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(54) **FOOD CONTAINER**

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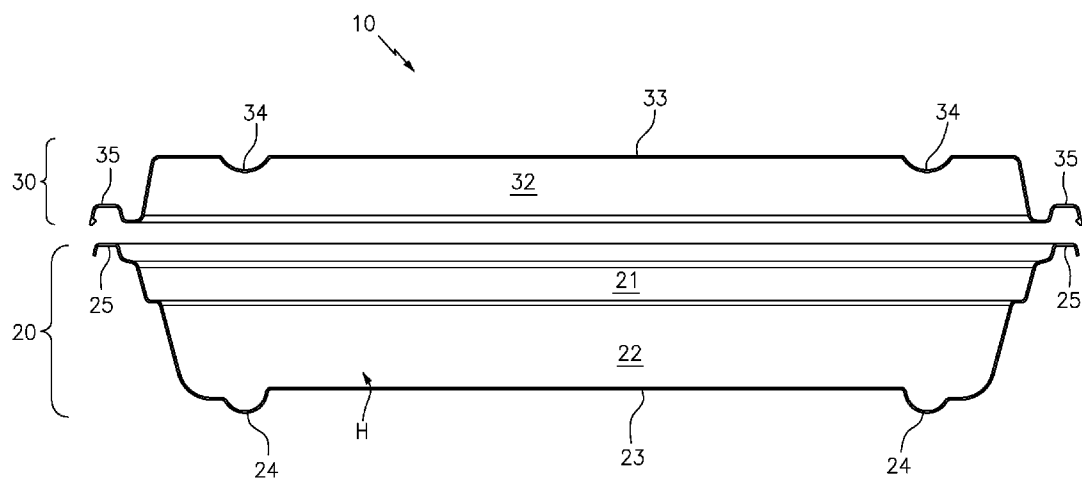
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(57) **ABSTRACT**

A food container includes a base section having a plurality of side walls and bottom section defining a hollow interior space and a base sealing mechanism that is secured along the upper portion of the side walls for engaging a removable lid having a plurality of side walls and a lid sealing mechanism located along a bottom end thereof. The sealing mechanisms of the lid and base sections including an elongated seam having a vertical and horizontal portion, and a single, elongated gap having horizontal and vertical portions.



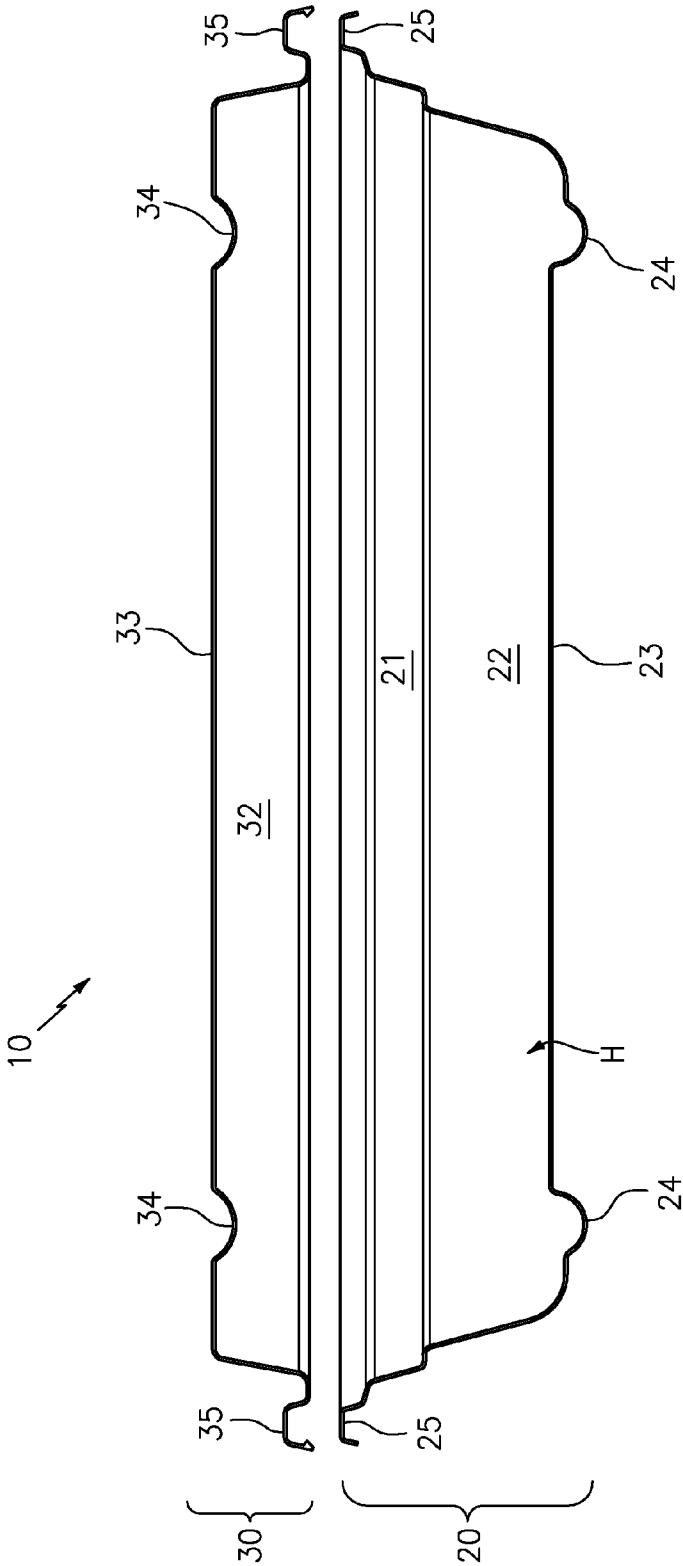


FIG. 1

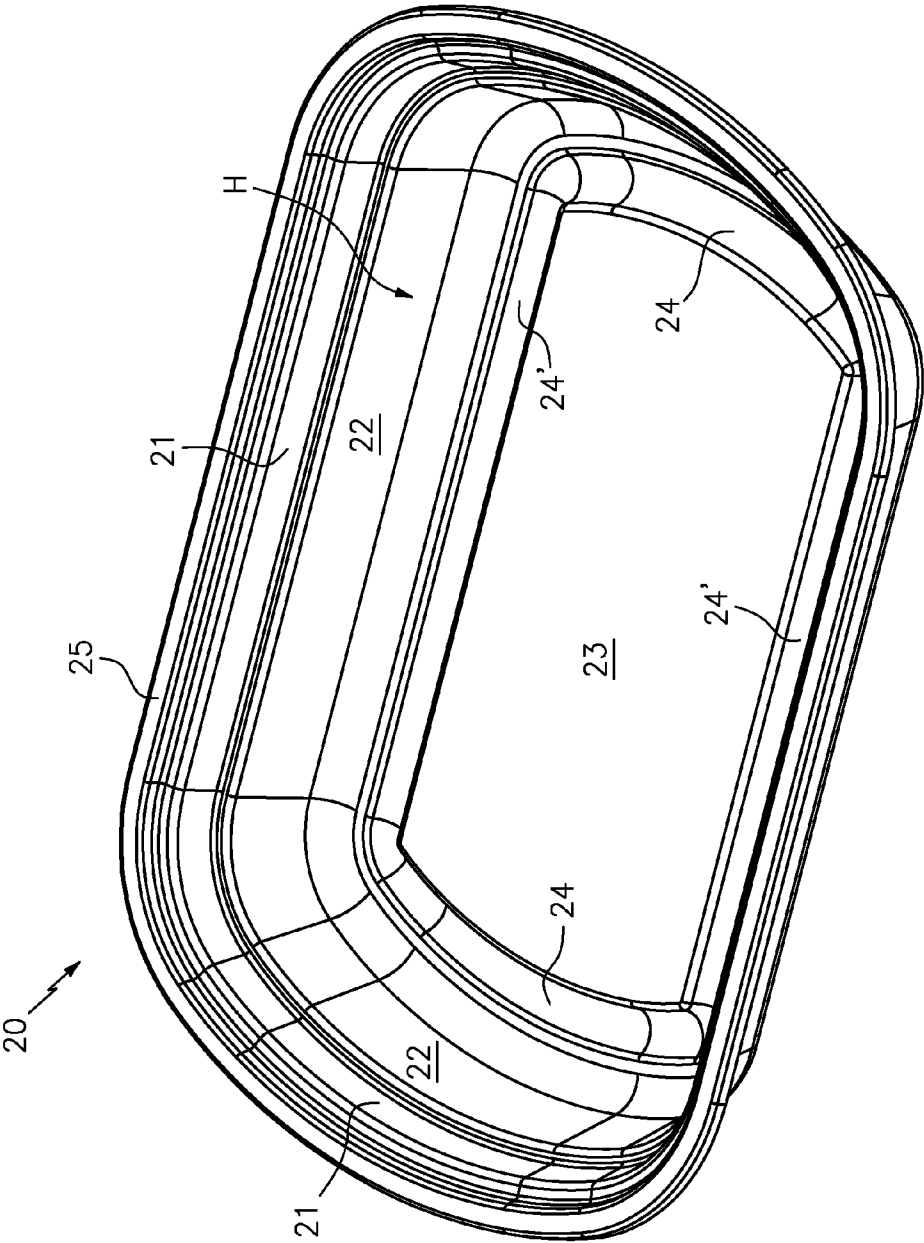


FIG. 2

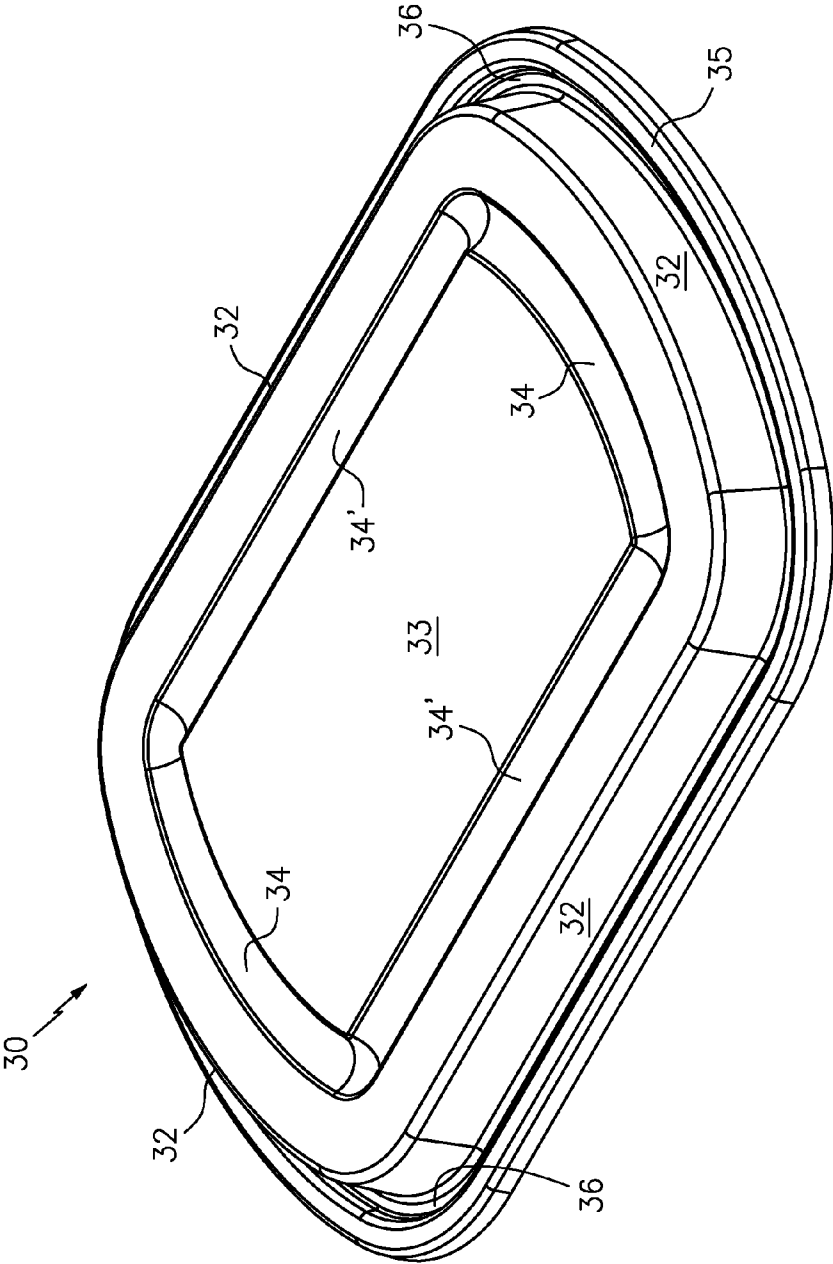


FIG. 3

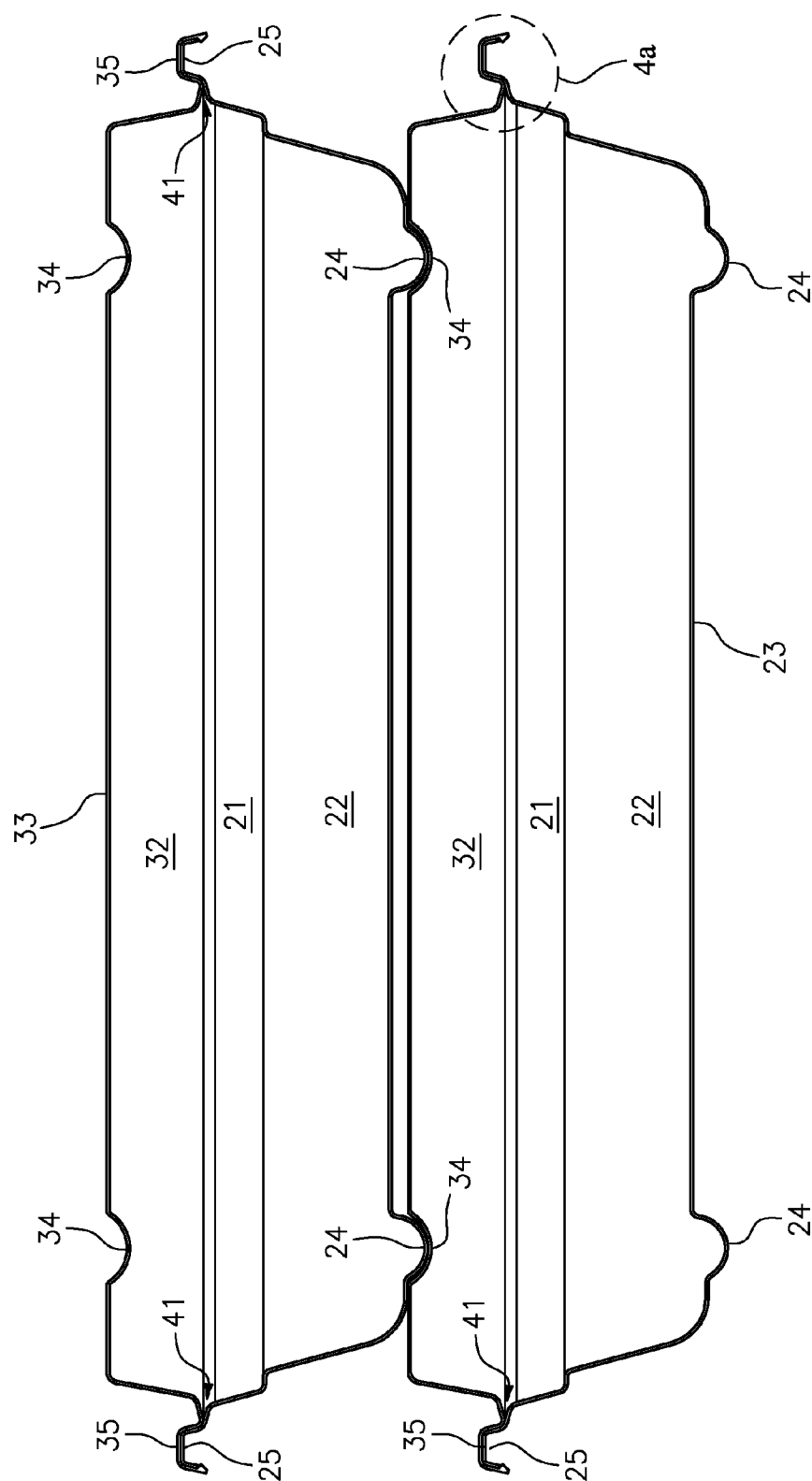


FIG. 4

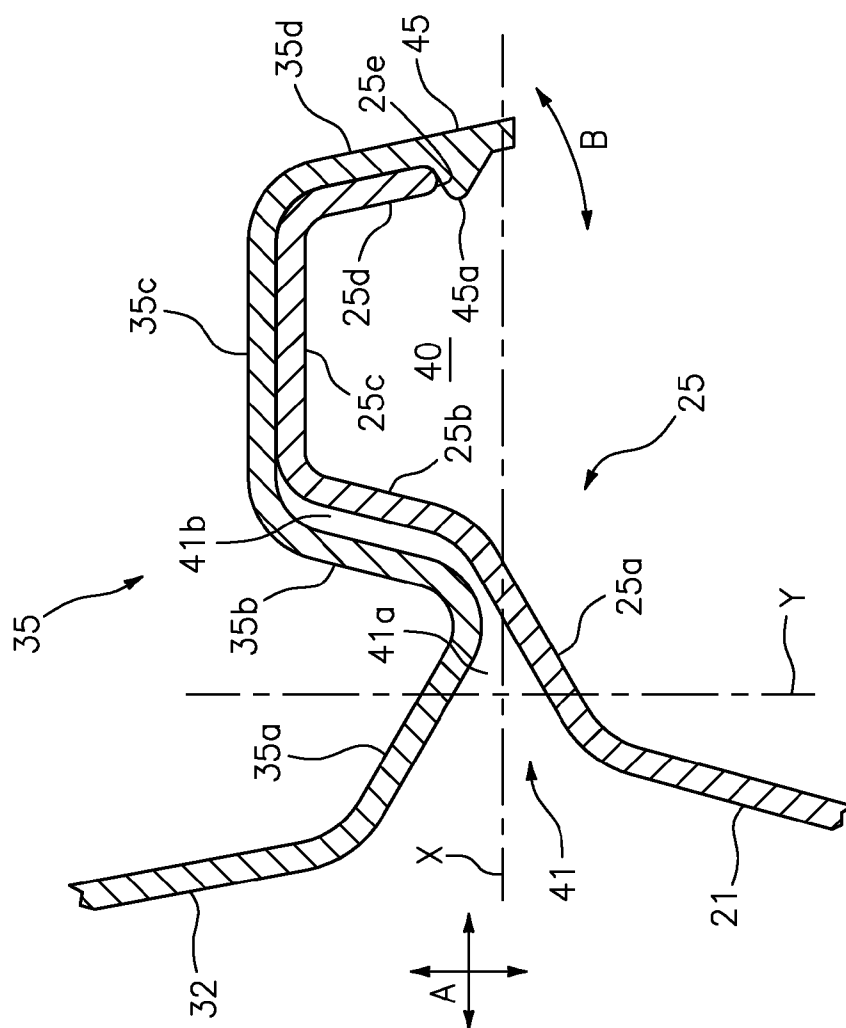


FIG. 4a

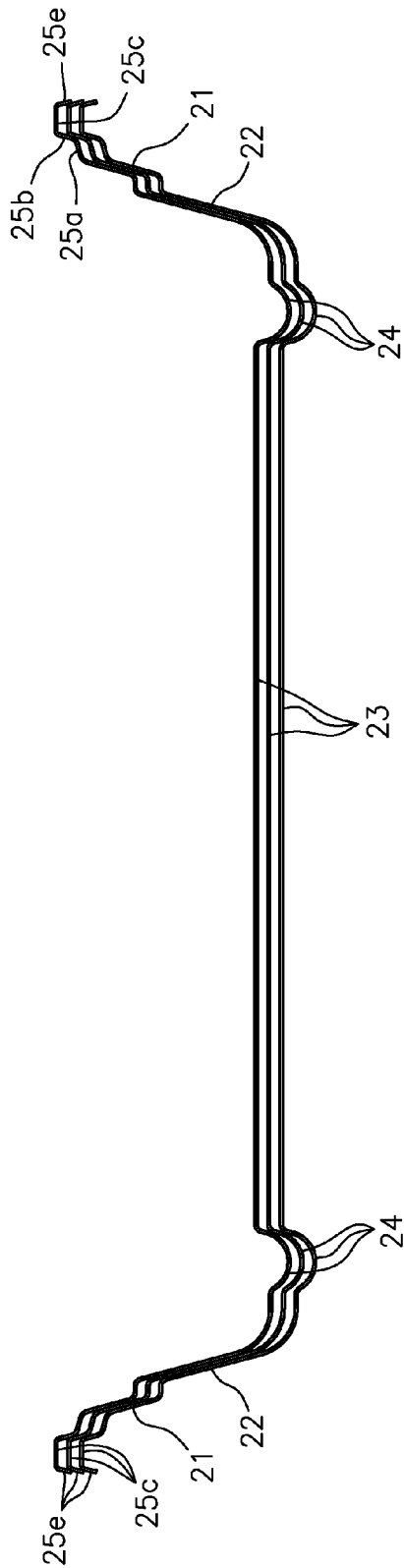


FIG. 5a

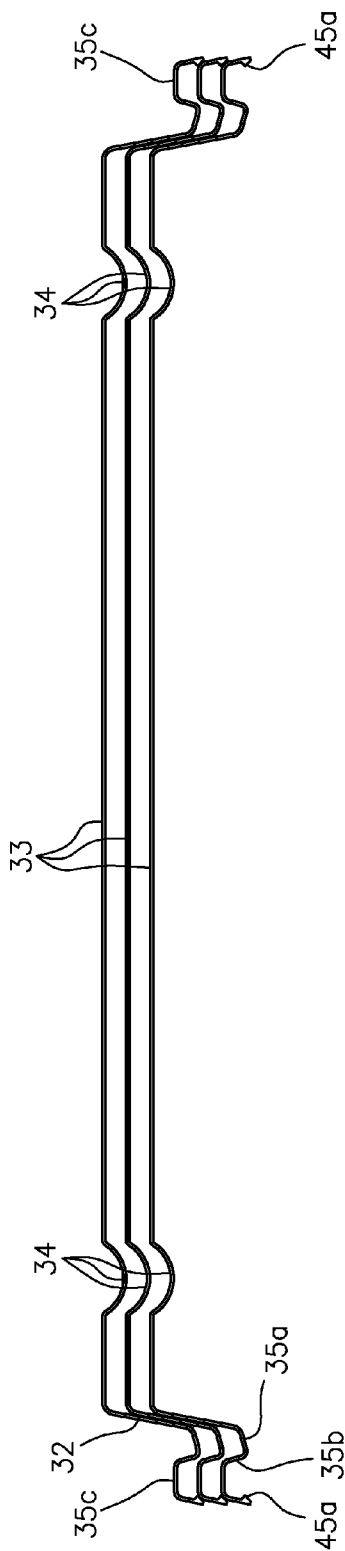


FIG. 5b

FOOD CONTAINER

TECHNICAL FIELD

[0001] The present invention relates generally to takeout style food containers, and more particularly to an improved sealing mechanism for the same.

BACKGROUND

[0002] The statements in this section merely provide background information related to the present disclosure and may not constitute prior art.

[0003] Takeout style food containers having a base section and a lid are designed to allow users to transport hot or cold food in a secure manner. To this end, these containers, which are typically constructed from plastic, are designed to maintain a seal between the base section and the lid, in order to isolate the inserted food items from the outside environment. Ideally, the base and lid are secured together in a manner sufficient to prevent accidental opening, while still allowing a user easy access to the food inside.

[0004] Recently, food containers have begun to introduce air pockets for providing better sealing qualities and user access. One such example includes U.S. Pat. No. 6,460,716, to Wong, which includes a series of four seals arranged so as to create a pair of small air pockets at separate locations along the area between the base and the lid. Likewise, U.S. Pat. No. 6,056,138, to Chen includes a similar design that incorporates three air pockets and three seals (i.e., a triple seal) between the base and lid.

[0005] Although these designs function well to preserve the interior contents of the container, they suffer from one serious deficiency. By positioning multiple air pockets in series with multiple independent seals, each of the separate air pockets act to create miniature vacuum points when attempting to remove the lid from the base. To this end, the use of the multiple air pockets and separate seals work to make the process of opening the container more difficult. As a result, many times, users are unable to easily separate the lid from the base. When this occurs, users are often forced to use tools to either pry the lid off, or to simply cut the lid from the base, which then renders the container unsuitable for future use.

[0006] Accordingly, there remains a need for a food container capable of securely storing food items in an air and watertight manner that does not suffer from the drawbacks of the devices described above.

SUMMARY OF THE INVENTION

[0007] The present invention is directed to a food container. One embodiment of the present invention can include a base section having a plurality of side walls and bottom section defining a hollow interior space for receiving and storing food items. A base sealing mechanism is secured along the upper portion of the base section for engaging a removable lid having a plurality of side walls and a lid sealing mechanism located along a bottom end thereof. The sealing mechanisms of the lid and base sections working in conjunction to form an elongated seam having a vertical and horizontal portion, as well as a single, elongated gap having a horizontal and vertical portion.

[0008] This summary is provided merely to introduce certain concepts and not to identify key or essential features of the claimed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Presently preferred embodiments are shown in the drawings. It should be appreciated, however, that the invention is not limited to the precise arrangements and instrumentalities shown.

[0010] FIG. 1 is a front view of a food container that is useful for understanding the inventive concepts disclosed herein.

[0011] FIG. 2 is a perspective view of the base section of the food container in accordance with one embodiment of the invention.

[0012] FIG. 3 is a perspective view of the lid of the food container in accordance with one embodiment of the invention.

[0013] FIG. 4 is a front view of a plurality of food containers in a stacked orientation, in accordance with one embodiment of the invention.

[0014] FIG. 4a is a cutout view of the sealing mechanisms of the lid and base sections in accordance with the one embodiment of the invention.

[0015] FIG. 5a is a front view of a plurality of stacked base sections in accordance with one embodiment of the invention.

[0016] FIG. 5b is a front view of a plurality of stacked lids in accordance with one embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0017] While the specification concludes with claims defining the features of the invention that are regarded as novel, it is believed that the invention will be better understood from a consideration of the description in conjunction with the drawings. As required, detailed embodiments of the present invention are disclosed herein; however, it is to be understood that the disclosed embodiments are merely exemplary of the invention which can be embodied in various forms. Therefore, specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to variously employ the inventive arrangements in virtually any appropriately detailed structure. Further, the terms and phrases used herein are not intended to be limiting but rather to provide an understandable description of the invention.

[0018] Identical reference numerals are used for like elements of the invention or elements of like function. For the sake of clarity, only those reference numerals are shown in the individual figures which are necessary for the description of the respective figure. For purposes of this description, the terms “upper,” “bottom,” “right,” “left,” “front,” “vertical,” “horizontal,” and derivatives thereof shall relate to the invention as oriented in FIG. 1.

[0019] FIGS. 1-3 illustrate one embodiment of a food container 10 that is useful for understanding the inventive concepts disclosed herein. As shown, the two main components of the food container 10 can include, essentially, a base section 20 and a removable lid 30. As will be described below, each of the base section and removable lid include a sealing mechanism formed around the periphery of each, in order to secure the sections together in a novel manner.

[0020] As shown in FIG. 2, the base section 20 can include a plurality of vertical upper side walls 21 and lower side walls 22 terminating along a generally planar bottom section 23 for defining a hollow interior space H. A sealing mechanism 25 is

positioned along the upper periphery of the side walls **22** in order to securely engage the removable lid **30**.

[0021] In one preferred embodiment, the base section **20** will include a generally rectangular shape and will be constructed from a strong, resilient waterproof material such as injection molded plastic, for example. Of course, any number of other conventional materials and shapes are also contemplated.

[0022] A pair of elongated protrusions **24** and/or **24'** can be disposed along the bottom section **23** of the base section. In one embodiment, each of the protrusions **24** can span the entire width of the bottom section **23**, and protrusions **24** and **24'** can act in conjunction with the indentations **34** and/or **34'** of the lid in order to allow multiple containers **10** to be stacked vertically in a secure manner.

[0023] Although described above as a separate element, those of skill in the art will recognize that the sealing mechanism **25** can be integrated into the construction of the base member **20** in accordance with any number of conventional construction methodologies.

[0024] As shown in FIG. 3, the removable lid **30** can include a plurality of side walls **32** terminating along a generally planar upper section **33**. A sealing mechanism **35** is positioned along the upper periphery of the side walls **32** in order to securely engage the removable lid **30**.

[0025] In one preferred embodiment, the lid **30** will include a generally rectangular shape having a dimension for complementing the dimension of the base section, in order to allow the lip and base sections to mate in a conventional manner. Moreover, it is preferred that the lip also be constructed from a strong, resilient waterproof material such as injection molded plastic, for example. Of course, any number of other conventional materials and shapes are also contemplated.

[0026] Disposed throughout the lip are a series of ribs **36**. Each of these ribs **36** can be constructed and placed strategically in order to provide additional rigidity to the lid and to prevent warping of the material. Ribs are extremely well known in the art, and no further description will be provided herein.

[0027] A pair of elongated indentations **34** and/or **34'** can be disposed along the upper section **33** of the lid. In one embodiment, each of the indentations **34** can span the entire width of the upper section **33**, and indentations **34'** can span the length of the upper section **33**. As described herein, each of the protrusions **24** and **24'** and the indentations **34** and **34'** of the base and lid sections can include complementary dimensions for joining together in a conventional manner in order to allow multiple containers **10** to be stacked vertically in a secure manner.

[0028] Although described above as a separate element, those of skill in the art will recognize that the sealing mechanism **35** can be integrated into the construction of the removable lid **30** in accordance with any number of conventional construction methodologies.

[0029] FIG. 4 illustrates a plurality of stacked containers **10** that are in a closed position. As described above, any number of different containers **10** can be stacked via the indentations **34** and protrusions **24**.

[0030] Cutout FIG. 4a illustrates the operation of the sealing mechanism's **25** and **35** when the container is closed, in order to provide a seal that is watertight and airtight. As shown, the base sealing mechanism **25** can be constructed from a single elongated member that extends from the upper-

most end of the upper walls **21**. To this end, and as illustrated by cutout FIG. 4a, the base sealing mechanism **25** can include a generally upward sloping diagonal rim section **25a** having an offset of approximately 30 degrees across a horizontal (X) axis, a generally vertical (Y axis) and upward extending section **25b**, a generally horizontal (X axis) section **25c** and a vertical and downward extending section **25d** having a rounded edge **25e**. Each of sections **25b**, **25c** and **25d**, forming a generally inverted "U" section **40**. As described above, each section joins the distal end of the preceding segment, wherein the overall sealing mechanism extends outward, away from the base section.

[0031] The lid sealing mechanism **35** can also be constructed from a single elongated member that extends from the lowermost end of the side walls **32**. To this end, the lid sealing mechanism **35** can include a downward sloping diagonal rim section **35a** having an offset of approximately 30 degrees across a horizontal (X) axis, a generally vertical (Y axis) and upward extending section **35b**, a generally horizontal section **35c** and a vertical and downward extending section **35d**. As described above, each section of the lid sealing mechanism joins the distal end of the preceding segment, wherein the overall sealing mechanism extends outward, away from the removable lid as shown in the illustrated figures.

[0032] Accordingly, when the device is in a closed orientation, an air and watertight seam/seal is formed by the compression of horizontal sections **25c** and **35c**, as well as downward sections **25d** and **35d**, respectively. As shown, these sections are located adjacent to one another, thus forming a single elongated seal having both a horizontal and vertical portion.

[0033] In one preferred embodiment, the length of the horizontal section **25c** will be less than the length of the horizontal section **35c**, and the length of the upward extending section **35b** will be less than the length of the upward extending section **25b**. When so arranged, the differences in length act to form an elongated air gap area **41**. As shown, the elongated single air gap **41** includes a horizontal section **41a** separating seal sections **25a** and **35a**, as well as a vertical section **41b** separating vertical sections **25b** and **35b**.

[0034] By providing a single, elongated air pocket **41**, having both a horizontal orientation and a vertical orientation, the container **10** can advantageously allow the base section **20** and the lid section **30** to flex in both a vertical and horizontal manner (see arrow A) with respect to one another without causing the lid and base to separate. Moreover, the use of a single elongated air gap allows the lid to be easily opened without creating vacuum points. When this feature is combined with the sturdy seal provided by sections **35c** and **25c**, as well as **25d** and **35d**, the device provides both a secure mechanism for storing food items while allowing a user to easily open the lid.

[0035] In order to lock the base **20** and lid **30** together, a locking lip **45** can be integrally formed onto the distal end of the upper sealing mechanism **35**. As shown, locking lip **45** can include an inward radiating protrusion **45a** upon which the rounded end **25e** of the base sealing member **25** can rest. In one preferred embodiment, the protrusion **45a** has a length equal to the thickness of the downward section **25d**. Additionally, it is also preferred that the end of the locking lip **45** be positioned in the same horizontal plane as the lowermost portion of the diagonal rim section **35a** (see X axis). To this

end, the lid **30** can be easily separated from the base section **20** by applying a pressure (see arrow B) onto the locking lip **45**.

[0036] FIGS. **5a** and **5b** illustrate the stackability of the base sections **20** and lid sections **30**, respectively. As shown, a plurality of base sections **20** can be vertically stacked in a space saving manner owing to the design of the sealing mechanism **25**. To this end, the rounded edge **25e** of each base section can rest upon the outer edge of the horizontal section **25c** of an adjacent base section, thus allowing the side walls be positioned adjacent to each other. Likewise, a plurality of lids **30** can be vertically stacked in a space saving manner owing to the design of the sealing mechanism **35**. To this end, the curved protrusion **45a** of each locking lip **45** can rest upon the outer edge of the horizontal section **35c** of an adjacent lid, as shown.

[0037] As to a further description of the manner and use of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

[0038] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the singular forms “a,” “an,” and “the” are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms “comprises” and/or “comprising,” when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

[0039] The corresponding structures, materials, acts, and equivalents of all means or step plus function elements in the claims below are intended to include any structure, material, or act for performing the function in combination with other claimed elements as specifically claimed. The description of the present invention has been presented for purposes of illustration and description, but is not intended to be exhaustive or limited to the invention in the form disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the invention. The embodiment was chosen and described in order to best explain the principles of the invention and the practical application, and to enable others of ordinary skill in the art to understand the invention for various embodiments with various modifications as are suited to the particular use contemplated.

What is claimed is:

1. A food container, comprising:

- a base section having a plurality of vertical side walls terminating along a bottom end into a generally planar bottom section, said side walls and bottom section defining a hollow interior space that is configured to receive and store food items;
- a base sealing mechanism secured along an upper end of each of the side walls of the base section, said base sealing mechanism including an elongated member having
 - a generally upward sloping diagonal rim section extending outward from the vertical side walls of the base section,
 - a generally vertical and upward extending section extending outward from a distal end of the rim section,

- a generally horizontal section extending outward from a distal end of the upward extending section,
- and a downward extending section extending outward from a distal end of the horizontal section, said downward section terminating into a rounded edge;
- a removable lid having a plurality of vertical side walls terminating along a top end into a generally planar upper section, said removable lid including an overall dimension that is complementary to an overall dimension of the base member;
- a lid sealing mechanism secured along a lower end of each of the side walls of the removable lid, said lid sealing mechanism including an elongated member having
 - a generally downward sloping diagonal rim section extending outward from the vertical side walls of the lid,
 - a generally vertical and upward extending section extending outward from a distal end of the rim section of the lid,
 - a generally horizontal section extending outward from a distal end of the upward extending section of the lid,
 - and a downward extending section extending outward from a distal end of the horizontal section of the lid,
 - and
 - a locking lip disposed along a distal end of the downward extending section of the lid, said locking lip having a protrusion configured to engage the rounded edge of the downward section of the base sealing mechanism in order to secure the base sealing mechanism and the lid sealing mechanism together,
- wherein the horizontal sections of the lid and base sealing mechanisms are configured to engage to create an air and watertight seal, and the downward extending sections of the lid and base sealing mechanisms are also configured to engage to create an air and watertight seal, said sections being positioned so as to form a single elongated seal having a horizontal and vertical portion, respectively.

2. The container of claim 1, wherein the horizontal section of the base sealing mechanism includes a length that is less than a length of the horizontal section of the lid sealing mechanism; and

the upward extending section of the lid sealing mechanism includes a length that is less than a length of the upward extending section of the base sealing mechanism.

3. The container of claim 2, further comprising an elongated gap interposed between the base sealing mechanism and the lid sealing mechanism,

said gap including a horizontal portion disposed between the diagonal sections of the base sealing mechanism and the lid sealing mechanism, and

a vertical portion disposed between the upward extending sections of the base sealing mechanism and the lid sealing mechanism,

said gap being configured to allow horizontal and vertical flexibility of movement of both the base and lid.

4. The container of claim 1, wherein the diagonal rim sections of the lid sealing mechanism and the base sealing mechanism are positioned at an approximate 30 degree offset in an upper and lower direction to a horizontal axis, respectively.

5. The food container of claim 1, further comprising a first pair of elongated protrusions disposed along an outside sur-

face of the bottom section of the base, each of said first protrusions being positioned in a parallel orientation to each other, along a first direction.

6. the food container of claim 5, further comprising a second pair of elongated protrusions disposed along an outside surface of the bottom section of the base, each of said second protrusions being positioned in a parallel orientation to each other along a second direction, wherein said first and second directions are perpendicular to one another.

7. The food container of claim 6, further comprising a first pair of elongated indentations disposed along an outside surface of the upper section of the removable lid, each of said first indentations being positioned in a parallel orientation to each other, along the first direction, said first pair of elongated indentations being configured to receive the first pair of elongated protrusions.

8. The food container of claim 7, further comprising a second pair of elongated indentations disposed along an out-

side surface of the upper section of the removable lid, each of said second indentations being positioned in a parallel orientation to each other along the second direction, and

said second pair of elongated indentations being configured to receive the second pair of elongated protrusions,

wherein a plurality of separate containers are configured to be stackable in a vertical orientation via the plurality of indentations and protrusions.

9. The food container of claim 1, wherein at least one of the base sealing mechanism and the lid sealing mechanism are integrated into the construction of the base and lid, respectively.

10. The container of claim 1, further comprising a plurality of ribs secured to lid, each of said ribs being configured to provide additional rigidity to the lid.

* * * * *