

CONTAINER BASE AND LID WITH PLANAR AREA FOR FLAT
APPLICATION OF ADHESIVE MEMBRANE

Field of the Invention

This invention relates to containers. In particular, this invention relates to containers intended to hold fresh food or produce, although the scope of the invention is not limited to this area. The invention is especially concerned with
5 containers in a form which can facilitate application of labels, such as tamper evident labels.

Priority is claimed of Australian Patent Application Nos 2007900654 and 2007902246, the contents of the specifications of which are incorporated herein by
10 reference.

Background of the Invention

Thermoformed containers suitable for holding fresh food or produce are in common use. Traditionally, these have consisted of a base with a lid, the lid being hinged to the base or separate therefrom. In order to secure the lid to the base,
15 these known containers require one or more labels to be adhered to both the lid and the base in a "wrap around" fashion. In high output operations, there is a problem in applying a "wrap around" (non-flat) label because automated equipment is generally designed for flat label application.

In addition, labels applied to containers of this type often carry a barcode, usually
20 along with other information. There can be problems in scanning barcodes on non-flat labels. Consequently, from this point of view, a flat label would be preferred.

It is an object of the present invention, at least in some embodiments, to provide a container configuration which permits flat application of labels.

More recently, a dual hinged lid container has been devised. Reference is made to
25 Australian patent No 2003234951. The specification of this patent discloses a

container having a lid provided in two parts, each part being hinged to the base. When both lids are closed, there is available a generally flat area across the lid edges in the centre of the container top to permit a flat label to be applied. The flat label so applied can act as a tamper evident seal.

- 5 While this prior art dual hinged lidded container can work admirably in many applications, there are instances where it is undesirable to apply a label across a join in the centre of a container lid in this manner. For example, the label may obstruct a consumer's view of contents of the container, especially where there is a relatively high label-to-lid area ratio. As another example, on larger containers, a
10 regular sized label may prove inadequate to give a tamper evident seal. If the size of the label were to be increased, this would add to label cost and may prove uneconomical. In other instances, it may be desirable to provide a container with increased security.

- It is an object of the present invention, at least in some embodiments, to alleviate
15 some or all of these concerns or, at the least, to provide a useful alternative which is appropriate for containers of different shapes and sizes.

Disclosure of the Invention

- Accordingly, the present invention provides a container having a base and a lid moveable with respect to the base between an open position and a closed position,
20 the lid having a first planar area and the base having a second planar area, wherein, in the closed position, the first and second planar areas include a substantially flat area suitable for receipt of an adhesive membrane, the substantially flat area including an edge of the first planar area and at least part of the second planar area.

- The container of the invention may be made of any suitable material but preferably
25 is a thermoformed, relatively thin plastic material, as is presently known in the art. Examples of suitable thermoformable plastic material are polyvinyl chloride (PVC), polyethylene terephthalate (PET), polypropylene, polylactide (PLA) and

biaxially oriented polystyrene (BOPS). The container may be of any desirable shape. Currently, most popular containers of this type are square or rectangular in cross section and these are encompassed by the present invention, along with other shapes.

- 5 The base preferably includes a floor and upwardly extending side walls. Preferably, all or at least one of the side walls end at a rim which, in some embodiments, may include the second planar area. If desired, the rim may include means for supporting the container during the selling process. For example, the rim may include a hang sell hole for “off-shelf” display.
- 10 The lid or the base may include ventilation holes, ribs or arches or any other modifications suited to intended contents and/or conditions of sale.

The base and upstanding side walls may define an opening which, in use, is horizontal. However, other variations are possible. For example, the base may define an opening which, in use, is vertical and intended to be closed by a lid in a
15 vertical orientation in use.

The lid is moveable with respect to the base between an open position and a closed position. The lid may be hinged or otherwise attached to the base in any suitable manner. Alternately, the lid may be separate from the base, in which case it may be desirable to have two or more first planar areas on the lid and correspondingly
20 two or more second planar areas on the base if tamper evidence is required.

The lid may be generally flat or it may include shaped portions (such as one or more domes, ribs or arches) in addition to the first planar area. Optionally, the lid may include one or more recessed portions which may be useful for storing items which a consumer may require once the container has been opened. Such items
25 may include cutlery, dressings and condiments.

The lid may be of known type, for example an “inside fitting” or an “outside fitting” lid in relation to the base when closed.

The lid may be a single lid or may be a multi-part lid. For example, the invention is applicable to the type of dual-lidded container in Australian patent No.
5 2003234951. An embodiment is shown in the drawings, below. The lid may have more than two parts.

The lid and/or the base may include any suitable mechanical locking mechanisms, such as one or more projections, each receivable in a recess with an interference-type fit. These may be located on surfaces which, in use, are horizontal or vertical,
10 for example. Another example of a locking mechanism is a channel style lock.

The first planar area is on the lid and preferably is greater than 5cm². The first planar area is preferably located adjacent an edge of the lid since, when a label or other adhesive membrane is applied, at least part of the purpose is to secure the lid to the base. In a preferred embodiment, the first planar area is located opposite a
15 hinged edge of the lid, when the lid is hinged to be base. However, it is to be understood that the invention is not limited to this. The first planar area may be located adjacent any edge of the lid or in any other desired location. For example, the first planar area may be located on a side of the lid (approximately vertical in use.)

20 The first planar area may be generally parallel to a floor in the base. However, other configurations are possible. For example, the first planar area may be disposed at an angle to some or all of the remainder of the lid. An example is illustrated in the drawings, below.

The second planar area is on the base. This may take any suitable form and many
25 variations are possible. By way of example, the second planar area may be located on a rim for the base or on an extension thereof, optionally inclined at an angle to the rim. The lid may be contoured for a snug fit with the second planar area.

The substantially flat area suitable for receipt of an adhesive membrane includes an edge of the first planar area and at least part of the second planar area. It is intended, of course, that the adhesive membrane (preferably an adhesive label) may be applied to the substantially flat area, connecting the lid and the base in the area
5 of the edge of the first planar area included in the substantially flat area. The first and second planar areas may be adjacent or they may partially overlap. In one view, they may be regarded as generally coplanar, although, strictly speaking, where there is a simple overlap there will be a small step from the first planar area to the second planar area.

- 10 The edge of the first planar area may simply abut at least part of the second planar area. In another embodiment, the edge of the first planar area may form a chamfered abutment with at least part of the second planar area. In yet another embodiment, an edge of the first planar area surrounds the second planar area.

The substantially flat area is preferably located at an opposite side of the container
15 to the hinge, or opposite each hinge when there is more than one. However, the invention is not limited to this configuration.

It will be appreciated that when the lid is in the closed position, the substantially flat area is preferably suitable for application of an adhesive membrane, such as a self adhesive label applied by an automated applicator in a generally flat fashion.

- 20 While the adhesive membrane is preferably a self adhesive label, it may also take other forms. For example, it may be a heat sealable lidding film of plastic, foil or other sheet material.

If desired, the adhesive membrane may have a perforation or other area of weakness locatable at or adjacent the edge of the first planar area within the
25 substantially flat area. The purpose of this is to simplify opening of the container by the consumer.

If there are two or more first planar areas and second planar areas, the adhesive membrane may be applied to all of these, or some of these, or to one first planar area and one second planar area only.

If desired, the container of the invention may be designed so as to be nestable or
5 stackable with identical or similar containers.

Brief Description of the Drawings

The invention will now be described in relation to certain non-limiting examples thereof in the accompanying drawings, in which:

10 Figure 1 is a plan view of a first embodiment of container according to the invention, showing a lid, hinged to the base in the open position;

Figure 2 corresponds to the embodiment in Figure 1, but showing the lid in the closed position;

Figure 3 is a side elevation of the embodiment of Figures 1 and 2, with the lid in the closed position;

15 Figure 4 is a perspective view of a second embodiment of container according to the invention, having a lid separate from the base;

Figure 5 is an exploded view of the embodiment in Figure 4;

Figure 6 is a detail of the circled portion of Figure 4;

Figure 7 is a top plan view of the embodiment of Figure 4;

20 Figure 8 is a front elevation of the embodiment of Figure 4;

Figure 9 is a side elevation of the embodiment of Figure 4;

Figure 10 is a top plan view of a further embodiment in the open position;

Figure 11 is a top plan view of the embodiment of Figure 10, showing the lid in the closed position;

Figure 12 is a top plan view of a further embodiment in the open position;

5 Figure 13 is a top plan view of the embodiment of Figure 12 in the closed position;

Figure 14 is a top plan view of a further embodiment in the open position;

Figure 15 is a top plan view of the embodiment of Figure 14 in the closed position;

Figure 16 is a top plan view of a further embodiment in the open position;

10 Figure 17 is a top plan view of the embodiment of Figure 16 in the closed position;

Figure 18 is a side elevation of a further embodiment, where the first and second planar areas are at an angle to the base and lid, the lid being in the open position in this Figure;

15 Figure 19 shows the embodiment of Figure 18, with the lid in the closed position;

Figure 20 is a side elevation of a further embodiment where the first and second planar areas are at an angle to the lid and base, showing the open position;

20 Figure 21 shows the embodiment in Figure 20 in the closed position;

Figure 22 is a top plan view of a further embodiment wherein the lid is in more than one part, showing the lid parts in the open position;

Figure 23 shows the Figure 22 embodiment with the lid parts in the closed position;

Figure 24 is a top plan view of a further embodiment, showing the open position;

5 Figure 25 shows the Figure 24 embodiment in the closed position;

Figure 26 shows yet a further embodiment, being a top plan view in the open position; and

Figure 27 shows the Figure 26 embodiment in the closed position.

Detailed Description of the Drawings

10 Referring first to Figures 1, 2 and 3, the first embodiment of the container of the invention, designated generally as 10, has a base 12 and a lid 14, hinged to base 12 at hinge 16. Rims 15 have ramp portions 17.

Base 12 has upwardly extending sidewalls 18 defining an opening 20 through which products are inserted into container 10 before lid 14 is closed. At the top
15 end of walls 18 of base 12 are rims 22 (refer Figure 1), each of which has a ramp portion 23.

Lid 14 in this embodiment has a first planar area 24 which, in this embodiment, comprises virtually the whole of lid 14. The second planar area is formed by rim portion 26 which, as can be seen in Figure 1, is wider than rims 22. Ramp portion
20 23 is inclined upwardly from rim 22 to rim 26.

In the closed position, illustrated in Figure 2, first planar area 24 has mated with second planar area - rim 26 - to form a substantially flat area in which edge 28 of lid 14 has mated with rim 26 of base 12, chamfer 30 being formed between them, using ramp portion 23. Adhesive label 32 is shown in place in Figure 2.

As can be seen in Figure 1, sidewalls 18 of base 12 are tapered towards floor 34, corners 36 being rounded as illustrated.

Margin 15 on lid 14 can include locking means to lock lid 14 to base 12 via rims 22.

5 Turning now to the second embodiment illustrated in Figures 4 to 9, the container of the invention, designated generally as 40, has a base 42 and a separate lid 44, with upwardly extending side walls 48 defining an opening 50 through which product may be inserted before lid 44 is closed. Base 42 has a rim 52 with a pair of enlarged portions 56, comprising in this embodiment second planar areas.

10 Lid 44 has a first planar area 54 defined by ribs 38 and edges 55.

A single label (not shown) can extend over the whole of first planar area 54 and both second planar areas 56. Alternately, two separate labels may be used, the first covering part of first planar area 54 and one of the adjacent second planar areas 56, while the over covers part of first planar area 54 and the adjacent second planar
15 area 56, leaving free central portion 46 of lid 44.

As shown in Figure 6, each of second planar areas 56 may include an aperture or recess 58. A sharp object may be inserted through a label (not shown) covering first planar area 54, second planar area 56 and aperture 58, to tear the label through aperture 58, to assist in removing lid 44 from base 42.

20 In this embodiment, lid 44 also includes removal tabs 62, to assist in removing lid 44 from base 42.

Container 40 may include vents (not shown) and depression 64 in floor 66 of base 42, as desired (refer Figure 8). Container 40 may also include one or more recessed portions in lid 44. These may be included in central portion 46 or in another
25 desired location. It is preferred that any such recessed portion is sealed by a label.

A third embodiment is shown in Figures 10 and 11, where container 70 has base 72 hinged to lid 74 at 16. Lid 74 is cut away at 76 and base 72 has flat portions 78. As can be seen in Figure 11, when lid 74 is closed on base 72, cut aways 76 leave flat portions 78 exposed. When a label 60, shown in dotted outline in Figure 11, is placed over first planar area 68 of lid 74 and over flat portion 78 (second planar areas) of base 72, lid 74 is effectively sealed to base 72. Flat portions 78 stand proud of rim 22, so that when exposed by cut-outs 76 of lid 74, first planar area 68 is substantially co-planar with flat portions 78.

The next embodiment in Figures 12 and 13 is similar to that in Figures 10 and 11 and the same numbers have been used to indicate the same or similar parts, with the addition of the letter "a". Whereas in the Figure 10 and 11 embodiment the cut-away portions 76 on lid 74 were centred in an edge of lid 74, in the Figure 12 and 13 embodiment cut-away portions 76a are located in two opposite corners of lid 74a.

Similarly, flat portions 78a are located at corners of base 72a.

As was the case with the previous embodiment, when lid 74a is closed on base 72a, flat portions 78a are substantially co-planar with first planar area 68a.

The next embodiment shown in Figures 14 and 15 shows container 80 having base 82 and lid 84. Base 82 has narrow rims 22 and expanded rim 86. Expanded rim 86 includes further portion 88 with hang sell hole 90, to enable container 80 to be displayed on a hanger.

Expanded rim 86 is designed so that, when lid 84 is closed on container 82, expanded rim 86 is substantially co-planar with lid 84, which in this embodiment comprises the first planar area.

As can be seen in Figure 15, label 60 can be affixed to cover the right hand side of lid 84 and expanded rim 86.

The embodiment in Figures 16 and 17 is similar to that shown in Figures 10 and 11 and 12 and 13. The same labels will be used to designate the same or similar parts, with the addition of the letter “b”.

Container 70b has base 72b and lid 74b, hinged at 16. Cut-away 76b on lid 74b is
5 designed to expose flat portion 78b on base 72b in the closed position (Figure 17). Flat portion 78b stands proud of rim 22 so that first planar area 68b is substantially co-planar with flat portion 78b.

This embodiment includes lock lugs 92 designed for a friction fit into lock recesses 94 on base 72b. As can be seen from Figure 17, when label 60 is affixed, it covers
10 not only first planar area 68b and flat portion 78b but also lock lugs 92.

The embodiments in Figures 18 to 21 illustrate how the first and second planar areas may be disposed at an angle to the lid and to a rim on the base.

Referring first to Figures 18 and 19, container 100 has lid 104 hinged to base 102 at 16. Lid 104 includes extension 106 which, in use, is inclined upwardly at an
15 obtuse angle from lid 104.

Base 102 has rim 22 which has extension 108, in use inclined at an obtuse angle from rim 22.

In the closed position, extension 106 is designed to mate with extension 108. Extension 106 has one or more cut-outs, similar to those already illustrated in
20 Figures 10 to 13 or 16 and 17, so that a flat label 60 applied to extension 106 will bind extension 106 to extension 108, exposed by the cut-out or cut-outs.

The embodiment in Figures 20 and 21 is a variation of that in Figures 18 and 19 and the same labels will be used, with the addition of the letter “a”. In this embodiment, lid 104a ends in flat portion 106a. Rim 22 on base 102a has a
25 downwardly extending extension 108a.

In the closed position, extension 106a mates with extension 108a along margin 98 to provide a substantially co-planar surface 96 on which a label 60 (not shown) may be placed to seal lid 104a to base 102a.

It will be apparent to one skilled in the art that the embodiments in Figures 18 to 21
5 may be adapted to containers with separate lids. In that case, it is preferred that there are two extensions 106 (or 106a) and two extensions 108 (or 108a).

Reference is now made to the embodiment in Figures 22 and 23. In this embodiment, container 110 has base 112 as shown in Figure 22. However, the lid is in two parts, 114a and 114b. Lid part 114a is hinged to base 112 at 16a while lid
10 part 114b is hinged to base 112 at hinge 16b.

Each of lid parts 114a and 114b has a pair of cut-aways, 116a and 116b. When lid parts 114a and 114b are in the closed position as shown in Figure 23, cut-aways 116a and 116b expose flat portions 118 on base 112. Lid parts 114a and 114b may meet or overlap in known manner, for example as described in Australian patent
15 specification No 2003234951, the contents of which are incorporated herein by reference. Nevertheless, each of lid parts 114a and 114b provide a first planar area which is substantially co-planar with flat portion 118 on base 112. In this way, when lid parts 114a and 114b are in the closed position, label 60 can be applied on the substantially flat area so provided.

20 Referring now the embodiment in Figures 24 and 25, container 130 has base 122 hinged to lid 124 at hinge 16. Lid 124 has diecut holes 126. Lid 124 is generally flat to provide the first planar area.

Base 122 has formed sections 128, the top, flat part of which comprise the second planar areas. As can be seen by Figure 25, in the closed position formed sections
25 128 mate with diecut holes 126 to form a substantially flat surface. A label (not shown) may be applied to cover both formed sections 128 and the intervening part of lid 124. Alternately, separate labels may be applied.

The embodiment in Figures 26 to 27 is similar to that in Figures 24 to 25; however, in container 140 in Figures 26 to 27, base 132 is separate from lid 134. In addition, there are four diecut holes 136 and correspondingly four formed sections 138. Like the embodiment in Figures 24 and 25, when lid 134 which is of the “outside
5 fitting” type, is placed on base 132, sections 138 protrude into diecut holes 136 to provide a substantially flat area for label application.

It will be appreciated from the various embodiments described above that the container of the invention can be produced in a wide number of forms and that, in addition, a single form may be suitable for application of different types of labels.
10 Lids may be hinged or separate.

Lids may be substantially flat or they may be shaped, with ridges, ribs, domes as non-limiting examples of shaping. Especially in the case of substantially flat lids, these may be designed to mate with the base so that the second planar area or areas can appear on, for example, opposing sides of the lid, opposing corners of the lid
15 or on one side of the lid, opposite the hinge. In the case of a lid which is a dual lid, with two hinges, the second planar areas may be on two opposing sides (viewing the closed lid in plan view), or on four corners, for example.

In the case of a separate lid, once again viewing the container in plan view in the closed position, the second planar areas may be in each of four corners, on two
20 opposing sides, on two diagonal corners, around all four sides or separately on each of four sides. These are a selection only of possible combinations. Others will be apparent to one skilled in the art.

Industrial Applicability

The container of the invention can be adapted to any currently known container
25 design, whether having a single lid or a multi-part lid. The invention allows for manual or high speed automatic closure and flat, self adhesive label application

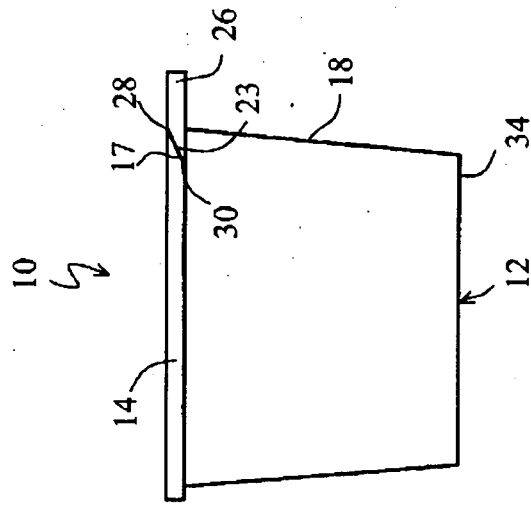
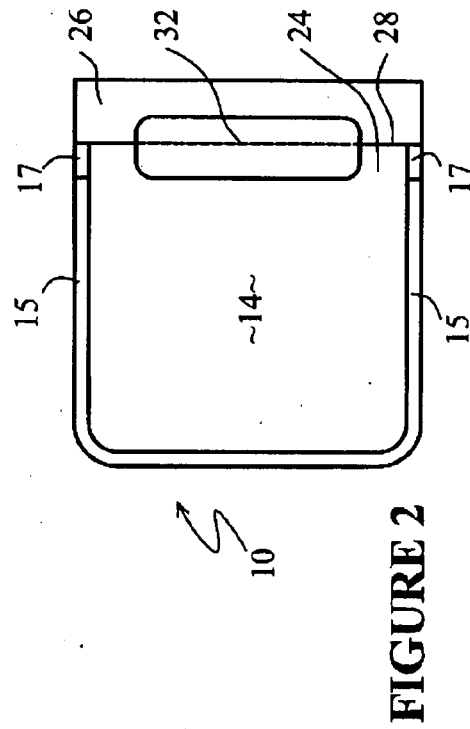
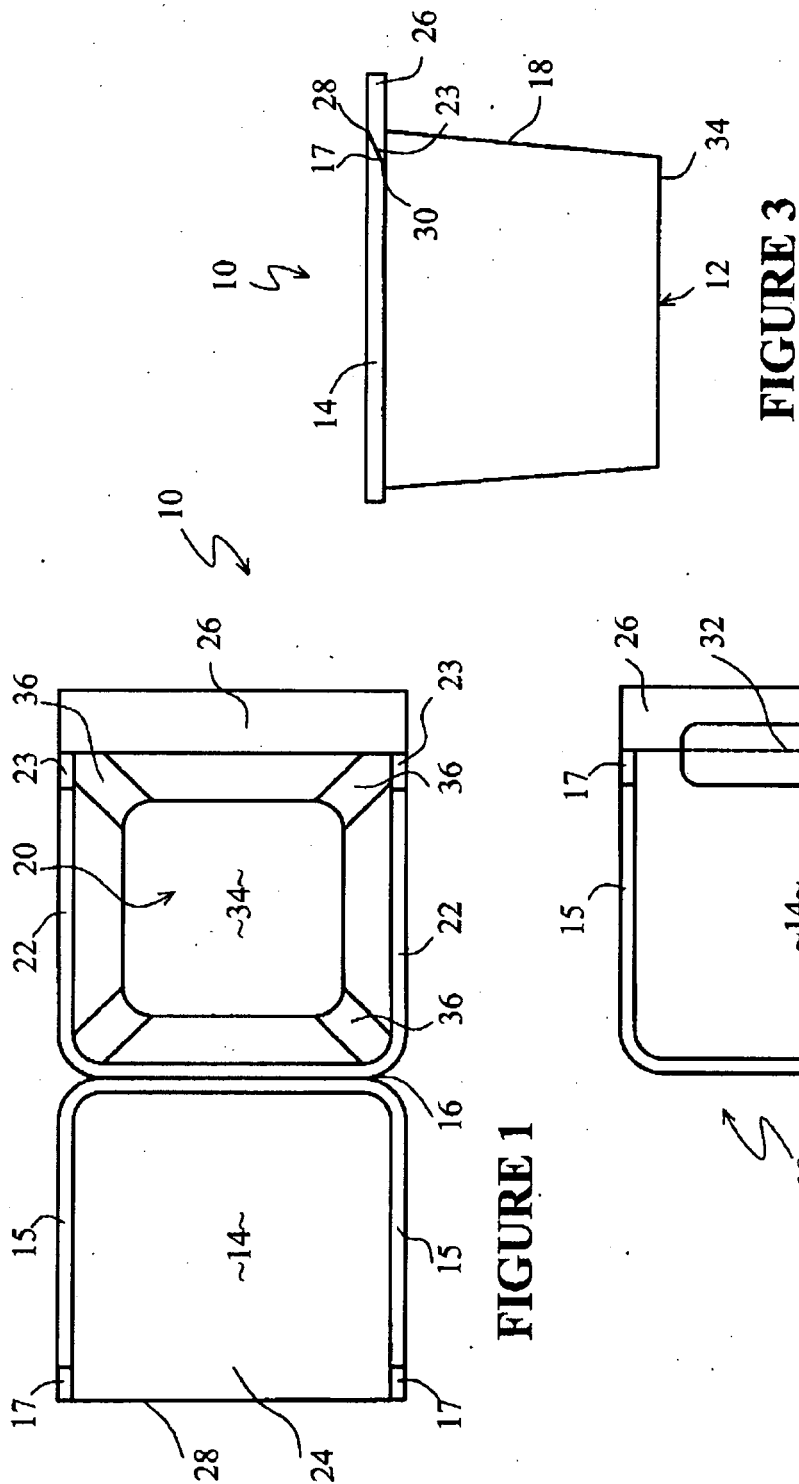
providing tamper evidence, while at the same time employing a minimum number of moving parts.

The container of the invention can offer important tamper evidence capabilities while maintaining minimal obstruction of vision through the container lid. For
5 certain applications, the container of the invention will also allow alternate graphic methods to be successfully used, such as pre-printing, branding and nutritional information onto the lid area, thus reducing label requirements to a smaller, basic tamper evident label only.

The Claims

1. A container having a base and a lid moveable with respect to the base between an open position and a closed position, the lid having a first planar area and the base having a second planar area, wherein, in the closed position, the first and
5 second planar areas include a substantially flat area suitable for receipt of an adhesive membrane, the substantially flat area including an edge of the first planar area and at least part of the second planar area.
2. The container of claim 1 which is square or rectangular in cross section.
3. The container of claim 1 or 2 wherein the base includes a floor and upwardly
10 extending side walls, at least one of which has a rim.
4. The container of claim 3 wherein the or one of the rims includes the second planar area.
5. The container of any one of claims 1 to 4 wherein the lid is hinged to the base.
6. The container of any one of claims 1 to 5 wherein the lid is in two or more
15 parts, each of which is hinged to the base.
7. The container of any one of claims 1 to 4 wherein the lid is separate from the base.
8. The container of any one of claims 1 to 7 wherein the first planar area is disposed at an angle to some or all of the remainder of the lid.
- 20 9. The container of claim 8 when dependent on claim 3, wherein the second planar area is inclined at an angle to the rim.
10. The container of claim 5 or 6 wherein the or each hinge is located on one edge of the lid or of each lid and the substantially flat area does not include that edge.

11. The container of any one of claims 1 to 10 wherein the lid and/or the base includes means for mechanical locking.
12. The container of any one of claims 1 to 11 which includes one or more ventilation holes, ribs, depressions or recesses.
- 5 13. The container of any one of claims to 1 to 12 which includes a hang sell aperture.
14. The container of any one of claims to 1 to 13 wherein the adhesive membrane is a self-adhesive label.
15. The container of any one of claims 1 to 14 which has a plurality of first planar
10 areas and a plurality of second planar areas.
16. A container substantially as herein described with reference to any one of the accompanying drawings.



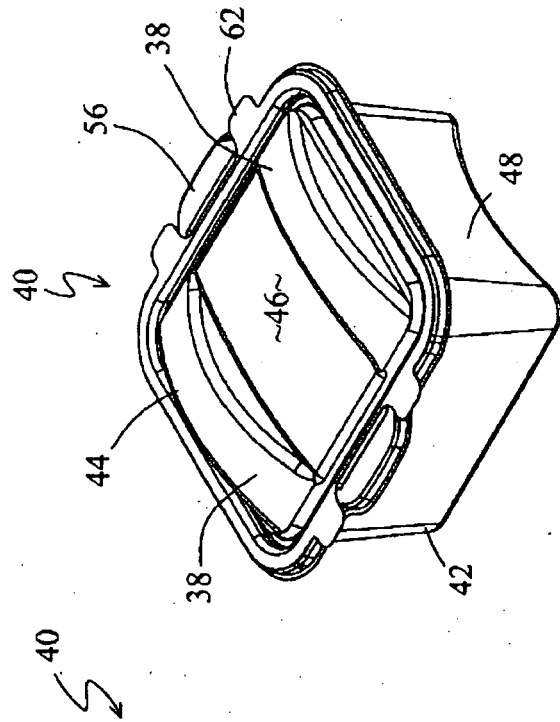


FIGURE 4

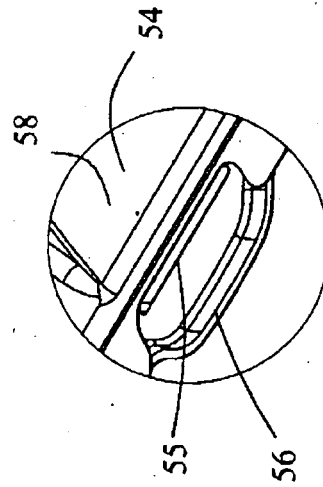


FIGURE 6

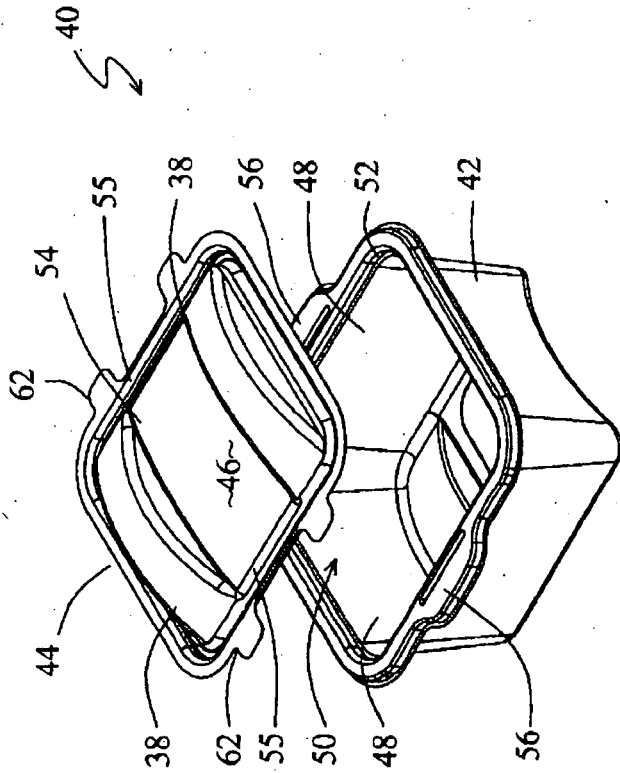


FIGURE 5

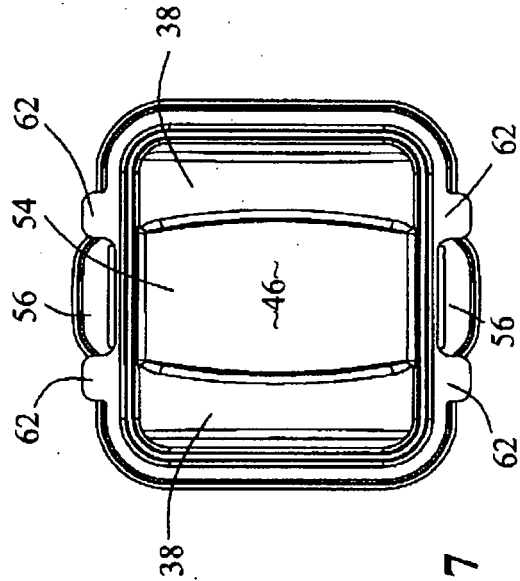


FIGURE 7

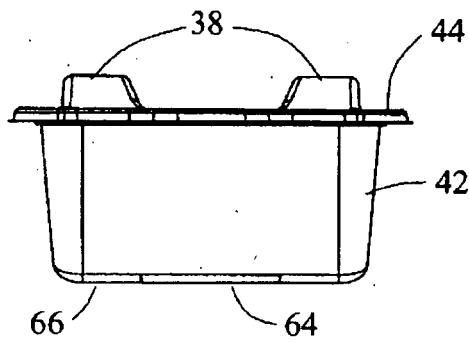


FIGURE 8

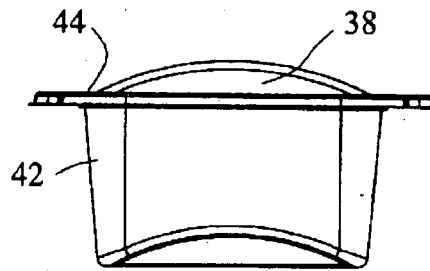


FIGURE 9

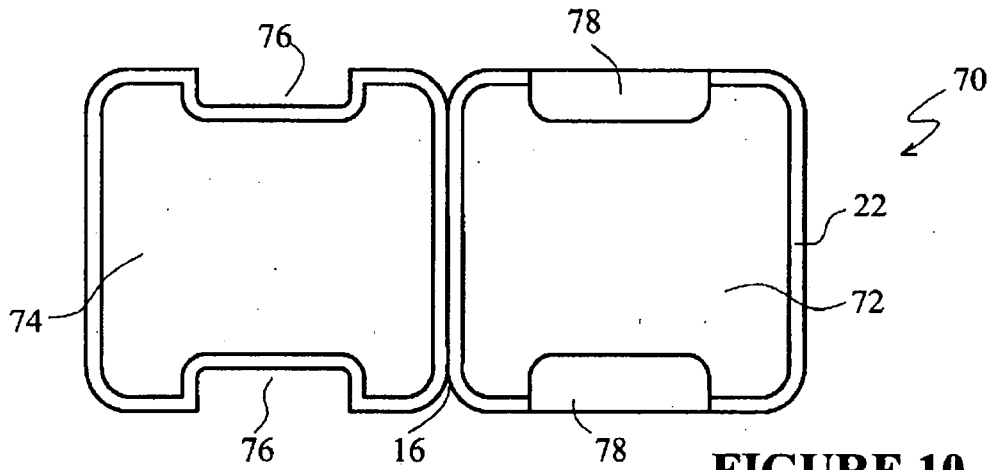


FIGURE 10

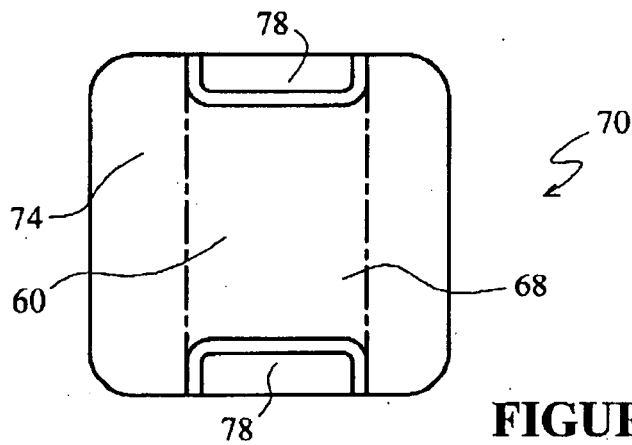


FIGURE 11

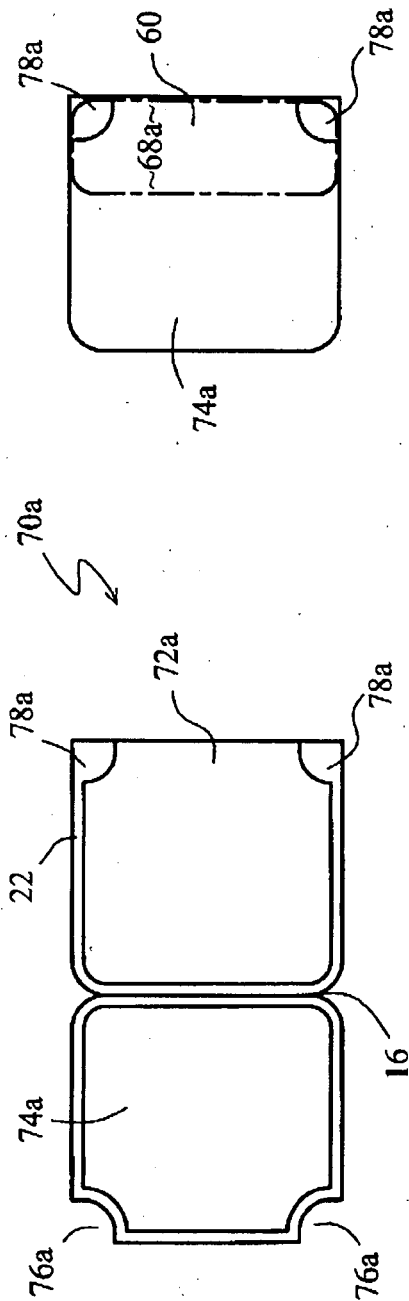


FIGURE 13

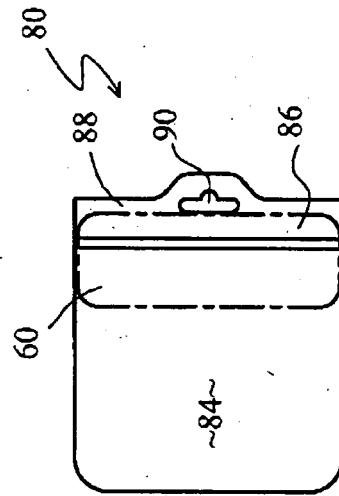


FIGURE 15

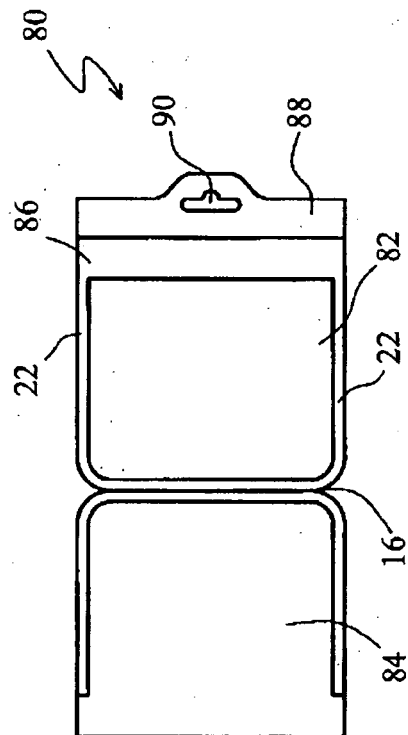
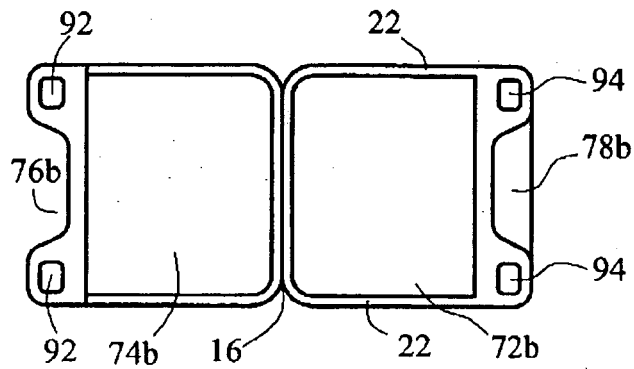
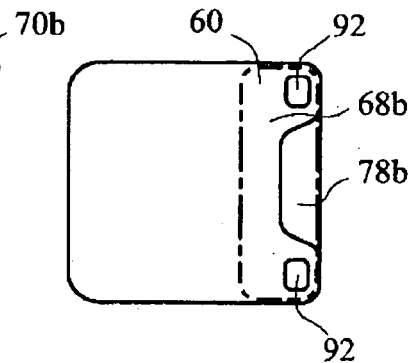
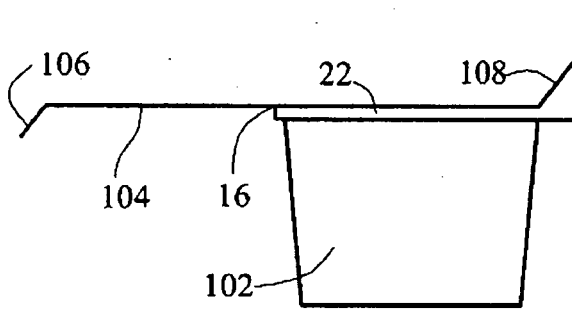
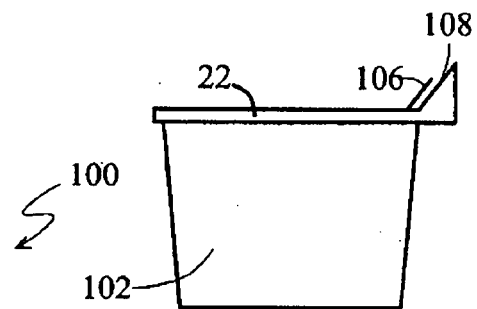
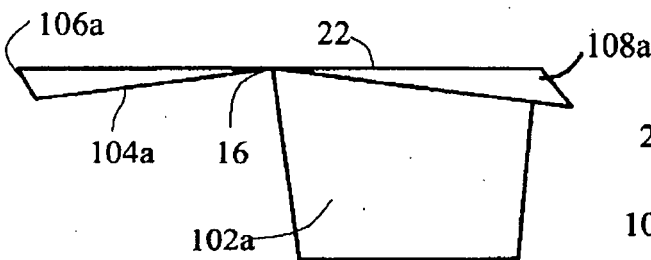
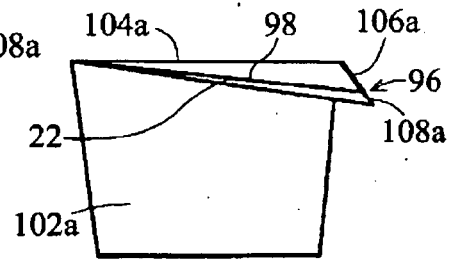


FIGURE 14

**FIGURE 16****FIGURE 17****FIGURE 18****FIGURE 19****FIGURE 20****FIGURE 21**

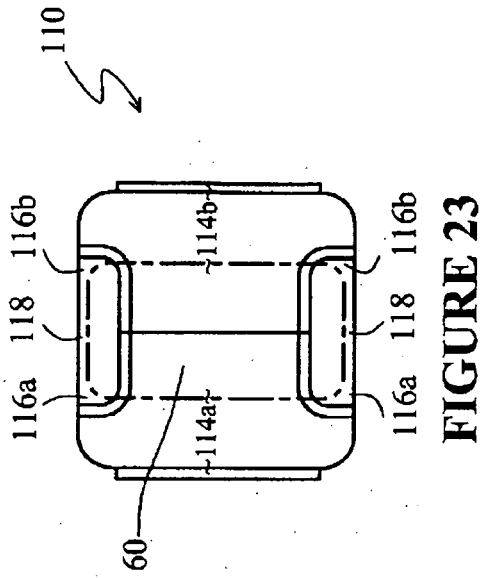


FIGURE 23

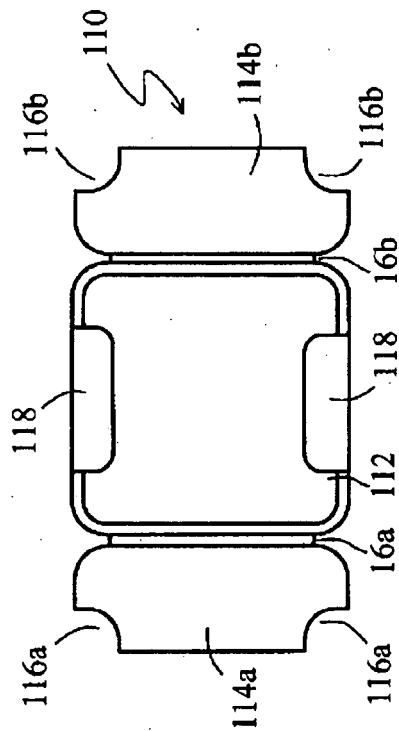


FIGURE 22

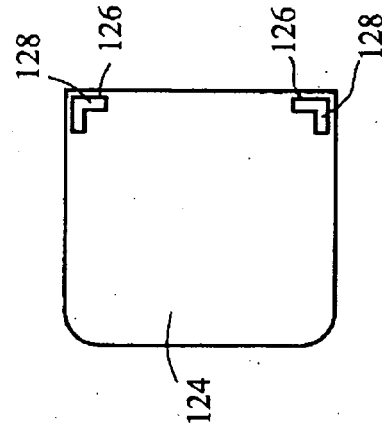


FIGURE 25

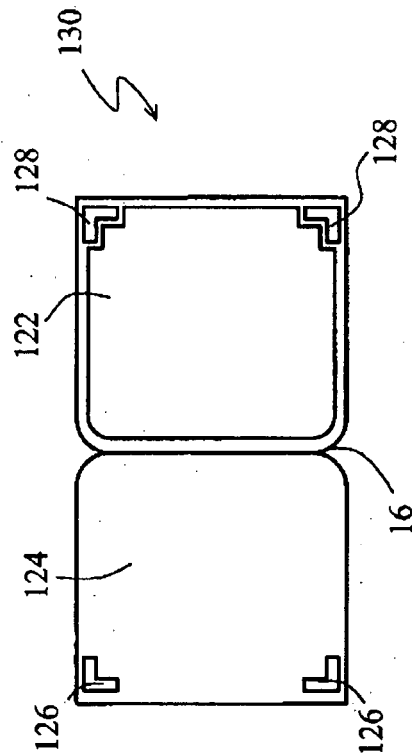


FIGURE 24

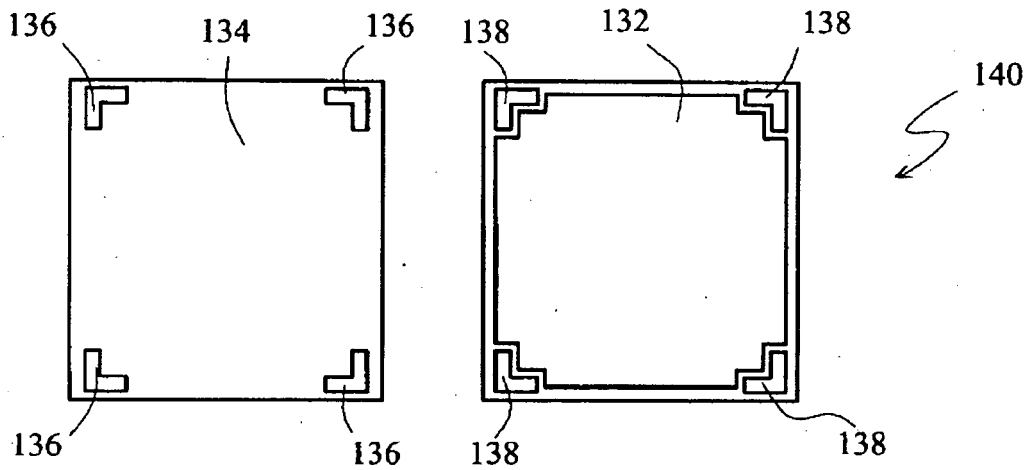


FIGURE 26

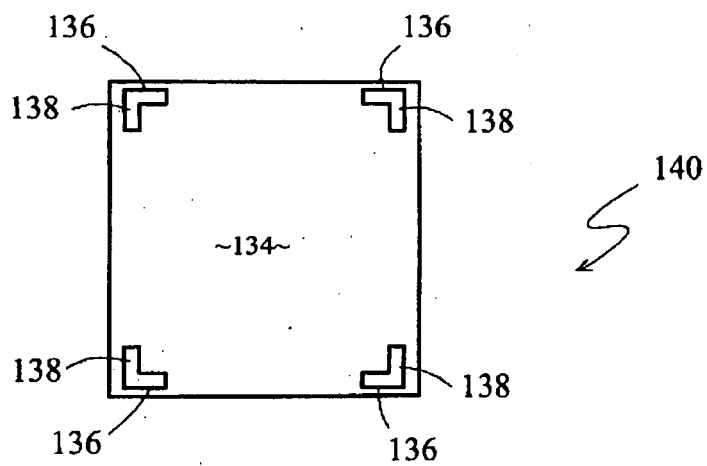


FIGURE 27