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(71) Applicant: **Kraft Foods Global Brands LLC**
Northfield, Illinois 60093 (US)

(72) Inventors:
- **Clark, Terry Ann**
  Evanston
  Illinois 60202 (US)
- **Dziaba, Michele Marie**
  Mundelein
  Illinois 60060 (US)

(74) Representative: **Smaggasgale, Gillian Helen**
W.P. Thompson & Co,
55 Drury Lane
London WC2B 5SQ (GB)

(54) Reclosable container for sliced food products

(57) A reclosable food package (10) for sliced food products to be maintained in a shingled arrangement and to provide convenient top access to the food product, the package including a rigid base member (12) forming a compartment for receiving the food product and a rigid lid (14) secured to the base. Advantageously, the base member (12) includes a bottom wall (26) and side wall portions (28a,28b) that are configured to hold the food product in a shingled arrangement. The bottom wall (26) further includes at least one channel (32a-d) that facilitates removal of the food product and cooperates to provide stability when the package is placed in an upright or horizontal position resting upon its bottom wall. The lid (14) also has an inwardly extending annular bead (46) which provides an audible sound when the lid is being placed upon the base.

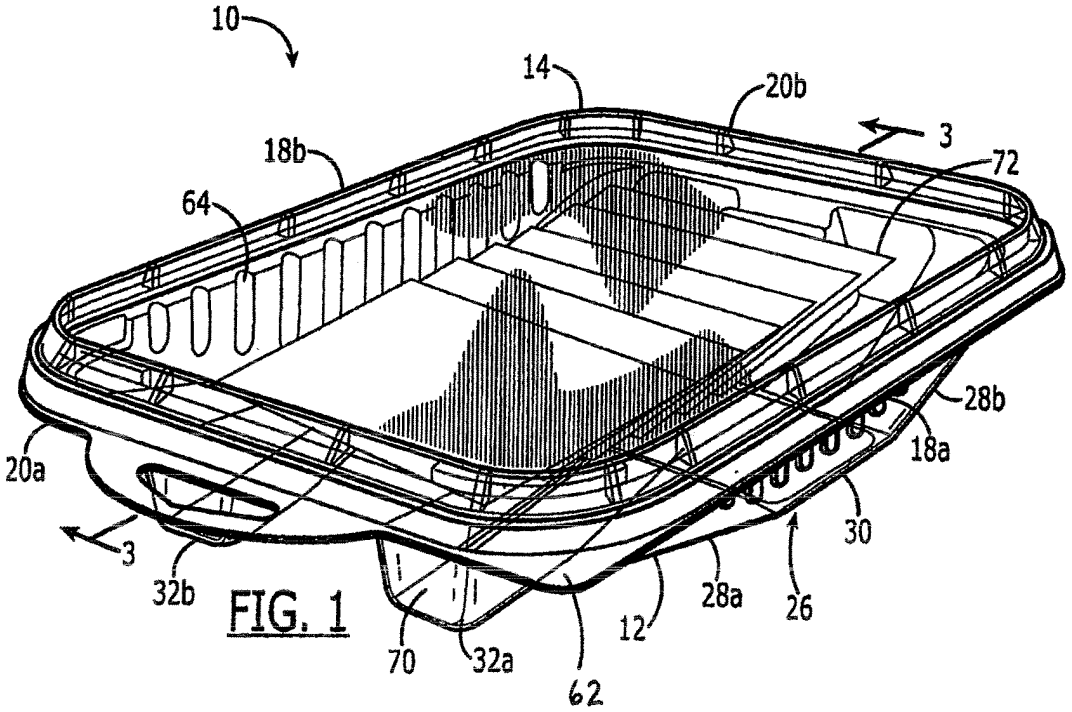


FIG. 1

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Description

Cross-Reference To Related Applications

[0001] This application claims priority from U.S. Provisional Application No. 60/992,228 filed 4 December 2007, and U.S. Patent Application No. 12/107,639 filed 22 April 2008, the contents of which are hereby incorporated by reference in their entirety.

Field

[0002] The present disclosure relates generally to food packaging, and more specifically to reclosable food packages for containing pre-sliced food products having a shingled appearance.

Background

[0003] Many food products are presliced and packaged for sale to consumers. These food products can be packaged in reclosable packaging, such that the food product can be stored therein and its freshness maintained. For example, thinly sliced food products, such as deli-sliced cheeses, are often presliced and packaged in an ordered stack wherein only the first or top slice is viewed from the package exterior, or alternatively, a shingled arrangement where the first slice and portions of the underlying slices are viewed. In another instance, deli-sliced cheese stacks are packaged in a flexible bag or pouch and accessed from a side edge only.

[0004] In one known example, a presliced stack is sealed within a flexible package or pouch that is either printed or labeled. The flexible package can contain reclosable features, such as a press-and-seal or slider zipper feature, at one side of the package to gain access to the food product therein. One problem with such flexible packages is that the food product can only be accessed from one side, which is the side containing the zipper or seal closure at an opening of the package. As a result, the consumer is not able to access the entire sliced product upon opening the package, but rather only can access a single side edge of the sliced food product, the edge that is adjacent the opening. This can require the consumer to handle multiple sliced food products (i.e., by removing them from the package) in order to access and removed single sliced food product. For example, where the food product comprises cheese slices, the cheese slices are often arranged in a shingled arrangement within a flexible package, i.e., such that one slice is overlayed over the top of another slice beneath it but slightly offset. Where the cheese slices are packaged in a shingled arrangement and the consumer would like to remove a single cheese slice, due to the limited opening in the top of the package the consumer may not be able to insert their hand or other tool used for removal far enough into the package in order to remove the top most cheese slice. As a result, this can often require the consumer to remove a portion or substantially all of the cheese slices from the package just to remove a single slice from the top of the shingled arrangement of cheese slices.

[0005] Furthermore, if upon reinsertion of the cheese slices into the flexible package the slices are not positioned properly in the package such that one or a portion of the cheese slices are placed in the path of the reclose feature, the reclose feature may slide over the cheese upon closure of the package and become contaminated with cheese, thus making it more difficult to reclose the package properly and to maintain freshness. Additionally, the press-and-seal zipper feature requires more attention by the consumer to match up the male and female sides of the reclose feature and to press the two together from one edge to another. Therefore, the flexible package for cheese slices can require increased handling of the entire shingled product, can have limited access from a single side of the cheese package, and can be difficult to reclose the zipper feature. Additionally, externally applied forces to the exterior surfaces of the flexible package due to handling and storage can compress portions of the sliced food product therein. Such forces can cause the sliced food product to become compressed in places where the force was exerted, which can alter the appearance of the sliced food product and give it the perception that the product is not fresh, or make it difficult to separate slices.

[0006] In another known example, the sliced food product can be packaged in a sealed flexible package with the sealed flexible package further placed inside a generally rigid plastic tub with a lid. The tub is typically shaped in a rectangular or square arrangement such that the sliced food product is stacked on top of one another. As a result, the sliced food product being stacked upon itself in this fashion can often prove to be difficult to separate the top slice from the slices underneath it, which may again result in removing at least a portion of the stack of sliced food product from the package in order to separate and remove the desired slice, thus increasing unnecessary handling of the food product. Furthermore, when the package is initially opened, the consumer must open two packages, the tub with its lid and the sealed flexible package, in order to access the food product. This requires the consumer to open multiple packaging elements in order to gain initial access to the food product.

[0007] It is also known that rigid food packages may contain one or more lugs to aid in snapping a lid onto a tray and provide a better fit, however, these trays are usually tailored to specific food products, such as deli-shaved meat, and may have a rectangular shaped package with a relatively flat bottom, such that the food product would again lay flat and stacked upon one another or in a randomly fluffed arrangement, and not in a shingled arrangement. The lugs are spaced at various distances and designed about the tray, rather than substantially continuously about the tray. As a result, this type of closure does not provide the consumer with tactile feedback that the package is indeed closed and sealed, i.e.,

the consumer may not feel as though the lid is completely snapped onto the perimeter of the base tray for a sturdy and reliable closure.

[0008] Yet in another known example, the package may comprise an in-line thermoformed semi-rigid tray with a flexible film lidding material as a closure. The semi-rigid tray may also be shaped in a rectangular or circular configuration with the lidding film shaped to compliment it. The lidding film material can have a pressure sensitive adhesive (PSA) resealable label or a buried layer of cohesive sealant that is exposed upon the initial opening peel by the consumer. In the first instance, the flexible film has an opening spaced inwards from the flanges that is covered by a label that peels back to reveal the opening and reseals to the film to recover and in the second the flexible film is peeled away from and reseals onto the outer flanges of the tray perimeter.

[0009] However, many of the resealable flexible lidding materials do not have adequate reclose quality such that after a few uses the film layer may not stick to the tray and can become wrinkled or creased, thus not properly preserving the freshness of the sliced food product therein. Additionally, food product can stick to the sealant and further adversely affect the reclose quality. Upon opening of the lidding material there can be a resistance upon opening which makes it difficult to pull back the lid film. Furthermore, in regards to the first instance, the opening in the lid film may not be large enough to remove the sliced food product easily and upon reclosing the film upon itself the consumer must push down upon the film which is flexible and could cause the film to further sink inside the tray and not properly reseal. With the flexible lidding option, the sliced food product is usually stacked upon itself in the semi-rigid tray and may require removal of the entire product or a portion thereof simply to remove a single slice, again increasing unnecessary handling of the product.

Summary

[0010] A reclosable food package for containing a sliced food product therein is provided that allows for shingled arrangement of the sliced food product and a reclosable feature. The food package contains a generally rigid base member and a generally rigid lid member. The base member is comprised of a bottom wall and a pair of generally upstanding sidewalls. The bottom wall has a generally flat central portion disposed between two inclined portions. A peripheral rim surrounds an opening opposite the bottom wall. Each of the inclined portions of the bottom wall may further have at least one channel therein, where the bottom surface of the channels define feet for providing support to the package and provide stability upon standing the package flat upon its bottom wall for consumer usage purposes. The inner compartment of the base member is configured to allow for the sliced food product to rest upon the bottom wall of the base member such that it can be easily removed from the package and can further be removed by placing a finger or other tool for removal into a recessed portion of the channels and lifting the desired slice upwards and out of the inner compartment of the package, if necessary. The inner compartment is also slightly angled inside such that when food slices are placed therein they can be placed in a shingled arrangement, rather than a stack of slices one on top of the other.

[0011] The rigid lid member of the package provides an audible snap closure upon being placed over the opening of the base member to indicate a proper closure. The generally rigid lid member provides for an easy closure once it is placed upon the opening of the base member. Furthermore, the lid has a central portion and a peripheral edge about the central portion, with the central portion slightly inset relative to the peripheral edge. The perimeter of the lid member may contain a continuous undercut annular bead area or ridge along the inner perimeter of the peripheral edge that mates with the base member upon closure. The tactile feedback that the snap closure provides can give consumers an impression or feeling that the lid is properly and securely closed. The annular bead around the inner lid perimeter may further be reinforced in the corner areas such that there is slightly more resistance in the corner as a result upon closing. This further can provide a more secure and tactile feel that the lid is properly closed. The inset central portion provides for a convenient way to stack one package on top of another for shipping and storage purposes, because the feet, or tapered channels, of one package can be placed on top of the lid of another package beneath it to form a relatively stable stack of packages.

[0012] Furthermore, the package can contain a flexible film that is placed over the base member opening such that the film seals the base member in a plane that is relatively even with the outer flanges and is located between the base member and the lid. As a result of the combination of the package design, including an inner compartment that is slightly angled, and the flexible film, the headspace in the inner compartment is minimized to reduce Calcium Lactate Crystal (CLC) formation on cheese slices.

[0013] The disclosed food package advantageously can contain a sliced food product in a shingled arrangement that allows easy removal of the sliced food product. The sliced food product can be accessed through the opening, such that the entire top slice of the food product is exposed and can be easily removed. This allows the consumer to easily remove only the desired number of sliced food products, rather than having to remove all or substantially all of the sliced food products from the package in order to separate the desired number of slices. Therefore, the remaining, untouched sliced food products can remain inside of the package without incurring unnecessary handling.

[0014] In addition, the package has a generally rigid-rigid construction and can include a pegging feature for vertical display purposes. The shingled arrangement of

the cheese together with the inclined portions of the bottom wall helps to minimize food movement when displayed in the vertical position. Furthermore, the generally rigid construction of the package protects the food product inside from becoming impacted or crushed by normal externally applied forces on the surfaces of the package, as can happen with a flexible pouch package.

[0015] Additionally, in another feature, the generally rigid lid is snapped against the rigid base member at peripheral flanges extending about the opening of the base member, and the flexible film is sealed to the flanges of the base member underneath the lid. Prior to being initially opened, the flexible film seal may be substantially hermetic. Advantageously, due to this hermetic seal, the food product is not required to be sealed within an additional flexible bag or pouch within the base and lid, and a simple peelable film across the opening of the base will suffice. This feature also reduces packaging costs, saves packaging material and eliminates steps in the assembly process. Additionally, according to one embodiment, once the rigid lid is removed and the flexible film is unsealed by the consumer, the rigid lid may be reclosed over the compartment to provide easy storage of the food package in the consumer's refrigerator. Thus, the consumer is not required to provide another container or bag within which to store the food product.

Brief Description of the Drawings

[0016] FIG. 1 is a perspective view of a reclosable food package in a closed state;

[0017] FIG. 2 is an exploded perspective view of the food package of FIG. 1;

[0018] FIG. 3 is a cross-sectional view of the assembled reclosable food package of FIG. 1 taken along the line 3-3;

[0019] FIG. 4 is a top plan view of the assembled lid and base of FIG. 1;

[0020] FIG. 5 is a side elevation view of the assembled reclosable food package of FIG. 1;

[0021] FIG. 6 is an end elevation view of the assembled reclosable food package of FIG. 1;

[0022] FIG. 7 is a bottom plan view of the base of the reclosable food package of FIG. 1;

[0023] FIG. 8 is a perspective view of the base of the reclosable food package of FIG. 1;

[0024] FIG. 9 is a partial bottom plan view of the lid of the food package of FIG. 1 viewed from its food-side surface; and

[0025] FIG. 10 is a flow chart of a method for filling and sealing the reclosable cheese package of FIG. 1.

[0026] Corresponding reference characters indicate corresponding components throughout the several views of the drawings.

Detailed Description of the Drawings

[0027] A reclosable food package for packaging and displaying sliced food products, the package having a generally rigid base member, a generally rigid lid member and a flexible film, is disclosed herein and illustrated in FIGS 1-10. In particular, the rigid base member further has a bottom wall, having a generally flat central portion disposed between two inclined portions, and a pair of generally upstanding sidewalls. The bottom wall further contains channels that facilitate removal of the food product and have bottom surfaces that cooperate to provide stability.

[0028] Turning to FIGS. 1 and 2, a reclosable food package or container 10 is shown having a generally rigid base member 12, a generally rigid lid member 14, and a flexible film 16. Both the base member 12 and the lid member 14 are constructed of a generally rigid sheet material or resin and can be formed by suitable thermoforming or injection molding techniques. The term "rigid" is used herein to indicate that the structures made of these sheets or resins have the ability to retain their respective shapes during normal handling, and preferably, rigid sheet construction materials can include a rigid plastic material. The food package 10 can be used to package sliced food products, such as meats or cheeses, and preferably to package sliced food products in a shingled arrangement. The base member 12 and the lid member 14 may provide a protective display package 10 for a stack of cheese slices 72 or other food product arranged in the shingled configuration. Although cheese slices 72 are discussed, it will be appreciated that other types of food products can be packaged in the food package 10.

[0029] The base member 12, as shown in FIGS. 1, 5 and 7, has a bottom wall 26 comprised of a generally rectangular flat central portion 30 disposed between two inclined portions 28a and 28b. The central portion 30 has a pair of opposing longitudinal edges 200 and 201 and a pair of opposing transverse edges 202 and 203. Likewise, the inclined portions 28a and 28b also each have a pair of transverse edges 302, 303, 402 and 403, and a pair of longitudinal edges 300, 301, 400 and 401. The inclined portions 28a and 28b further each have a transverse edge 303 and 402 adjacent an associated one of the transverse edges 202 and 203 of the central portion 30, and an opposite transverse edge 302 and 403 of the inclined portions 28a and 28b is positioned closer to the peripheral flange 38 than the bottom wall 26.

[0030] The bottom wall 26 is angled at inclined portions 28a and 28b, which aids to display the food product therein. The angled bottom wall 26 can further aid in decreasing or minimizing headspace between the shingled food product and the flexible film 16, as described herein. The inclined portions 28a and 28b can have a respective inclination angle α (alpha) in the range from about 10 to about 70 degrees, relative to a plane X that is co-planar with the central portion 30 of the bottom wall 26, as shown in FIG. 5, and preferably from about 10 to about 50 degrees, and still preferably from about 10 to about 40 degrees. It is also preferable for the angle to be on the lower end of the range, such as about 20 degrees, so that the

angle provides more of a gradual incline along the bottom wall 26 of the package 10. This gradual incline helps to minimize food movement relative to the spacing between each slice of the shingled food product when the package 10 is displayed in a vertical position, such as when it is hung vertically from a pegged member 60. The inclined portions 28a and 28b generally have widths identified by sections 100 and 102, respectively, that are between about 1 inch and about 3 inches. The widths 100 and 102 can generally be equal to the width 101 of the central portion 30 of the bottom wall 26 (see FIG. 7).

[0031] The bottom wall 26 further contains channels, and preferably at least four channels 32a-d. The channels 32a-d preferably are positioned in the inclined portions 28a and 28b of the bottom wall 26 to facilitate removal of the food product from an inner compartment 27 of the base member 12. The channels 32a-d facilitate removal of food products by providing recesses 50a-d, as shown in FIG. 4, in the inclined portions 28a and 28b of the bottom wall 26 such that a consumer can easily insert a finger or other object into the gap of the recesses 50a-d to aid in lifting of the food product contained therein off of the bottom wall 26. Preferably, the channels 32a-d and their associated recesses 50a-d are spaced from the sidewalls by a segment of the inclined portions 28a and 28b of the bottom wall 26, or by a segment equal to a side inclined portion 54. This provides easier access to the channels 32a-d where a finger or other object has more space to be inserted therein without having to fit into a tight space next to a sidewall. Furthermore, the side inclined portion 54 can also help prevent the corners of the shingled food product from sagging down into the channels 32a-d by providing a support for the corners of the shingled food product to rest upon.

[0032] For example, the inclined portions 28a and 28b are angled up towards a peripheral flange 38 of the base member 12 such that a ramp is created from the central portion 30 of the bottom wall 26 up towards the periphery of the base 12. This ramp can have three parts, a center inclined portion 52, and two side inclined portions 54. The center inclined portion 52 can be wider than the side inclined portions 54 and can terminate at a groove 53 at an upper end of the center inclined portion 52. The groove 53 is positioned between adjacent recesses 50a-b and 50c-d of the base 12, such that it connects the adjacent recesses 50a-b and 50c-d at the upper end of the inclined portion 52. One of the purposes of this groove 53 is to provide further stability to the base 12 after thermoforming so that the base 12 does not shrink inwards from the perimeter to a significant degree. This added stability further ensures that the four corners of the base 12 do not also droop downwards. If the corners droop downwards, the base 12 can become slightly deformed, thus preventing the lid from engaging and snapping over the corners of the base 12 properly for an adequate closure. The two side inclined interior portions 54 can terminate or merge with a horizontal rim 58, which then merges into the endwall 22, if one is present. Where a horizontal rim 58 is present, it can function as a "stack shoulder," which is used when stacking empty tray base members, one nested inside the other, prior to filling. The horizontal rim 58 prevents the stacked base members from becoming lodged too deeply inside one another and allows for easier separation of the base members just prior to filling. Alternatively, the side inclined portions 54 and center inclined portion 52 can terminate at the base member peripheral flange 38.

[0033] The channels 32a-d further have a bottom surface or panel 66, a vertical end surface or panel 70 that is positioned at an end portion 20a or 20b of the base member 12, and two opposing side portions or panels 68, as shown in FIGS. 6 and 8. The two opposing side portions 68 can have varying heights adjacent the inclined portions 28a and 28b and can be generally parallel to each other and can further be generally triangular shaped. Typically, the bottom surface 66 of the channels 32a-d can be in the same plane as the central portion 30 of the bottom wall 26, and act as support portions or feet, thus providing a flat and even surface to stand the package 10 upon to provide stability when displaying in an upright or horizontal position. Alternatively, the bottom surface 66 of the channels 32a-d may not be in the same plane as the central portion 30, such that either the package 10 stands upon the central portion 30 of the bottom wall 26 alone, or the package 10 stands upon the bottom surface 66 of the channels 32a-d alone.

[0034] When the base member 12 is viewed from a bottom surface of the package 10, as in FIG. 7, the channels 32a-d appear as protrusions, or feet, that stick outwards from the bottom wall 26 to provide support for standing the package 10 in a horizontal position or for stacking packages one on top of another. The feet or channels 32a-d act to further stabilize the package 10 for the consumer, particularly when the lid 14 is being placed onto the base 12. Where there are four channels 32a-d, the channels 32a-d and the central portion 30 are configured to form an H-shape along the bottom surface of the bottom wall 26. The width of the channels 32a-d may vary from about 1/4 inch to about 1 inch and further having a depth of about 1/4 inch to 1 inch, with the length of the channels 32a-d generally equal to the width of the inclined portion (indicated by 100 and 102) or about 1 inch to about 3 inches. In other words, the channels 32a-d may have a maximum depth adjacent its end panels 70 of between 25 to 75% of the distance from the peripheral flange 38 to the central portion 30 of the bottom wall 26.

[0035] It is preferred that the feet or channels 32a-d of the package 10 provide stability along with the central portion 30 of the bottom wall 26. This combination of support provides increased stability to the package 10 when placed in a horizontal orientation, such that the package 10 is reasonably supported on its bottom wall 26, as in FIG. 1. This arrangement of the feet 32a-d and the central portion 30 having a coplanar relationship with each other helps to keep the package 10 balanced and to avoid tip-

ping over, especially when the number of food slices are being depleted as they are being used up, which can cause the food slices themselves to be positioned off-center and become unbalanced and further cause instability to a package 10 if it were not already stable. Additionally, having a stable and balanced package 10 helps during closure of the package 10 while the lid 14 is being placed over the base member 12 and snapped thereto, it is easier to place the lid 14 on the base 12 and easier to close when the base member 12 is balanced and does not tip or rock during closure.

[0036] Other variations of the channels 32a-d may be provided such as where the channels 32a-d are located in a portion of the bottom wall 26 that is not included in the inclined portions 28a and 28b. For example, the bottom wall 26 may comprise a central portion 30 disposed between two inclined portions 28a and 28b and adjacent to the inclined portions 28a and 28b can be substantially flat horizontal extensions of the bottom wall 26 positioned next to the endwalls 22a and 22b. It is at these substantially flat extensions of the bottom wall 26 that the channels 32a-d may be positioned.

[0037] Another alternative embodiment may consist of the channels 32a-d extending across the bottom wall 26, from one side edge or portion 18a to the other side edge 18b, such that the channel forms one long trough-like protrusion. This would further provide a recess in the inner compartment 27 along the inclined portions 28a and 28b that extends across the inclined portion 28a and 28b from approximately one side edge portion 18a to approximately the opposite side edge portion 18b. Alternatively, the trough-like channels can be positioned at a flat extension of the bottom wall 26 rather than in the inclined portions 28a and 28b. Preferably, however, the channels 32a-d will be provided as illustrated in FIGS. 1-8, where four channels are provided, two in each inclined portion 28a and 28b, and each of the four channels 32a-d further has its respective bottom surface 66 in a co-planar relationship with one another and with the central portion 30 of the bottom wall 26 to provide for a stable bottom wall 26 surface. This is preferred due to the fact that this orientation of the channels 32a-d provides additional support to the base 12 of the package 10. As can be appreciated, there are any number of variations that are possible to position the channels 32a-d thereat.

[0038] An inner compartment 27 of the base member 12 can be defined by the central portion 30 of the bottom wall 26, the two inclined portions 28a and 28b of the bottom wall 26, a pair of opposing, generally upstanding sidewalls 24a and 24b, and a pair of opposing, generally upstanding endwalls 22a and 22b to receive the sliced food product therein. Alternatively, the base member 12 may not contain endwalls 22a and 22b. Where both a pair of sidewalls 24a and 24b and a pair of endwalls 22a and 22b are included, a peripheral flange 38 can be located at an upper section of each, such that it is positioned at a periphery of the package 10 and defines an opening 25 of the base 12, where the opening 25 is opposite the bottom wall 26.

[0039] Furthermore, the pair of opposing sidewalls 24a and 24b each can extend between the peripheral flange 38 and the longitudinal edges 300, 801, 400, 401, 200, and 201 of the inclined portions 28a and 28b and the central portion 30. Basically, the pair of opposing sidewalls 24a and 24b extends between the bottom wall 26 and the peripheral flange 38, where each sidewall 24a and 24b extends along a side of the central portion 30 and a side of each of the inclined portions 28a and 28b of the bottom wall 26. The peripheral flange 38 can comprise a lip or horizontal rim about the opening 25 of the package 10. On one side of the peripheral flange 38 and extending downwards is the endwall 22 or sidewall 24, and on the other side extending downwards is a vertical flange portion 39 with a small generally horizontal edge 37 at the base of the vertical flange portion 39. The peripheral flange 38 can have any shape that is commonly used for food packaging, and preferably will be rectangular in shape and having rounded corners. The body of the base 12 may contain a different shape or configuration than the periphery of the base 12, or it may be the same. Preferably, the body of the base 12 will have a generally V-shape. A rectangular shaped base with a generally V-shape bottom is preferable for arranging sliced food products in a shingled arrangement. Additionally, gently rounded corners of the base member peripheral flange 38 provide for better closure between the lid 14 and base member 12.

[0040] The shape of the base member 12 is generally a V-shape along its bottom surface, or bottom wall 26, the V-shape being formed as a result of the positions of the two inclined portions 28a and 28b and central portion 30 of the bottom wall 26. The V-shape of the base member 12 provides for packaging of the sliced food product in a shingled arrangement, such that at least a portion of each of the cheese slices rests upon the bottom wall of the base, rather than being stacked one on top of the other. Where the food product comprises cheese slices, the V-shape further aids in minimizing moisture loss and Calcium Lactate Crystal (CLC) formation on the cheese before initially opening the package.

[0041] CLC formation is a natural phenomena of natural cheese which can be esthetically unpleasant because it forms white crystals on the surface of the cheese. Without wishing to be bound by theory, it is believed that the lactic acid, which is present in natural cheese, converts to CLC and is deposited as crystals on the cheese surface as moisture is lost. Furthermore, the more headspace that there is in a package 10 the more capacity to draw moisture from the cheese product. The "headspace" in a package can be described as the empty space around the food product that is between the base member 12 and the film 16 prior to initially opening the package 10. It is this space that can contribute to moisture loss in cheese and other food products, which it is desired to minimize. The V-shape of the base member 12 and the close proximity fit of the film 16 to the shingled food prod-

uct all act together to reduce the amount of headspace that there is in the package 10 prior to initial opening, thus reducing the amount of moisture that is lost from the cheese. As a result of the package 10 design, the CLC formation is minimized.

[0042] Where the base member 12 has a generally rectangular periphery with rounded corners, it may also contain two opposing side portions 18a and 18b and two opposing end portions 20a and 20b of the package 10. The sidewalls 24a and 24b can be positioned at the opposing side portions 18a and 18b and the endwalls 22a and 22b can be positioned at the opposing end portions 20a and 20b. An upper section of the inclined portions 28a and 28b of the bottom wall 26 can intersect the end portions 20a and 20b of the package 10 at either the periphery flange 38 of the package 10 or at endwalls 22a and 22b. The inclined portions 28a and 28b can merge with the upstanding endwalls 22a and 22b, such that an upper section of the endwalls 22a and 22b would then form the periphery about the opening 25 of the base 12. Although not required, a plurality of vertically-oriented ribs 64 may also be integrally molded into the base member 12 along its sidewalls 24a and 24b for additional structural reinforcement. Alternatively, the plurality of vertically-oriented ribs 64 may be located along endwalls 22a and 22b of the package 10.

[0043] The flexible film 16 can be heat-sealed to the base member peripheral flange 38 that is located about the periphery of the opening 25 of the base member 12. The flexible film 16 can generally have a shape that resembles the shape of the opening 25 however may be slightly larger in area so that it can overlap the opening 25 and be sealed to the base member peripheral flange 38. For example, if the base member peripheral flange 38 is shaped in a rectangular configuration, then the flexible film 16 can also be shaped in a rectangular configuration just slightly larger than the opening 25 to allow the edges of the film 16 to be sealed to the flange 38. Alternatively, the flexible film 16 may further contain a tab 17 or an extension of flexible film material, typically in a corner of the film, that allows for grasping and easy removal of the flexible film 16 material. The flexible film 16 material may be clear and it may be made out of a lamination film material.

[0044] Preferably, though not necessarily, the flexible film 16 is pre-trimmed inboard of the outer base 12 dimensions just prior to heat-sealing, instead of applying a larger piece of film and trimming the film 16 after it has been sealed to the base 12. This method allows for the film 16 to be sealed to the flange 38 of the base 12 without requiring any additional trimming of the film 16 after it has been sealed to the base 12. In this aspect, the pre-trimmed film 16 does not extend to or beyond the outside edge of the flange 38, as with a larger film that is cut after being sealed. Film that does extend beyond the flange edge often can interfere with the closure of the lid 14 and the base 12 by creating a thickness of film between the two that the lid 14 must be forced onto upon closing. Providing a film 16 that is pre-trimmed allows for better closure of the lid 14 upon the base 12 due to the fact that the lid 14 is substantially in contact with the flange 38 directly, rather than having the intermediate film 16 which can increase the tightness of the fit when present, as well as result in an undesirably looser fit when not present.

[0045] The lid member 14 can comprise a central lid panel 34 surrounded by a peripheral rim or edge portion 36, such that the central lid panel 34 is inset slightly relative to the peripheral rim 36 of the lid 14 when viewed from its upper surface, i.e., its non-food side, as depicted in FIGS. 1 and 2. The lid 14, as shown in FIG. 9, further contains a relatively continuous undercut bead closure 46, or an inwardly extending annular bead or nub, about the lid peripheral rim 36 on the underside 35, or food side, of the rim 36 such that the annular bead 46 engages the peripheral flange 38 of the base member 12 to secure the lid 14. The undercut annular bead 46 is configured to slide past the base member peripheral flange 38, vertical flange portion 39, and generally horizontal flange portion 37 as the lid 14 is being placed on the base 12 to secure the lid 14 in place, as can be seen in FIG. 3. The undercut bead 46 is an annular precision rib that protrudes towards the inside of the lid 14. In one aspect, the outer lid peripheral edge portion 36 can also contain an extension at an upper edge thereof, such as a peggable attachment 60, for hanging vertically in a display case. In yet another aspect, the outer lid peripheral edge portion 36 can also contain an extension of the lid 14, such as a tab member 62, used as a grasping point for opening the lid 14. The tab member 62 is preferably located at one of the typically four corners of the lid 14.

[0046] The lid member 14 allows for the package 10 to be reclosed after opening, thus helping to keep the food product inside in a fresh state during storage, and the lid 14 can further provide an audible snap closure upon being placed over the opening 25 of the base 12 to indicate adequate closure. The generally rigid lid member 14 can be configured to cover the opening 25 of the base member 12 such that it confines the food product within the compartment 27 and can be securable to the base member 12 to provide a reliable closure. This audible snap closure provides the consumer with an indication that the lid 14 has been properly placed upon the base 12 and gives the consumer the "feel" that the package 10 has been securely closed. This tactile feedback upon closure of the lid 14 on the base 12 is primarily due to the annular bead or nub 46 positioned substantially around the entire inner perimeter of the lid 14.

[0047] This annular bead 46 can further be reinforced adjacent the four corners of the lid 14, such that it provides a segment of the annular bead 46' having a greater thickness than the remaining portions of the annular bead 46 (i.e., the remaining portions along the side or longitudinal edges of the lid 14) to provide more resistance upon closing and a greater "snap" sound giving a "feel" to the consumer that the package 10 closes better. The reinforced annular bead 46' can comprise extended undercut beads

added adjacent the corners where the corner radii intersect the generally straight portions of the sides or longitudinal edges of the lid 14, thus providing for a slightly thicker portion in that area. For example, each corner will have two such reinforced annular bead 46' sections, one at each corner radii intersection. These reinforced segments can be about 1-2cm in length and gradually increase in thickness such that the middle section of the reinforced bead 46' is the thickest with its ends the thinnest. This intersection with the corner radii is typically the area where the lid 14 gets "stretched" upon engaging it with the base 12. When a force is applied to the lid 14 to close it upon the base 12, this force is applied primarily to the area around the four corners of the lid 14; therefore, the added reinforcement around the corners helps provide the tactile confirmation that the package 10 is securely closed. Additionally, in order to improve alignment of the lid 14 with the base 12 upon closure, the corner radii can be slightly greater than typical packages, such as 1.1 inches or greater versus 0.5 inches. For instance, a corner radius of about 1.20 inches can be used that results in a good, "tight" fit between the lid 14 and the base 12 such that at the corners there can be a gap between the lid 14 and base 12 of about 0.03 inches. This slightly larger corner radius allows the lid 14 to align with the base 12 by "sliding" into place, thus decreasing the effort required to both remove the lid 14 from the base 12 and to close the lid 14 on the base 12.

[0048] For example, upon closing, the base member peripheral flange 38 slides past the annular bead 46 of the lid 14 such that one or both of the lid and flanges are deformed to allow the base member peripheral flange 38 to slide past the annular bead 46, and once it is past, snap back to shape thus securing it in place against the lid 14 and not allowing separation. The annular bead 46 allows substantially the entire portion of the base member peripheral flange 38 to pass during closure, as well as the vertical flange portion 39 and its horizontal edge 37 at its lower end. All of these elements of the base periphery slide past the annular bead 46 and become locked in in place once closed, positioned between an upper part 40 of the lid peripheral rim 36 and the annular bead 46. Thus, the annular bead closure 46 provides for a reliable fit and closure when the lid 14 is placed over the base member 12, thus allowing essentially for the peripheral rim 36 to mate with the peripheral flange 38. Furthermore, it is the annular bead 46 arrangement that provides an audible sound, or snap, upon package closure as the lid 14 is placed over the base member 12, thus additionally providing audible indication to the consumer that the 10 has been adequately closed.

[0049] When the lid member 14 is placed over the opening 25 and onto the base member 12, the central portion 34 of the lid 14 rests relatively in the same plane as the peripheral flange 38 of the base 12 or just slightly above it. The central portion 34 of the lid 14 does not need to nest inside of the base member 12. Where a flexible film 16 is used, the central portion 34 of the lid 14 rests just above or adjacent to the flexible film 16. Furthermore, the flexible film 16 can be placed between the base member 12 and the lid member 14 such that the flexible film 16 covers the opening 25 in the base 12.

[0050] Furthermore, multiple packages can be stacked on top of one another for display purposes such that the feet 32a-d of one package 10 can be placed on a top surface (i.e., non-food side) or the central portion 34 of the lid 14 of another package 10 beneath it. The slightly raised peripheral rim 36 of the lid 14 acts as a barrier to the stacked package 10 to keep it from sliding off of the central portion 34 of the lid 14. Therefore, providing a simplified way of stacking multiple packages in a stable fashion.

[0051] An interior section of the peripheral rim 36 of the lid 14 can contain a small groove 44 or channel about the periphery of the interior or underside 35 of the lid 14. This groove or channel 44 further contains ribs 48 that span the groove 44. The ribs 48 can be provided for added support along the rim 36 and to provide additional stiffness to the lid 14. The upper surface of the ribs 48, as in FIG. 9, are substantially in the same plane as the central portion 34 of the lid 14 such that a relatively even surface between them is provided. When the lid 14 is placed over the top of the base 12, the ribs 48 can contact the peripheral flange 38 of the base 12 and further prevent the base member peripheral flange 38 from entering into the groove 44 of the lid 14. The ribs 48 help with the alignment of the lid 14, and in particular with keeping the central portion 34 of the lid 14 slightly above the opening in 25 the base 12 such that the lid 14 does not become nested in the inner cavity or compartment 27 of the base member 12. Due to the small thickness of the flexible film 16, the film 16 does not substantially interfere with the initial mechanical interfit made between the lid 14 and the base 12 at their respective peripheral edge portions 36 and 38.

[0052] In another embodiment, a structural feature can be included as an integral part of the periphery of at least one of the base 12 or lid 14 to facilitate the initiation of manual separation of the component parts from each other. For example, the lid 14 may contain at least one outward extending, easy-open tab 62 along the peripheral rim 36 of the lid 14. The tab 62 can be located at one of the corners of the lid 14, or any other convenient location, to allow the consumer to grasp the tab 62 and apply a generally upward force to remove the lid 14. Alternatively, such a tab 62 can be positioned at multiple corners or still alternatively, can be positioned along the base 12.

[0053] The flexible film 16 preferably is transparent and at least one of the lid member 14 and the base member 12 is also preferably transparent, such that portions of the food product inside the package 10 can be readily viewed and inspected by a consumer prior to purchase. Preferably, all of the base member 12, lid member 14, and flexible film 16 are transparent. In other embodiments, one or all portions may be partially or entirely opaque. The material of construction of the base member

12 and lid 14 can comprise materials such as polyester, polypropylene, high-impact polystyrene and high density polyethylene. Preferably, a clarified polypropylene material is used for both the base 12 and the lid 14. The material of construction of the flexible film 16 material may be a lamination film, such as a polyester film laminated to a sealant, which may be a multilayer polyolefin or ethylene vinyl acetate (EVA) material. The sealant material may have a barrier layer that keeps out oxygen, has an antifog feature, and provides for easy open of the flexible film 16 from the base member peripheral flange 38. The flexible film 16 may also be a clear or relatively transparent film to allow for viewing of the interior of the inner compartment 27. Additionally, it is preferable that the lid 14 is formed by injection-mold techniques from a resin material and that the base 12 is formed by thermoforming methods from a sheet material, however, the base could also be injection-molded.

[0054] Typical overall dimensions of the package 10 can comprise a base member 12 having a height of about 1 inch to about 2 inches, a length of about 6 inches to about 8 inches, and a width of about 4 inches to about 6 inches. The lid 14 can have an overall length of about 6 inches to about 8 inches, and a width of about 4 inches to about 6 inches. The recessed central portion 34 of the lid 14 can be recessed about 1/4 inches from the uppermost portion of the lid peripheral rim 36, and the groove 44 on the underside 35 of the lid 14, i.e., the food side, can have a width of about 1/4 inches.

[0055] The dimensions of the package 10 are provided such that various sizes can be accommodated. For instance, it may be desirable to size the package 10 such that it can hold approximately 6 ounces (oz.) of food product slices or up to about 16 ounces. Where the larger amount of food slices are to be packaged, such as about 16 ounces, a slightly deeper base member 12 is required, while the same configuration lid 14 can be used as for the smaller 6 oz. package. For example, the base member 12 for a larger package 10, i.e., 12 oz., will typically have a deeper base member 12 such that the height of the base 12 is greater than a smaller 8 oz. package; thus, only the height of the base 12 is increased to accommodate a larger package 10. The length and width of the deeper package 10 remain essentially the same as for the smaller package 10. However, the height of the channels 32a-d increase and the angle of inclination of the inclined portions 28a and 28b also increase compared to the 8 oz. package. In one aspect, the 8 oz. package may have an angle of about 20 degrees at the intersection of the inclined portion with the central portion, whereas the 12 oz. package can have an angle of about 40 degrees at the same intersection.

[0056] Additionally, one or more labels may be included on the package 10. The labels may comprise clear or opaque film, or paper including legible print thereon. For example, paper labels may be used with one side containing print and the other side containing an adhesive. Three such paper labels can be provided, one on the bottom surface, or horizontal central portion 30, of the bottom wall 26 and two on the top surface of the lid such that the lid labels create a central portion or window on the lid without any labels, for viewing the contents of the package therethrough. Alternatively, one or more such labels may be film-based and largely transparent. The printed labels may also be affixed to the package 10 by adhesive or in-mold labeling. In one embodiment, pressure sensitive labels can be used, which may be affixed to an exterior side of the lid member 14, base member 12, or both. Alternatively, the labels may be affixed to an interior surface (i.e., a food side surface adjacent the food product, where a non-food side is the exterior or outer surface) of a transparent package component. Still, in another embodiment, a print can be directly applied to a package component, such as either a film, a sheet, or a finished rigid member.

[0057] Referring to FIG. 10, the base member 12 and lid member 14 can be filled and sealed shown on an in-line packaging process 500. In one embodiment, the base member 12 may be separately manufactured from thermoformable sheets, and the lid member 14 (or base member 12) may be manufactured by injection molding the member. For example, the base member 12 may be separately manufactured from a suitable plastic sheet that is shaped by thermoforming, or other suitable plastic shaping techniques known in the art. Separate plastic sheets may be conveniently processed on continuous and intermittent motion vacuum thermoforming machines, or comparable in-line forming equipment, to form the base member 12. Suitable thermoforming methods, for example, include a vacuum forming or a plug-assist vacuum forming method.

[0058] In a vacuum forming method, a plastic sheet is heated to a forming temperature, stretched onto or into a mold and is held against the mold by applying a vacuum between the mold surface and the sheet, causing the sheet to be drawn or pushed by atmospheric pressure on the opposite side of the sheet from the vacuum and down into the preformed mold. In a plug-assist vacuum forming method, after the forming sheet has been heated and placed across a mold cavity, a plug shape similar to the mold shape impinges on the opposite side of the forming sheet and, upon the application of vacuum, the forming sheet transfers to the mold surface. A sheet thermoformed into the base member 12 may be deep drawn in this manner to form a receptacle having the base surface contour described herein for receiving shingled cheese. The base member 12 may comprise thermoplastic or thermosetting materials that can be shaped into the desired base configuration.

[0059] In the method 500 for filling the reclosable packages shown in FIG. 10, a preformed base member 12 is supplied to the process (step 501) by manual or automated loading, such as by a tray denester as in step 502. The base members 12 can be preformed utilizing one of the methods described above, and preferably are preformed using a thermoforming process. Next, the cheese

or other desired food product is supplied (step 503) and sliced and then shingled (step 504), which is then dropped into the base member 12 (step 505).

[0060] After a food product is loaded into an open base member 12, the loaded base 12 is advanced through a packaging machine to apply a gas flush (step 506) prior to sealing the film, or relatively simultaneously therewith. A vacuum is drawn and a carbon dioxide/nitrogen (CO_2/N_2) gas flush (step 507) is applied to the interior of the base 12 and a flexible film 16 is placed over the opening of the base member 12 and heat sealed to the base with standard packaging techniques and equipment. The gas flush replaces the standard atmosphere in the interior of the base with a modified atmosphere before the film is sealed over the opening. The flexible sealing film is cut and sealed to the base member 12 (step 508) and can be separately provided in prefabricated roll form. The flexible film 16 is preferably pre-trimmed, such that it is trimmed to the shape of the opening in the base member prior to affixing it to the base member flanges and sealing. In one example, the flexible film is made from a laminated polyester film and the gas flush comprises a mixture of CO_2 and N_2 which is applied simultaneously with or after a vacuum is drawn.

[0061] When packaging cheese, the air in the headspace of the package (i.e., the space between the inside surfaces of the package and the food product) can be replaced with gas, most commonly CO_2, N_2, or a combination of the two. This can serve several purposes. For example, the oxygen in the air is removed to deter spoilage and CO_2 is believed to have anti-microbial effects. The situation is more complex with products that create or consume gas. Swiss cheese can generate or absorb CO_2, which causes a change in headspace volume. A flexible package can accommodate a substantial change in volume, while the same change in a rigid package may bloat or contract enough to make the package unacceptable. Optimizing the package material and gas mixture can control the magnitude of volume change and allow products like Swiss cheese to be successfully packaged in a rigid container. It is preferable that the package internal pressure be equal to or less than atmosphere throughout shelf life. One way to accomplish this is to use moderately breathable materials and an optimum level of CO_2 with the balance being N_2. The CO_2 level and the gas transmission rate of the breathable materials can be determined based on the particular type of cheese packaged and the size of the package. The moderately breathable materials can have an oxygen transmission rate of 3-12 cc/100in^2/24h @ 23°C based upon the package dimensions or sizes as disclosed herein. A typical optimum range of CO_2 can be from 40 to 100%, or more particularly from 40-60%. Preferably, about 55% CO_2 with approximately the balance as N_2 can be used for a Swiss cheese product.

[0062] Lids 14 from a supply of preformed lids (step 509) are separated such as by a lid denester (step 510) and are attached to the filled base 12 at flange portions thereof (step 511) to form the packages 10. A lid 14 is mechanically joined, such as by a snap-fit, to the base 12 supporting the food product that has already been packed, gas-flushed, and sealed within the flexible film 16 (step 508). The lid member 14 may be injection molded by injecting molten plastic at high pressure into a mold, to preform the lid member 14 into the appropriate shape. The stiffness of the lid member 14 may optionally be enhanced by the mold design, such as the peripheral edge portion 36 and structural supports 48. The base member 12, as filled with cheese slices, receives the lid member 14, which has been separately formed, at the respective mating peripheral flange 38 of the base member 12 and lid peripheral edge portion 36 of the lid member 14 (step 511). For example, the lid peripheral edge portion 36 is seated upon the base member peripheral flange 38 in a contiguous manner.

[0063] The lid member 14 and base member 12 do not need to be heat sealed at their respective aligned and contacting peripheral flanges 36 and 38, since the flexible film 16 seals the opening 25 in the base member 12 in a hermetic sealing manner. Therefore, the base member 12 and lid member 14 can be configured for reclosable mechanical interconnection without the need for heat sealing them. Although not required, heat sealing or other one-time releasable attachment may be provided. In this manner, the flexible film 16, lid member 14, and base member 12 form a substantially gas- and debris-impermeable enclosure for the shingled cheese slices. The mechanical attachment of the lid member 14 and base member 12 can be sufficiently strong to withstand the expected handling and use conditions of the package 10.

[0064] The lid member 14 (or base member 12) may be made of materials suitable for injection molding, such as polypropylene, polystyrene, polyvinyl chloride, and the like. The base member 12 independently can be made from a variety of materials including homogenous plastics, multi-layered laminates, and/or co-extruded plastics or resins, and the like. In one embodiment, packaging material useful for the base member 12 and lid member 14 is polypropylene, and particularly, a polypropylene sheet or resin suitable for packaging of refrigerated cheese products. Preferably, both the base member 12 and lid member 14 have a construction that has sufficient structural characteristics so that the laminate is sufficiently rigid for shape retention during handling and is substantially impervious to oxygen. In one example, the base member 12 is made from a polypropylene sheet and may additionally have a sealant layer thermally laminated to it, such as a coextruded film comprising any one or more of polypropylene, ethyl vinyl alcohol and low-density polyethylene. The lid member 14 can also be made from a polypropylene resin.

[0065] The loaded and covered packages 10 may be optionally labeled (step 513), such as using conventional pressure sensitive adhesive (PSA) food package labeling (step 512). In this embodiment, the individual sealed packages 10 may be packaged into corrugated shipping

cartons (step 514), shipped, and or shelved in any convenient manner.

[0066] The use of the term preformed in this example includes components formed offsite, as well as components formed onsite but at different times or using different steps than those discussed in the example of FIG. 10.

[0067] In addition to the above and subject to any requirements indicated herein, one or more of the flexible film 16, lid 14 and/or base 12 plastic materials may also include one or more additives useful for packaging functions, such as, antiblocking agents, slip agents, flavorants, antimicrobial agents, cheese preservatives, antioxidants, fillers, light barriers, oxygen scavengers, and antistatic agents, and so forth. Such additives, and their effective amounts, are generally known in the art.

[0068] The space between the flexible film and the opening in the compartment may be filled with gas, wherein the gas is about 55% CO_2 with the balance nitrogen, and the package has an oxygen transmission rate of about 3-12 cc/100in^2/24h at a temperature of about 23°C.

[0069] A method for packaging a food product, comprises: providing a rigid base member having a peripheral flange surrounding an opening and having a bottom wall, the bottom wall having a generally rectangular, flat central portion having a pair of opposing longitudinal edges and a pair of opposing transverse edges, the bottom wall having a pair of inclined portions each having a pair of transverse edges and a pair of longitudinal edges, each of the inclined portions of the bottom wall having its transverse edge adjacent an associated one of the transverse edges of the central portion and the opposite transverse edge of the inclined portions being positioned closer to the flange than the bottom wall, a pair of opposing sidewalls each extending between the peripheral flange and the longitudinal edges of the inclined and central portions, and at least one channel formed in each of the inclined portions to facilitate removal of food product from the bottom wall of the base member; placing a plurality of food products into the rigid base member; sealing the base member with the food product therein using a flexible film attached to the peripheral flange; attaching a rigid lid having a peripheral rim that mates with the peripheral flange of the base member to the base member, the lid having a peripheral rim that mates with the peripheral flange of the base member. The step of attaching a rigid lid to the base member may contain a step of creating an audible sound when the lid is attached to the base, and outwardly flexing a portion of the rim of the lid as the lid is moved toward the base member and then elastically returning the flexed portion of the rim once the lid is seated on the base. The method may comprise a step of selecting a CO_2 gas amount for filling an inner compartment of the package and selecting a gas transmission rate for the package, each dependent upon a type of cheese packaged as the food product and size of the package.

[0070] In a reclosable food package, the opposing side panels of each of the channels formed to facilitate removal of food product from the bottom wall of the base member may be generally parallel, or generally triangularly shaped, and the sidewalls of the reclosable package may be generally parallel.

[0071] In addition, a reclosable food package may contain the sliced food product which comprises cheese slices stored in a shingled arrangement on the bottom wall in the inner compartment, or within the inner compartment of the base such that the cheese slices rest upon the bottom wall of the base.

[0072] From the foregoing, it will be appreciated a reclosable food package is provided such that numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope of the package set forth in the claims, and thus the sliced food product package design may be utilized with other container designs than those described herein. Therefore, the disclosure is not limited to the aspects and embodiments described hereinabove, or to any particular embodiments. Various modifications to the reclosable food package can result in substantially the same container and methods of manufacture.

Claims

1. A reclosable food package for a sliced food product, the package comprising:

   a generally rigid base member configured to receive the sliced food product therein and having a bottom wall with a generally flat central portion disposed between two inclined portions, the inclined portions intersecting the central portion at an angle from about 10 to about 70 degrees, an opening having a peripheral flange, a pair of opposing sidewalls extending between the bottom wall and the peripheral flange and each extending along a side of the central portion and a side of each of the inclined portions of the bottom wall;

   at least one channel in one of the inclined portions of the bottom wall to facilitate removal of the food product, the channel spaced from the sidewalls by a segment of the inclined portion of the bottom wall; and

   a generally rigid lid configured to mate with the peripheral flange to cover the opening.

2. The package according to claim 1, wherein the package has at least two channels in one of the inclined portions of the bottom wall.

3. The package according to claim 2, wherein each of the at least two channels have bottom surfaces that are generally coplanar with the central portion of the bottom wall.

4. The package according to any one of claims 1 to 3, wherein the peripheral flange has a flexible film hermetically sealed over the opening.

5. The package according to any one of claims 1 to 4, wherein the lid has a peripheral rim that mates with the peripheral flange of the base member, the rim and flange being configured such that there is an audible snap as the rim and flange are brought together.

6. The package according to claim 5, wherein the rigid lid has an inset central panel surrounded by the peripheral rim of the lid.

7. The package according to claim 6, wherein the peripheral rim of the lid has an inwardly extending annular bead configured to engage the peripheral flange of the base member to generally secure the lid onto the base member.

8. The package according to claim 7, wherein the annular bead increases in thickness adjacent each corner of the lid at an intersection of a corner radius with a straight section of the peripheral rim of the lid.

9. A reclosable food package for a sliced cheese product, the package comprising:

a generally rigid base member having a bottom wall, generally upstanding opposing sidewalls, and generally upstanding opposing endwalls, the bottom wall having a generally flat central portion disposed between two inclined portions that merge with the generally upstanding endwalls and the inclined portions intersect the central portion at an angle from about 10 to about 70 degrees;

an inner compartment formed by the bottom wall, sidewalls and the endwalls, the inner compartment configured to receive the sliced cheese product therein and for storing the cheese product in a shingled arrangement, and further configured to minimize calcium lactate crystal (CLC) formation on the cheese slices by minimizing the space between a hermetically sealed flexible film and an opening in the compartment;

at least one channel in each of the two inclined portions to facilitate removal of the cheese product, the channels each having a bottom surface that is in substantially the same plane as the central portion of the bottom wall to provide stability when positioned in a horizontal position upon the bottom wall and each channel spaced from the opposing sidewalls by a segment of the inclined portion of the bottom wall;

the opening in the compartment opposite the bottom wall, the opening defined by a base member peripheral flange at an upper section of the sidewalls and an upper section of the endwalls;

the flexible film hermetically sealed upon the base member peripheral flange to cover the opening; and

a generally rigid lid configured to cover the opening to contain the cheese product within the compartment, the lid having an inwardly extending annular bead positioned within a lid peripheral rim and configured to engage a base member peripheral flange to secure the lid onto the base member and configured to provide an audible snap closure upon being placed over the opening.

10. The package according to claim 9, wherein the inclined portions intersect the central portion at an angle from about 10 to about 40 degrees.

11. The package according to claim 9 or 10, wherein the space between the flexible film and the opening in the compartment is filled with gas other than air, which gas is about 40% to about 100% CO_2.

12. A reclosable food package comprising:

a rigid base member having a peripheral flange surrounding an opening and having a bottom wall, the bottom wall having a generally rectangular, flat central portion having a pair of opposing longitudinal edges and a pair of opposing transverse edges, the bottom wall having a pair of inclined portions each having a pair of transverse edges and a pair of longitudinal edges, each of the inclined portions of the bottom wall having a transverse edge adjacent an associated one of the transverse edges of the central portion and the opposite transverse edge of the inclined portions being positioned closer to the flange than the bottom wall, a pair of opposing sidewalls each extending between the peripheral flange and the longitudinal edges of the inclined and central portions, and at least one channel formed in each of the inclined portions to facilitate removal of food product from the bottom wall of the base member;

and a lid having peripheral rim configured to mate with the peripheral flange of the base member to close the opening of the base member, the lid being removable from the base member to permit access to the opening of the base member.

13. The reclosable food package of claim 12, wherein each of the channels have a pair of opposing side panels, a bottom panel and an end panel, the bottom

panel being generally parallel to the central portion of the bottom wall.

14. The reclosable food package of claim 13, wherein the channels have a maximum depth adjacent the end panels of between about 25 to 75% of the distance from the peripheral flange to the central portion of the bottom wall.

15. The reclosable food package of any one of claims 12 to 14, wherein the channels are spaced from the pair of opposing sidewalls by a segment of the inclined portion of the bottom wall.

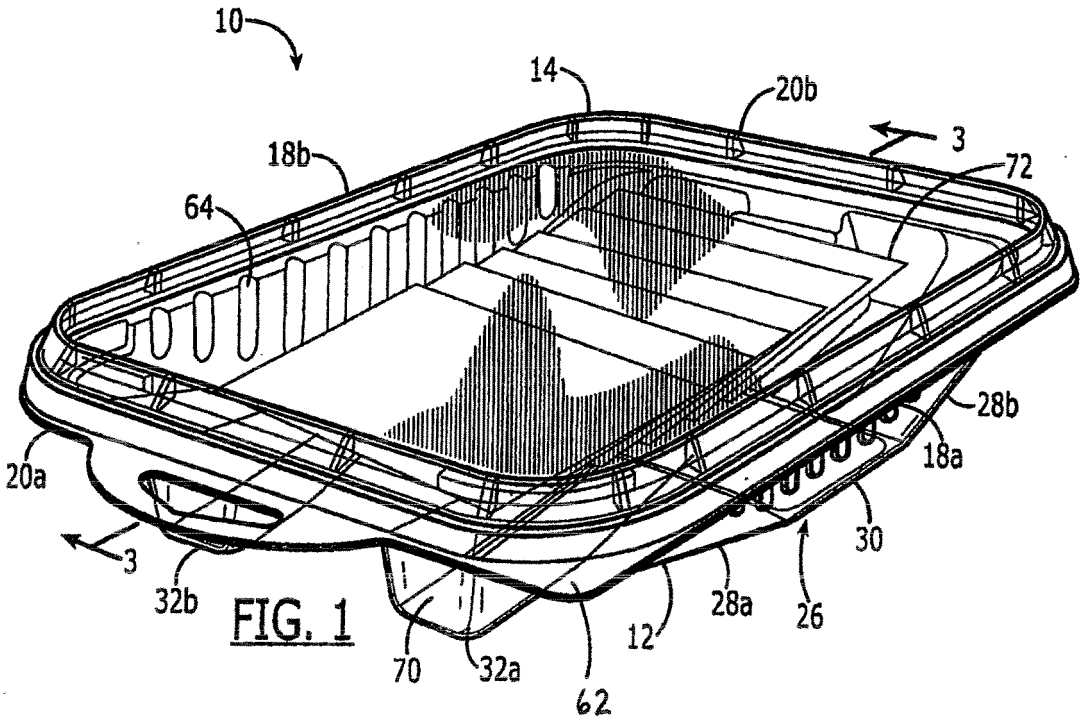


FIG. 1

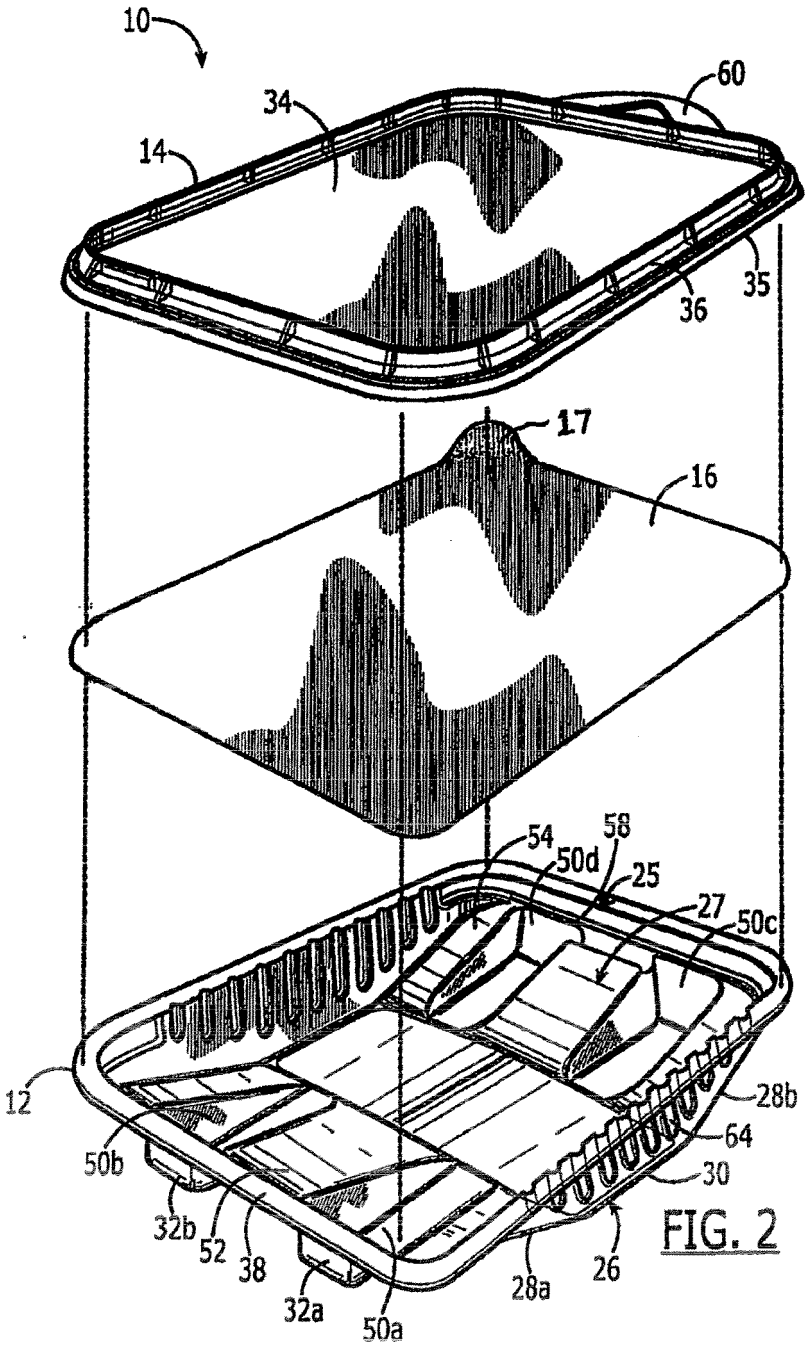

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54
58
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32a
50a

FIG. 2

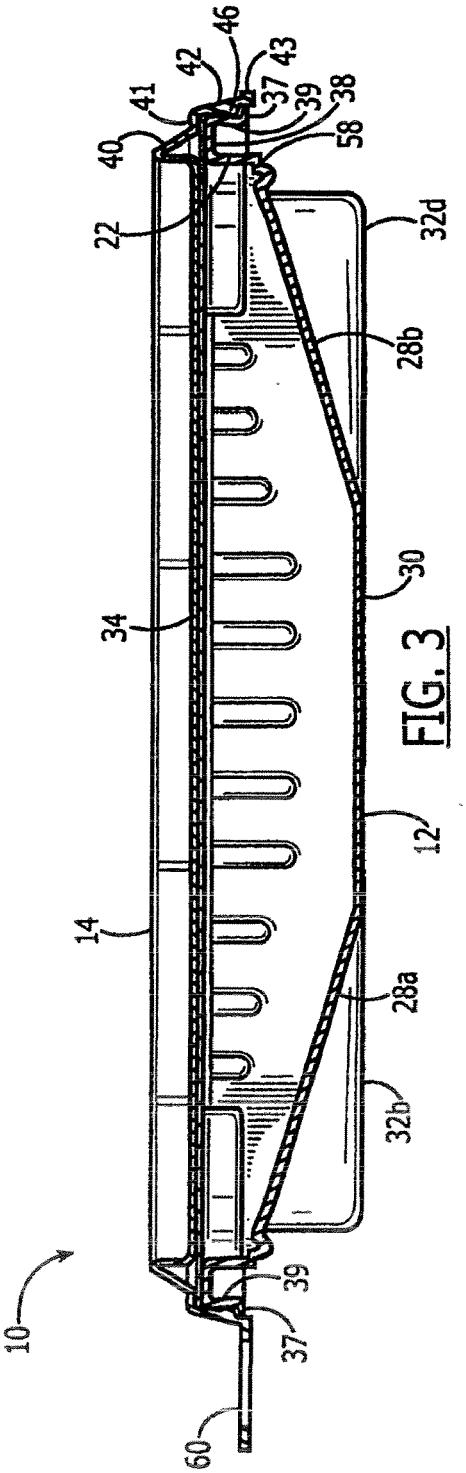


FIG. 3

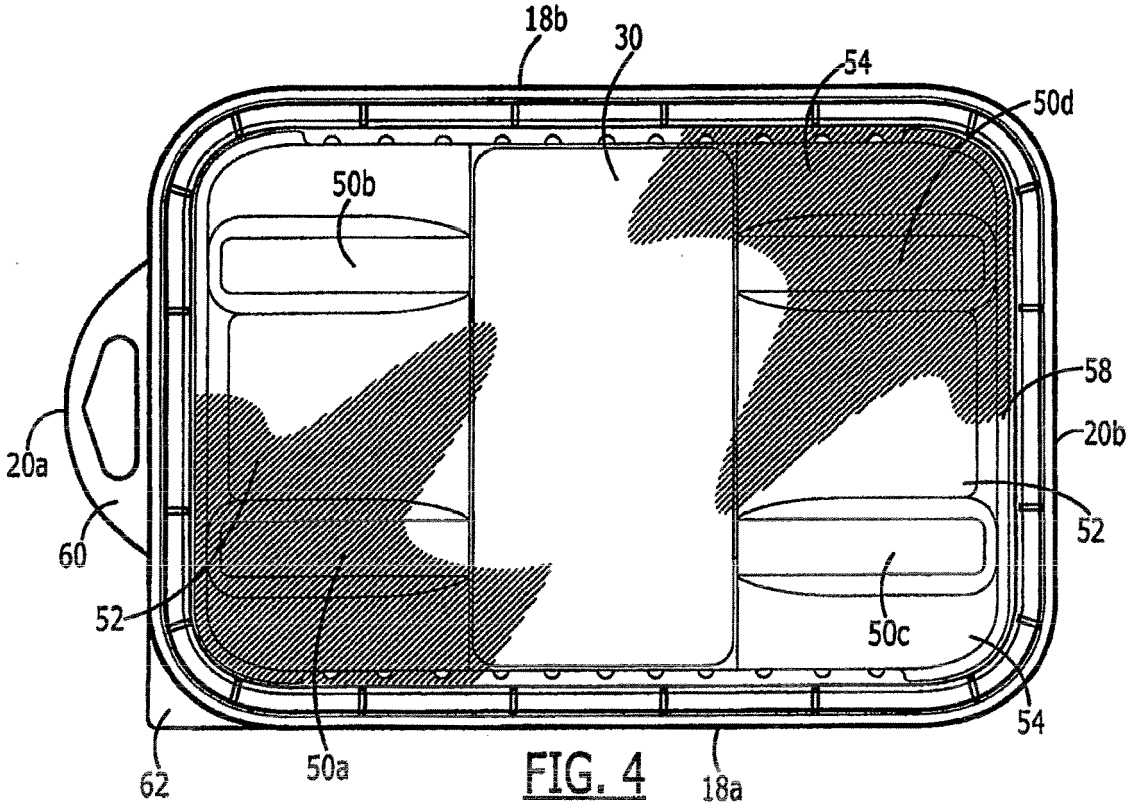


FIG. 4

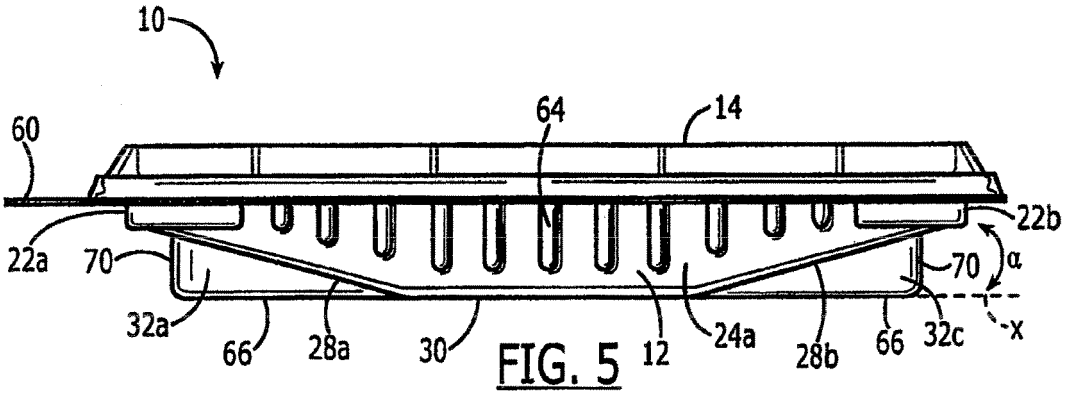

10
60
64
14
22a
70
22b
70
α
32a
66
28a
30
12
24a
28b
66
32c
x

FIG. 5

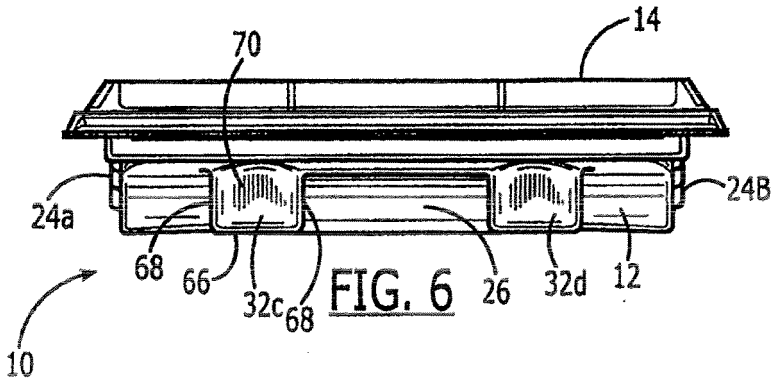

14
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24B
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66
32c
68
26
32d
12
10

FIG. 6

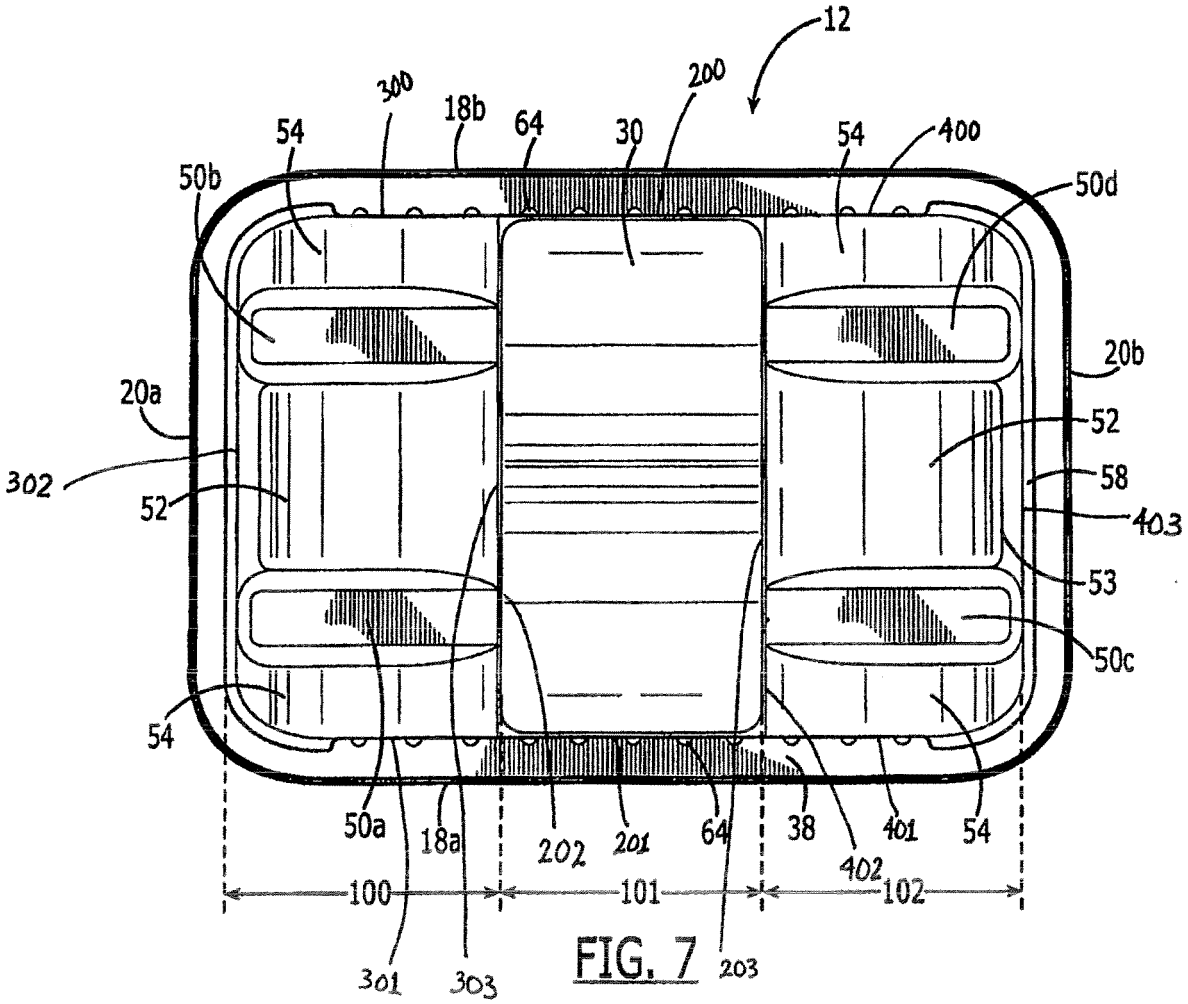

12
300
18b
64
200
30
54
400
50b
50d
20b
20a
52
302
58
403
52
53
50c
54
50a
18a
202
201
64
38
401
54
402
100
101
102
301
303
203

FIG. 7

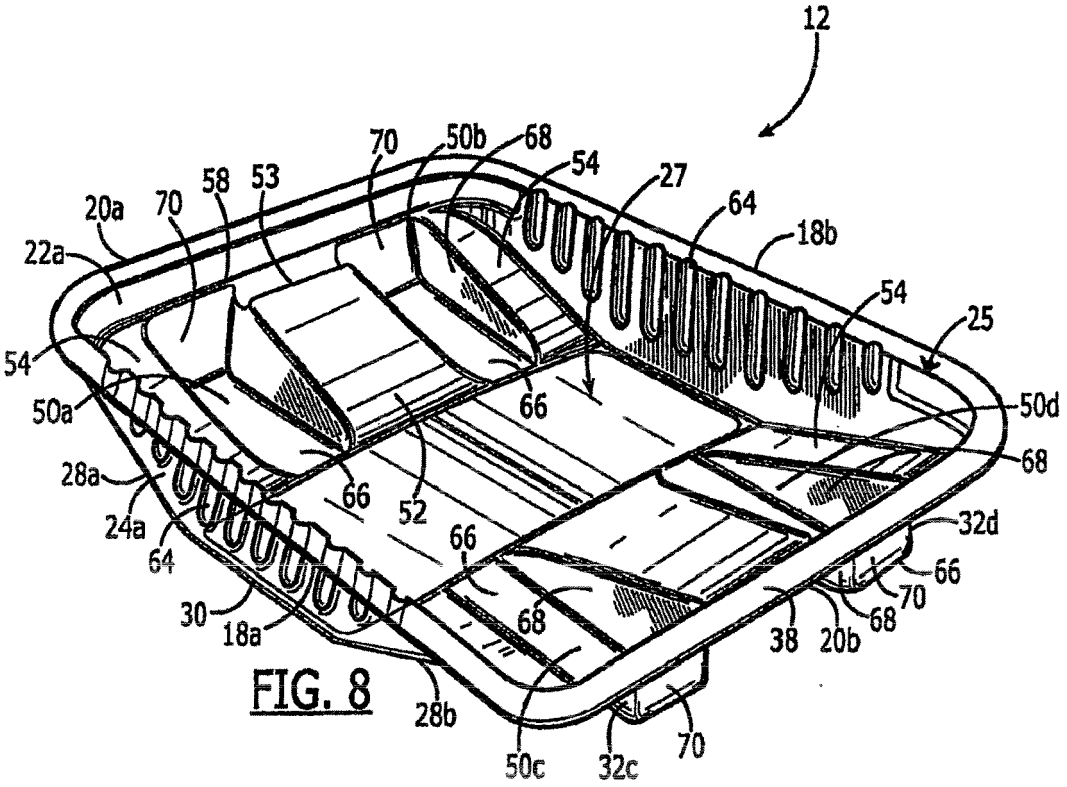

12
70
50b
68
54
27
64
18b
58
53
20a
70
22a
54
25
54
50a
66
50d
68
28a
66
52
24a
66
32d
64
66
70
30
68
68
38
20b
18a
28b
50c
32c
70

FIG. 8

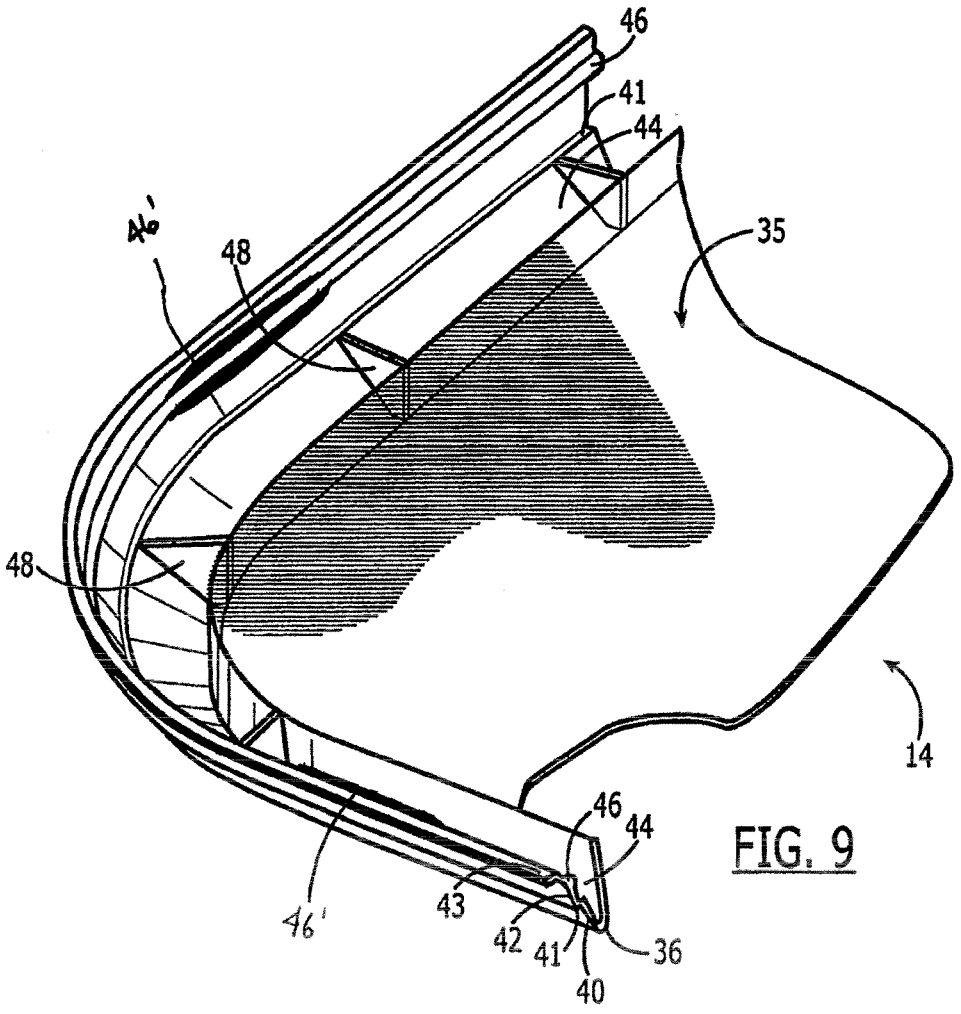


FIG. 9

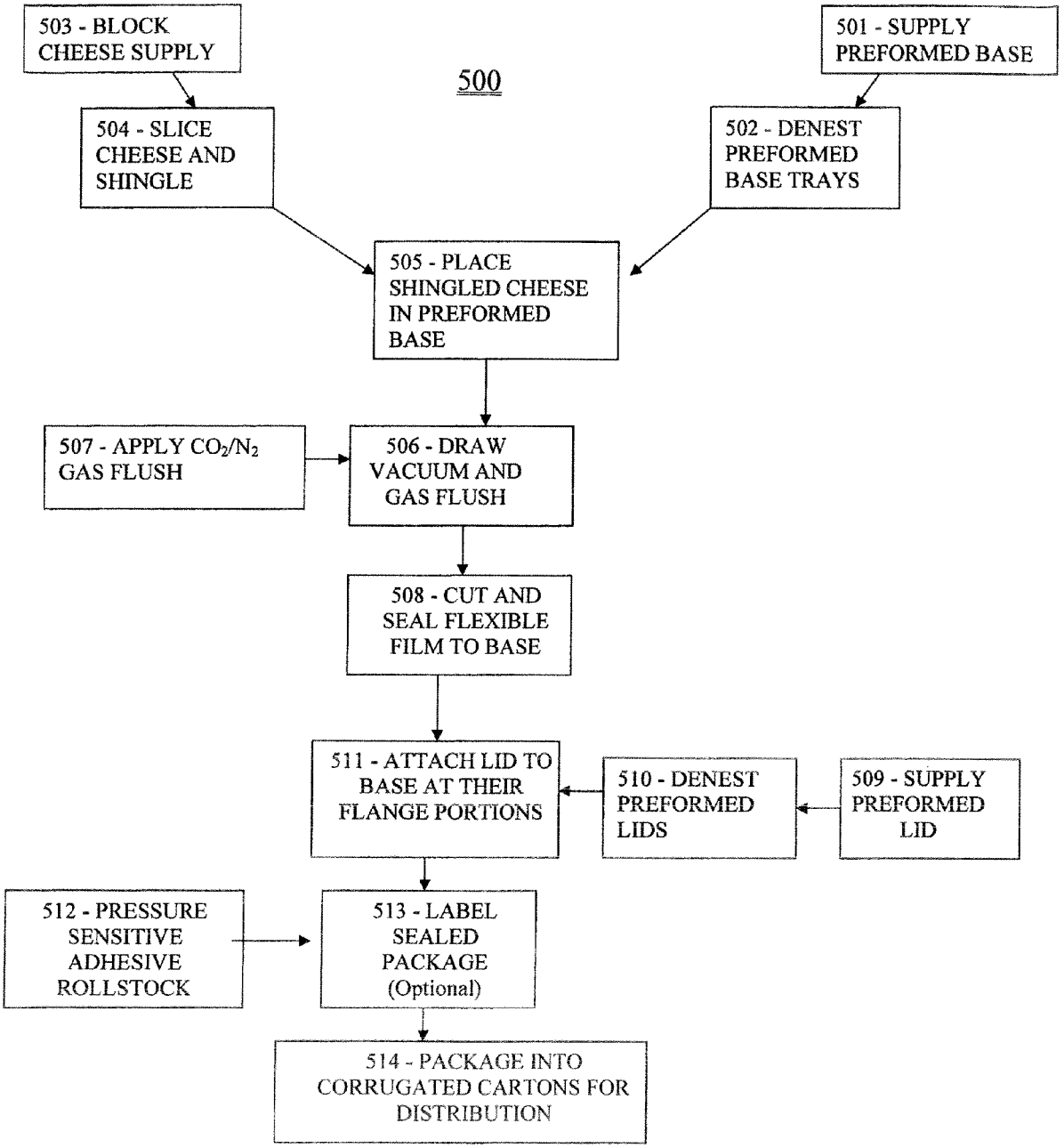

500
503 - BLOCK CHEESE SUPPLY
501 - SUPPLY PREFORMED BASE
504 - SLICE CHEESE AND SHINGLE
502 - DENEST PREFORMED BASE TRAYS
505 - PLACE SHINGLED CHEESE IN PREFORMED BASE
507 - APPLY CO_2/N_2 GAS FLUSH
506 - DRAW VACUUM AND GAS FLUSH
508 - CUT AND SEAL FLEXIBLE FILM TO BASE
511 - ATTACH LID TO BASE AT THEIR FLANGE PORTIONS
510 - DENEST PREFORMED LIDS
509 - SUPPLY PREFORMED LID
512 - PRESSURE SENSITIVE ADHESIVE ROLLSTOCK
513 - LABEL SEALED PACKAGE (Optional)
514 - PACKAGE INTO CORRUGATED CARTONS FOR DISTRIBUTION

FIG. 10

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EUROPEAN SEARCH REPORT

Application Number
EP 08 17 0632

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	12 March 2009	Jagusiak, Antony

CATEGORY OF CITED DOCUMENTS

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