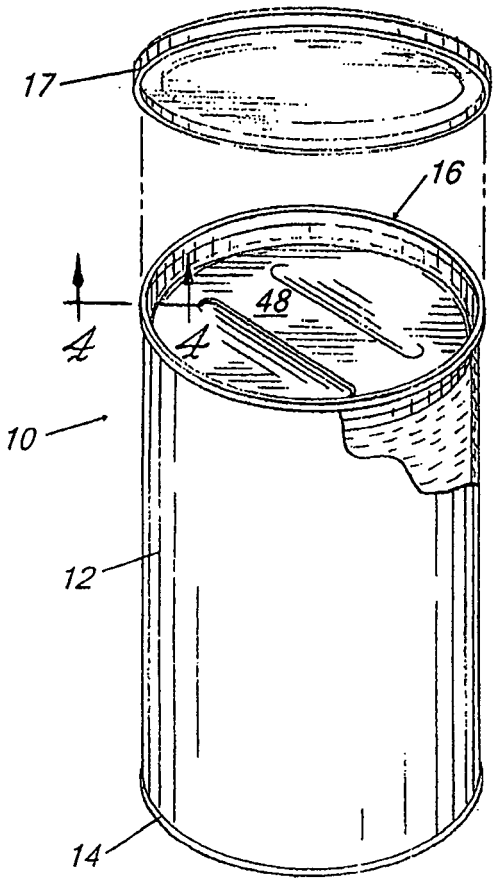

Fig. 1.

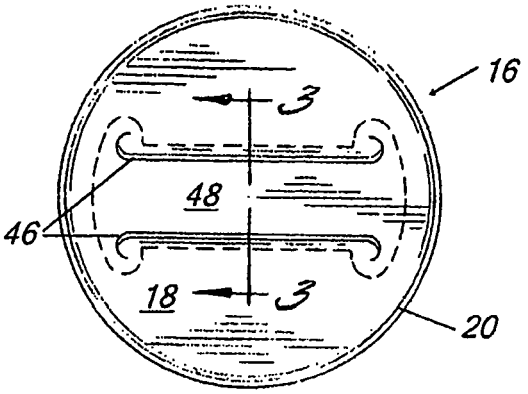

Fig. 2.

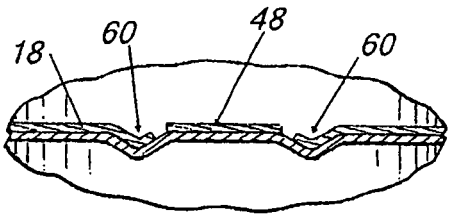

Fig. 3.

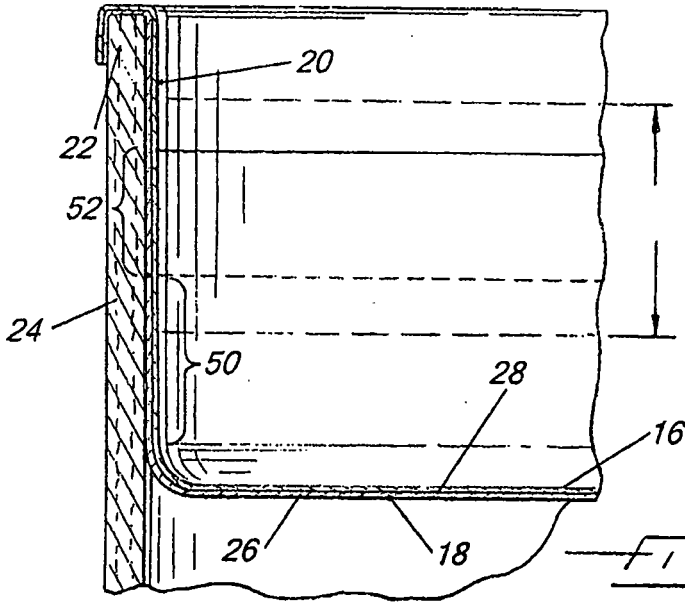

Fig. 4.

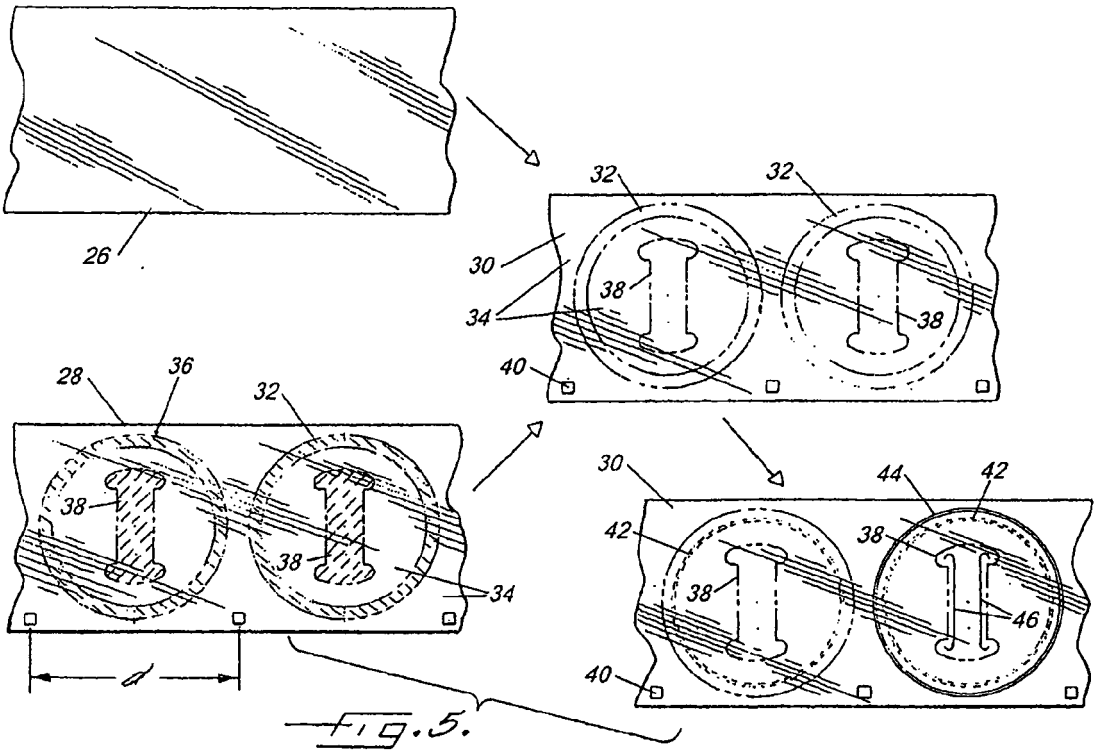

Fig.5.

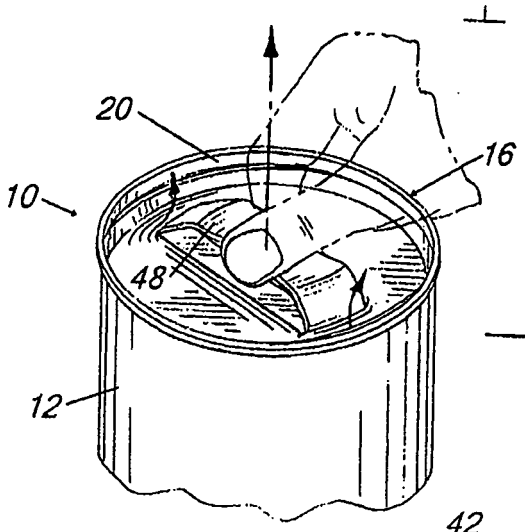

Fig. 6A.

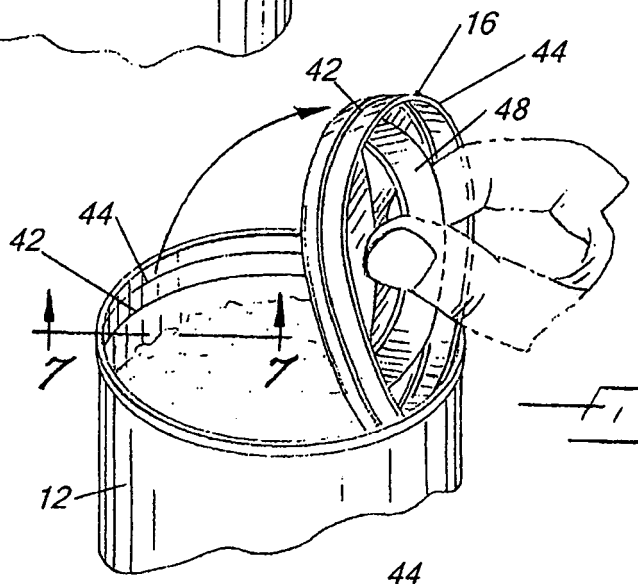

Fig. 6B.

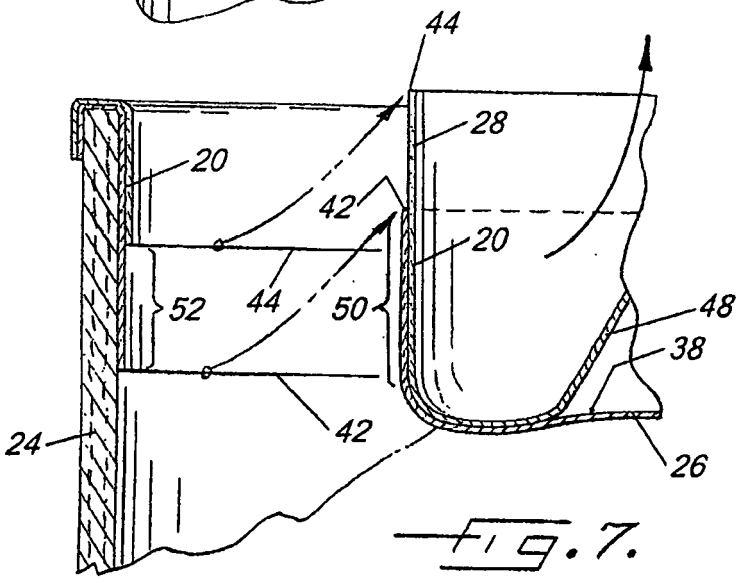

Fig. 7.

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