



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
02.07.2008 Bulletin 2008/27

(51) Int Cl.:
B65D 1/34 (2006.01) **B65D 43/02 (2006.01)**
B65D 51/20 (2006.01) **B65D 77/20 (2006.01)**

(21) Application number: **07116878.5**

(22) Date of filing: **20.09.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK RS

(30) Priority: **29.12.2006 US 618270**

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(54) **Reclosable food package**

(57) A reclosable food package is provided for packaging and displaying a foodstuff, such as a shingled stack of sliced bacon, in a highly visible manner, including a generally rigid tray member (11) for receiving a foodstuff, a flexible film (13) for covering the foodstuff and adjacent tray base areas uncovered by the foodstuff in a vacuum sealed manner, and a generally rigid lid member (12) that manually reclosably attaches to the tray member, where at least one of the tray member and lid member is transparent.

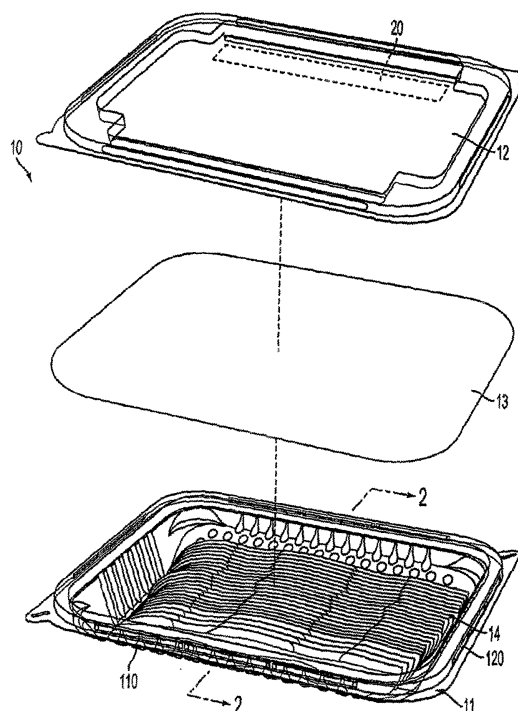


FIG. 1

Description

Field

[0001] This disclosure relates to packaging for food products, and more particularly to reclosable food packages for foodstuffs such as shingled bacon slices.

Background

[0002] Bacon has long been available to retail consumers in sliced form, often within sealed packages containing sliced bacon in a shingled array. In making their purchasing decisions, many consumers would like to be able to visually inspect more of the bacon slices through the packaging, e.g., to obtain an indication of their relative lean and fat contents. Typically, a provision is made for viewing a portion of some of the shingled bacon slices, including portions of both the front and back of the array. However, the bacon arrays can vary significantly in size, with lengths of between about 7.75 and 10.25 inches, widths of between about 4.25 and 7 inches and depths of between about 0.625 and 1.625 inches. These variations in size of the array can present challenges in packaging. For example, if the array is not properly positioned, the visibility of the array can be hindered.

[0003] These bacon packages are often vacuum-sealed. A prior bacon package of this type is shown, e.g., in Seiferth et al. U.S. Pat. No. 3,803,332. A stack of bacon slices is arranged in a shingled relation on a backing board, which usually is non-transparent, and the bacon slices are enclosed between transparent top and bottom flexible plastic wrapper sheets having their perimeter portions sealed to each other about the periphery of the backing board. The space between the wrapper sheets typically is vacuumized. For merchandising, the wrapped bacon typically is placed in a paperboard sleeve having a cut-out window for viewing the plastic wrapped bacon. In such prior bacon packaging arrangements, much of the surface area of the packaged bacon slices is not visible to store customers.

[0004] Prior bacon packages of the type described above also can lack the ability to be resealed, once opened, as they do not have positive means by which the package can be reclosed in order to sealingly contain the remaining bacon strips within the package once it has been opened. Storing unused bacon can require provision of wrapping film or a separate container.

Summary

[0005] A reclosable food package for packaging and displaying a foodstuff, such as a shingled stack of sliced bacon, in a highly visible manner, including a generally rigid tray for receiving the foodstuff, a flexible film for covering the foodstuff and contacting adjacent areas of the tray uncovered by the foodstuff to generally secure the foodstuff in a preferred orientation, and a generally rigid

lid member that manually reclosably attaches to the tray, wherein at least one of the tray member and lid member is transparent.

[0006] Amongst other benefits and advantages of the reclosable food package, the food product loaded into the tray is generally immobilized for optimal display through transparent packaging to prospective customers at the grocery store or other retailer, while the flexible film also maintains the food product in a vacuum sealed condition on the tray member and generally prevents foodstuff oils or juices from migrating away from the foodstuff onto the tray. This makes it easier to identify leakage of food product fluids. The rigid overcap allows for simple yet secure manual reclosure of the package after the flexible film has been removed to access the foodstuff.

[0007] In one particular embodiment, a reclosable food package includes a generally rigid tray having a tray base, generally upstanding tray sidewalls, and generally upstanding tray endwalls, and a tray peripheral ridged flange which surrounds an opening generally opposite the tray base. The tray base has a generally flat central base portion disposed between two inclined base portions which merge with the generally upstanding tray sidewalls at respective locations below the tray member peripheral ridged flange. A peripheral ledge portion extends along an inner surface of the sidewalls and endwalls adjacent the opening of the tray member. A foodstuff is disposed within the tray, such as resting on the tray base. A flexible film is conformably vacuum sealed upon the food product and adjacent areas of the tray that are uncovered by the foodstuff. A generally rigid lid is inserted partly within the opening of the tray and above the foodstuff conformably covered with the flexible film to reduce air space within the packaged enclosure, and is releasable securable onto the tray. The lid includes a lid peripheral slotted edge portion surrounding a central lid panel portion that is inset relative to the slotted edge portion. The lid peripheral slotted edge portion is adapted to engage and be seated on the tray peripheral ridged flange, such that the lid is reclosably attached to the tray. The cover panel and tray base define an interior volume for enclosing the foodstuff supported on the tray base when the lid peripheral slotted edge portion is seated on the tray member peripheral ridged flange. The flexible film and at least one of the lid and tray are transparent to permit visible inspection of the foodstuff enclosed within the package.

[0008] In one aspect, the film and/or tray materials are selected to facilitate separation therebetween to open the package and access the foodstuff. In another aspect, protuberances are provided on the tray base of the tray member facilitate manual release of the flexible film from areas of the tray base not covered by the foodstuff. The integral protuberances may extend downward from the tray base. In a particularly embodiment, the protuberances have progressively smaller diameter and height in a direction extending from a tray member sidewall towards the central base portion thereof.

[0009] In one aspect, the upper surface of the lid and bottom surface of the tray are respectively configured to allow nested stacking of a tray of one food package on the lid of another food package stacked beneath it, and so forth until as many separate food packages are stacked in a stable manner as desired. For example, integral feet can be provided on the bottom surfaces of trays which fit or "nest" within an inset region provided in the upper surfaces of adjacent lids effective to prevent undue shifting of an overlying food package relative to an underlying food package in a stack of the food packages all having these tray and lid features. This nested tray arrangement facilitates maintaining stacked food packages upright and stable on-shelf.

[0010] As will be appreciated, the aforementioned reclosable food packages are provided for foodstuffs, such as meat slices, for example, shingled bacon slices or other bacon products, and cheese slices, which are displayable with high product visibility, and which may be repeatedly opened and securely reclosed. These advantages, among others, may help to increase consumer interest in and satisfaction with the packaged product.

[0011] A method is also provided for packing foodstuffs, such as shingled bacon slices, using the aforementioned reclosable container. In one embodiment, the method steps may include providing a reclosable package as described herein, introducing foodstuff, such as shingled bacon slices, into the rigid tray having a tray base, covering the foodstuff and adjacent tray areas uncovered by the foodstuff with a flexible film, covering the rigid tray with a lid for releasably closing together the lid and the tray.

Brief Description of the Drawings

[0012] FIG. 1 is an exploded perspective view of one embodiment of a reclosable bacon package;

[0013] FIG. 2A is cross-sectional view of the assembled reclosable food package of FIG. 1 taken along line 2-2;

[0014] FIG. 2B is an enlarged view of area 101 of the reclosable food package of FIG. 2A;

[0015] FIG. 2C is a further enlarged view within area 101 of the reclosable food package of FIG. 2A;

[0016] FIG. 3 is a perspective view of the assembled lid and tray of the food package of FIG. 1 with the flexible film and covered foodstuff removed;

[0017] FIG. 4 is a top plan view of the assembled lid and tray of FIG. 3;

[0018] FIG. 5 is a side elevation view of the lid and tray of FIG. 3;

[0019] FIG. 6 is an end elevation view of the lid and tray of FIG. 3;

[0020] FIG. 7 is a top plan view of the tray of the food package of FIG. 1;

[0021] FIG. 8 is a side elevation view of the tray of the food package of FIG. 1;

[0022] FIG. 9 is an end view of the tray of the food

package of FIG. 1;

[0023] FIG. 10 is a perspective view of the lid of the food package of FIG. 1;

[0024] FIG. 11 is a top plan view of the lid of the food package of FIG. 1;

[0025] FIG. 12 is an enlarged partial view of two assembled food packages according to FIG. 1 in a stacked arrangement;

[0026] FIG. 13 is an exploded perspective view of another embodiment of a reclosable bacon package;

[0027] FIG. 14 is an exploded perspective view of yet another embodiment of a reclosable bacon package;

[0028] FIG. 15 is a flow chart of a method for forming and filling the sealed reclosable bacon package of FIG. 1; and

[0029] FIG. 16 is a flow chart of a method for filling the sealed reclosable bacon package of FIG. 1 using pre-formed trays and lids.

Detailed Description of the Drawings

[0030] Reclosable food packages are illustrated in FIGS. 1-14 for packaging and displaying a foodstuff in a highly visible manner, including a generally rigid tray member for receiving a foodstuff, a flexible film for covering the foodstuff and adjacent tray base areas uncovered by the foodstuff in a vacuum sealed manner, and a generally rigid lid member that manually reclosably attaches to the tray member, where at least one of the tray member and lid member is transparent. The food package is reclosable, thereby reducing the drawbacks associated with non-recloseable food packages. In addition, the film can secure the foodstuff in a preferred orientation. Methods of forming and/or filling the reclosable food packages are illustrated by way of example in FIGS. 15 and 16. Throughout this disclosure, the term foodstuff is defined to include sliced food products, such as sliced meat or cheese, and including a shingled stack of sliced bacon.

[0031] Referring specifically to the embodiment of FIG. 1, a shaped, generally rigid synthetic plastic package 10 for storing and displaying a shingled stack of bacon slices 14 is shown, which includes a tray 11, a lid 12, and a flexible film 13. Both the tray 11 and lid 12 are of film construction in which the film is semi-rigid or rigid and has been shaped or is shaped in-line, such as by suitable forming or heat molding techniques, into the shapes illustrated in the drawings or other suitable shapes. The terms "rigid" and "semi-rigid" are used herein to indicate that the structures made of these films have the ability to retain their respective shapes during normal handling. Flexible film 13 can drape or wrap in close conformity and contact with a three-dimensional surface of a foodstuff covered by it sufficient to maintain the foodstuff in a sealed condition. The tray 11 has a pair of opposite longitudinal sidewalls including sidewall 110, and a pair of opposite endwalls including endwall 120.

[0032] The tray 11 and lid 12 may provide a protective

display package for a shingled stack of bacon slices 14. The shingled stack of bacon slices 14 is sealed within the package 10, which bacon slices may be uncooked, partially cooked or fully cooked. The flexible film may be removed by the customer after being unsealed for the first time, or otherwise kept as a loose covering with the package. The term "bacon," as used herein may refer to meat-containing or meatless bacon. Although bacon slices are illustrated, it will be appreciated that other types of foodstuffs can be packaged in the food package 10.

[0033] The flexible film 13 preferably is transparent. At least one of the lid member 12 and tray member 11 also is preferably transparent to the extent that portions of bacon 14 supported within the package 10 can be readily viewed and inspected by a consumer prior to purchase. Preferably, at least the lid member 12 and flexible film 13 are transparent. In the food package illustrated in FIGS. 1-11, all of the tray member 11, lid member 12 and flexible film 13 are transparent. In other embodiments, the lid, tray, and/or flexible film one may be partially or entirely opaque.

[0034] One or more labels 20 may be included in order to satisfy marketing and regulatory labeling needs and requirements. The labels may comprise opaque backings including legible print thereon. Alternatively, one or more of such labels may be partially transparent or may be partially or entirely translucent. In one embodiment, pressure sensitive labels are used, which may be affixed to an exterior side of the lid member, tray member, or both. Alternatively, the labels may be affixed to an interior (food side) surface of transparent package components. In another alternative, print is affixed directly on a layer of a film comprising a package component.

[0035] Referring to Fig. 2A in particular, the tray base 130 of the tray 11 comprises a generally flat central base portion 133 disposed between two inclined base portions 131 and 132 which merge with the opposite tray sidewalls 110 and 111, respectively, at respective locations below the tray peripheral ridged flange 140 (e.g. see FIG. 6). The tray base 130 of the tray 11 is angled at base portion 131 and 132 to display the food product. In one embodiment, the base portions 131 and 132 independently have a respective inclination angle α (alpha) in the range from about 20 to about 50 degrees, relative to a plane 102 that is co-planar with the tray base 130. Only one of the inclination angles is shown in FIG. 2A to simplify the illustration, and it will be appreciated that other base portion has an inclination angle within the same value range. The inclined base portions 131 and 132 generally have widths 173 and 174, respectively, of about 40 to about 120% the width 175 of the central base portion 133 of the tray base 130 (see FIG. 7). Although not required, a plurality of vertically-oriented wall ribs 103 may be integrally molded into the tray member endwalls (and or sidewalls) for additional structural reinforcement in embodiments of the present invention (e.g., see, FIGS. 3, 4, 6, 7, and 9).

[0036] A plurality of space apart discrete integral protuberances 134 extend downward from the upper surface

135 of the tray base 130. In this illustration, the protuberances 134 have progressively smaller diameter and height in a direction extending from a tray member side-wall towards the central base portion. That is, the protuberances or release elements may be arranged on the upper surface of the tray in a "fade out" scheme in which the diameter and height of the protuberances gradually and progressively becomes larger nearer the tray sides. The release elements are illustrated as discrete substantially rounded dimples, but also may have other shapes. For instance, the protuberances may have a cross-sectional geometric shape that is selected from amongst circles, ovals, elongated drops, squares, triangles, and the like and/or any combination thereof. In this manner, the texture of the tray surface is designed to facilitate release of the flexible film 13 from the food-side upper surface 135 of tray member 11 where the two components may come into contact. The optimal sizing of the protuberances may vary depending on a number of variables, such as the plastic type and thickness of the flexible film 13, the slope of inclined tray base portions 131 and 132, and so forth. In general, the protuberances will present sufficient size to make it easier for a consumer to peel the flexible film 13 off the tray member where it contacts tray areas not supporting the foodstuff, while not being excessively large to make it difficult to provide a vacuum sealed product within the tray using the flexible film in vacuum skin packaging. The protuberances 134 can be integrally formed in the tray member 11, such as by plastic molding or thermoforming techniques.

[0037] The flexible film 13 is vacuum sealed upon the upper exposed surfaces of the bacon slices 14 and uncovered areas of the upper surface 135 of the tray base 130. A peripheral slotted edge portion 15 of the lid 12 is seated on the ridged flange 140 of tray member 11. The slotted edge portion of the lid 12 is appropriately sized to slidably engage and interfit with the ridged flange 140 of the tray member 11. In this illustration, the flexible film 13 is interposed between slotted edge portion 15 of the lid and the ridged flange 140 of the tray member 11. Due to the small thickness of the flexible film 13, it does not substantially interfere with the initial mechanical interfit made between the lid and tray at their peripheral edge portions. In this illustration loose ends of the flexible film 13 extend outside the interfit slotted portion 15 of the lid and the ridged flange 140 of the tray member 11. The shingled bacon 14 stacked on the base 130 that the bacon 14 is readily visible through either the front or rear sides of the food package.

[0038] As illustrated in FIG. 2B, the cover panel 17 of the lid 12 is inset. The peripheral slotted edge portion 15 of the lid 12 includes a generally flat horizontal top portion 151 connecting a pair of generally vertical side portions 152 and 153 to define a slot or recess that extends around the periphery of the lid 12, and which has a shaped allowing it to be mated with the ridged flange 140 of the tray member 11. In this illustration, inner side portion 153 of lid slotted portion 151 extends vertically downward

more than the other side portion 152. In one embodiment, a sliding friction fit is made between side portion 153 of the lid 12 and an inner and outer peripheral ledge portions 141 and 142 of the tray 11 which provides a positive acting reclosure feature by which the consumer has an audible acknowledgement and or tactile experience of closure completion by having a tight fitting arrangement. In this illustration, lid slotted portion 151 defines a squared recess that is open at one end and the ridged flange 140 of the tray 11 has a squared end. These features could be slightly rounded or some other shape as long as the slotted portion 15 of the lid 12 and ridged flange 140 of the tray 11 have shapes that will correspondingly mate with each other. The peripheral slotted edge portion 15 of the lid member 12 includes a peripheral inset portion 16 that forms a generally vertical extension portion that is connected to the cover panel 17 at an approximately ninety degree angle. As indicated, lid member slotted edge portion or flange 15 rests in contact on tray flange 140. In this manner, the lid cover panel 17 projects into the tray 11 when the package 10 is in its closed condition. A well 1600 is defined within the upper surface (non-food side) 161 of lid member 12 with cover panel 17 at its bottom and peripheral inset portion 16 defining its lateral sides, which can be seen in more detail in FIG. 10.

[0039] Referring to FIG. 2C, the closure feature that is provided by lid slotted edge portion 15 and tray flange 140 is shown in even greater detail to show an additional optional closure enhancing feature in which outside lateral side or ledge 142 of the ridged flange 140 includes a continuous or intermittent series of ribs 154 which are received into and mate with indentations or slots 155 provided on the side portion 153 of lid slotted edge portion 15. It also will be appreciated that the placement of these snap-fitting engagement structures may be reversed such that the lid slotted edge portion 15 has projections which releasably snap into corresponding indentations provided on the outer peripheral ledge portion 142 of flange 140 of the tray member. Also, the number and location of the various interlocking slots and ribs shown in this illustration is exemplary, and is not intended to be limiting. Therefore, when the tray 11 supports a stack of shingled bacon on base 130, the lid 12 may be snap-fitted into place upon the tray 11. These tray features permit a stack of shingled bacon to be supported in position within tray 11 and displayed through the packaging in a highly visible, orderly manner.

[0040] Referring to FIGS. 2A, 9 and 12, a plurality of protuberances or "feet" 123 may be molded into the bottom side of the tray member 11. Multiple containers 10a, 10b, etc., as described herein may be conveniently and easily stacked by forming the feet 123 on the tray 11 of container 10b at positions which may be conformably nested from above within a lid well 1600, such as described above, which is molded into the lid member 12 of an underlying separate container 10a having a similar construction, effective to restrict lateral movement of the

feet 123 of the overlying tray member 10b. This arrangement makes it possible to "catch" packages as they slide out of vertical orientation on-shelf, which facilitates stacking of the food packages for storage or on retailer shelves.

[0041] In one embodiment, a structural feature is included as an integral part of the flange of either the tray 11 or the lid 12 components to facilitate initiation of manual separation of the components apart at their flanges. For instance, outward-extending, easy-open "thumb-tabs" 143 and 144 may be provided on the outer periphery of the tray 11 and the lid 12 for this purpose (e.g., see FIGS. 7 and 11). As also illustrated, a discrete upraised projection or lug 145 may be included on top surface of tray thumb-tab 143, or alternatively the lower surface of lid thumb-tab 144, which can be included to further make it easier for a user to start peeling the lid and tray flanges apart using digital manipulation. Other techniques used for this general purpose also may be employed. For instance, a lateral cut-out can be provided in the thumb-tab 144 or other accessible peripheral flange area of the lid 12 that laterally extends inward relative to the underlying tray thumb-tab 143 or other peripheral flange area of the tray 11 to expose same to provide an easier site from which to initiate manual peeling of the lid and tray components 12 and 11 apart.

[0042] In these non-limiting illustrations, the tray 11 has a generally rectangular-shaped profile (from a top view perspective). Other package profiles may be used, depending on the dimensions of the shingled stack of bacon slices or other foodstuffs and to the extent a profile accommodates the multi-contoured tray base used in accordance with this invention to help display the package contents. For example, if the shingled stack of bacon strips has a size similar to that of the lengths of the individual bacon strips, then a more squared-shaped profile may be suitable for the tray 11. The profile of the lid 12 usually generally corresponds to that of the tray 11.

[0043] With this arrangement, improvements include the addition of the vacuum film and, if necessary, the tray textural design elements that facilitate release of the film from areas of the tray not covered by product. The vacuum film provides a hermetic seal between the product and the tray 11, and maintains the food product in position on the tray. The food product loaded into the tray member is immobilized by the film for optimal display through transparent packaging to prospective customers at the grocery store or other retailer, while the flexible film also maintains the food product in a vacuum sealed condition on the tray member and prevents foodstuff oils or juices from migrating away from the foodstuff onto the tray member. This can make it easier to identify leakage of food product fluids. More bacon slices are visible to the consumer prior to purchasing and opening the package of bacon. The rigid lid member or overcap allows for simple yet secure manual reclosure of the package after the flexible film has been removed to access the foodstuff. The reclosable package helps keep product fresh after opening. The combination of rigid plastic tray member

and rigid plastic lid, as described herein, allows reclosure of the package after the consumer opens the hermetic seal of the vacuum sealed flexible film. The generally rigid constructions of both the tray and lid members, together with the provision of the above-noted closure features at the flanges of the components, also may permit a consumer to open and reopen the package with minimized manual effort.

[0044] The aforementioned improvements can also be achieved with the recloseable packages 210 and 310 of the embodiments of FIGS. 13 and 14. The embodiment of FIG. 13 includes a lid 212, a film 213, an array of bacon 14 and a tray 211. The tray 211 has longitudinally-extending raised ribs 215 in the bottom to facilitate positioning of the bacon 14 spaced from the bottom wall to generally contain moisture migration to the region uncovered by the bacon 14. The tray 211 also has a formation 216 at the intersections of the bottom wall and sidewall to provide additional rigidity. The embodiment of FIG. 14 includes a lid 312, a film 313, an array of bacon 14 and a tray 311. The tray 311 has longitudinally-extending raised ribs 315 in the bottom to facilitate positioning of the bacon 14 spaced from the bottom wall to generally contain moisture migration to the region uncovered by the bacon 14, and also to add rigidity to the tray 211. The tray 311 also has an arcuate intersection 316 at the juncture of the bottom wall and sidewall to provide additional rigidity, as well as aid in generally vertical or upright display of product on a shelf. Neither of the packages 210 and 310 have the protuberances disclosed in the package 10 of the aforementioned embodiment. Instead, separation of the film 213 or 313 from the tray 211 or 311 is facilitated by the selection of those materials.

[0045] Referring to FIG. 15, in one embodiment, the tray member, flexible film, and the lid member are formed, filled, and sealed as a continuous in-line procedure 200. The tray member and lid member separately may be manufactured as respective thermoformable webs, which may be supplied as roll stock and run on a form-fill-seal machine, or the like. A roll stock of a plastic web, such as described herein, may be used as the supply web for each container component. Separate plastic webs may be conveniently processed on continuous and intermittent motion vacuum thermoforming machines, or comparable in-line forming equipment, to form the tray member and the lid member. For example, the tray member and the lid member may be separately manufactured from a suitable separate web that is shaped by thermoforming or other suitable plastic web shaping techniques known in the art. Suitable thermoforming methods, for example, include a vacuum forming or plug-assist vacuum forming method. The flexible film can be separately provided in prefabricated roll form, or can be formed as part of the continuous process.

[0046] In a vacuum forming method, a web is heated, e.g., by a contact heater and a vacuum is applied beneath the web causing the web to be drawn or pushed by atmospheric pressure down into a preformed mold. In a

plug-assist vacuum forming method, after the first or forming web has been heated and sealed across a mold cavity, a plug shape similar to the mold shape impinges on the opposite side of the forming web and, upon the application of vacuum, the forming web transfers to the mold surface. A web thermoformed into the tray member may be deep drawn in this manner to form a receptacle having the base surface contour described herein for receiving shingled bacon (step 201). A separate web is thermoformed into the lid member (step 202).

[0047] The tray member (and lid member) may be thermoplastic or thermosetting materials that can be shaped into the desired tray or lid configuration. The tray and lid members may also be made of materials suitable for injection molding. The tray member (and lid member) independently can be made from a variety of materials including homogenous plastic films, multi-layered film laminates, and/or co-extruded films, and the like. In one embodiment, packaging material useful for the tray member and lid member is polyester, and particularly, a polyester film construction suitable for packaging of refrigerated meat products. Preferably, at least the tray member has 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 tray and lid members are made from Curform 9413, having an APET layer, such as about 14 mils, and an ionomer layer, such as about 2 mils, to facilitate denesting and made by Curwood, Inc., Oshkosh, Wisconsin. Additionally, the tray member may have a sealant layer made from 9108-0, such as about 4 mils, made by Curwood.

[0048] The forming web which is shaped into the tray member structure is positioned in a manner suitable to receive a predetermined amount of shingled bacon, which is placed therein by manual or automated loading (step 203).

[0049] After a food product is loaded into an open tray, the loaded tray is advanced through a packaging machine to apply a flexible sealing film to the food product on the tray member (step 204). A flexible film is conformably drawn over the shingled bacon and exposed tray areas with vacuum skin packaging techniques and equipment. In general, the flexible sealing film is drawn down onto the food product and free peripheral edges of the film are drawn onto the tray surface dimples or protuberances and the bottom surfaces of the tray. The flexible film closely conforms to the adjoining surfaces of the bacon and exposed tray areas, and adheres to the exposed tray areas. The packaging machine used may be a vacuum-skin tray sealer packaging machine, such as a Consolidated Food Systems (CFS) TWINSTAR packaging machine.

[0050] A lid is mechanically joined, such as by a snap-fit, to the tray supporting the foodstuff that has already been packed within the flexible film (step 205). In an alternative arrangement, the lid is heat-sealed to the tray at juxtaposed flanged surfaces thereof.

[0051] A second separately thermoformed web corresponding to the lid member may be thermoformed into the appropriate shape with a similar method. The stiffness of the lid member may optionally be enhanced by embossing patterns into it, such as a rhomboid pattern. The lid member web is positioned over the tray member web preloaded with foodstuff covered by flexible film. The tray member, as filled with bacon, is then attached to the lid member, which has been separately formed, at their respective mating peripheral ridged flange of the tray member and slotted edge portion of the lid member (step 205). For example, the lid member peripheral slot portion is seated upon the tray member peripheral ridged flange in a contiguous manner.

[0052] The lid member and tray member do not need to be heat sealed at their aligned and contacting peripheral flanges and edge portions, since the flexible film seals the foodstuff upon the tray base in a hermetic sealing manner. Therefore, the tray member and lid member 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 is not excluded. In this manner, the flexible film, lid member, and tray member form a substantially gas- and debris-impermeable enclosure for the shingled bacon. The mechanical attachment of the lid member and tray member can be sufficiently strong to withstand the expected handling and use conditions of the container.

[0053] The loaded and covered packages may be labeled (step 206), such as using conventional pressure sensitive food package labeling. In this embodiment, the individual sealed packages are then trimmed out of the superposed tray and lid webs (step 207), and may be packaged, shipped, and or shelved in any convenient manner. Snap fit projections, such as described herein, are used to assist and enhance mechanically reclosure of the container after it has been opened at the flanges and the flexible film has been removed.

[0054] In an alternative method 300 illustrated in FIG. 16, preformed trays and lids may be filled with a foodstuff, by way of example shingled bacon. A supply of preformed trays (step 301) each have shingled bacon placed in a cavity thereof (step 302). After filling, a flexible film is drawn over the shingled bacon and sealed to exposed areas of the tray (step 303). Next, any excess film can be trimmed, if necessary (step 304). Lids from a supply of preformed lids (step 305) are attached to the tray at flange portions thereof (step 306) to form packages. Finally, the package can optionally be labeled (step 307). 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. 15.

[0055] The flexible film or skin may be a thin pliable ionomer material. Commercially available products in this respect include roll stock for vacuum skin packing applications, such as the CURLON series films, such as

CURLON 610, by Curwood Inc., Oshkosh, WI. The flexible skin may have a thickness of about 3-4 mils or other suitable thickness for the vacuum packing operation. In addition to the above and subject to any requirements indicated herein, one or more of the flexible film, lid and/or tray plastic materials may also include one or more additives useful in packaging films, such as, antiblocking agents, slip agents, flavorants, antimicrobial agents, meat preservatives, antioxidants, fillers, radiation stabilizers, and antistatic agents, and so forth. Such additives, and their effective amounts, are generally known in the art.

[0056] In side-by-side comparisons to pre-existing commercial bacon package products, the reclosable food packages of the present invention have been found to provide a better visibility of the enclosed food product in combination with ease of opening/closing the package for enhanced food access and a better resealable lid.

[0057] While described with specific reference to particular process and product embodiments, it will be appreciated that various alterations, modifications and adaptations may be based on the present disclosure, and are intended to be within the spirit and scope of the following claims.

Claims

1. A reclosable food package for a foodstuff comprising:
 - a generally rigid tray for receiving a foodstuff;
 - a flexible film for covering the foodstuff and contacting adjacent areas of the tray uncovered by the foodstuff in a vacuum sealed manner; and
 - a generally rigid lid adapted for reclosable attachment to the tray, wherein at least one of the tray member and lid member is transparent.
2. The reclosable food package of claim 1, wherein protuberances are provided in the tray in the areas of the tray uncovered by the foodstuff to facilitate release of the flexible film from the areas of the tray base that are uncovered by the foodstuff.
3. The reclosable food package of Claim 2, wherein the protuberances have progressively smaller diameter and height in a direction extending from a tray member sidewall towards a central base portion of the tray.
4. A reclosable food package, comprising:
 - a generally rigid tray member having a tray base, generally upstanding tray sidewalls, and generally upstanding tray endwalls, and a tray member peripheral ridged flange which surrounds an open mouth generally opposite the tray base,

wherein the tray base comprises a generally flat central base portion disposed between two inclined base portions which merge with the generally upstanding tray sidewalls at respective locations below the tray member peripheral ridged flange and a peripheral ledge portion extends along an inner surface of the sidewalls and endwalls adjacent the mouth of the tray member; a foodstuff is disposed within the tray member; a flexible film conformably vacuum sealed upon the food product and adjacent areas of the tray member uncovered by the foodstuff; a generally rigid lid member securable onto the tray member, the lid member including a lid member peripheral slotted edge portion surrounding a central lid panel portion that is inset relative to the slotted edge portion, said lid member adapted for being reclosably attached to the tray member wherein the lid member peripheral slotted edge portion is adapted to slidably engage and be seated on the tray member peripheral ridged flange;

wherein the cover panel and tray base define an interior volume for enclosing the foodstuff supported on the tray base when the lid member peripheral slotted edge portion is seated on the tray member peripheral ridged flange, and at least one of the lid member and tray member having transparency to permit visible inspection therethrough of the foodstuff enclosed within the package.

5. The reclosable food package of Claim 4, wherein a plurality of space apart integral protuberances extend from the tray base to facilitate release of the flexible film from areas of the tray base that are uncovered by the foodstuff.
6. The reclosable food package of Claim 5, wherein the protuberances have progressively smaller diameter and height in a direction extending from a tray member sidewall towards the central base portion.
7. The reclosable food package of any one of Claims 4 to 6, wherein the inclined base portions individually have respective inclination angles in the range from about 20 to about 50 degrees, relative to a plane coplanar with the tray base.
8. The reclosable food package of any one of Claims 4 to 7, wherein the inclined base portions individually have widths of about 40 to about 120% the width of the central base portion.
9. The reclosable food package of any one of Claims 4 to 8, wherein the tray member further includes integral feet on a bottom surface thereof, which are adapted to fit inside an inset region provided in an

upper surface of the lid member effective to prevent undue shifting of an overlying food package comprising such a lid member and tray member relative to an underlying food package also comprising such a lid member and tray member.

10. The reclosable food package of any one of Claims 1 to 9, wherein the foodstuff comprises a shingled stack of bacon slices.
11. The reclosable food package of any one of Claims 1 to 10, wherein the flexible film comprises a transparent ionomeric film material.
12. The reclosable food package of Claim 11, wherein the flexible film, tray member, and lid member are transparent.
13. A method for packing foodstuffs using a reclosable package, comprising:

providing packaging components including:

a generally rigid tray member having a tray base, generally upstanding tray sidewalls, and generally upstanding tray endwalls, and a tray member peripheral ridged flange which surrounds an open mouth generally opposite the tray base, wherein the tray base comprises a generally flat central base portion disposed between two inclined base portions which merge with the generally upstanding tray sidewalls at respective locations below the tray member peripheral ridged flange and a peripheral ledge portion extends along an inner surface of the sidewalls and endwalls adjacent the mouth of the tray member; a generally rigid lid member securable onto the tray member, the lid member including a lid member peripheral slotted edge portion surrounding a central lid panel portion that is inset relative to the slotted edge portion, said lid member adapted for being reclosably attached to the tray member wherein the lid member peripheral slotted edge portion is adapted to slidably engage and be seated on the tray member peripheral ridged flange;

wherein the cover panel and tray base define an interior volume for enclosing the food product supported on the tray base when the lid member peripheral slotted edge portion is seated on the tray member peripheral flange; at least one of the lid member and tray member having transparency to permit visible inspection therethrough of foodstuff when enclosed within the pack-

age;
introducing a foodstuff into the rigid tray member as
supported on the tray base;
covering the food product with a flexible film with
vacuum sealing effective to conformably cover the 5
foodstuff and adjacent areas of the tray member un-
covered by the foodstuff with said flexible film; and
covering the tray member with the lid member.

14. The method of Claim 13, wherein the foodstuff com- 10
prises a shingled stack of bacon slices.

15. The method of Claim 13 or 14, wherein the providing
of the packaging components comprises separately 15
thermoforming the tray member and the lid member.

16. The method of any one of Claims 13 to 15, wherein
a plurality of space apart integral protuberances ex-
tend from the tray base to facilitate release of the
flexible film from areas of the tray base that are un- 20
covered by the foodstuff.

17. The method of any one of Claims 13 to 16, wherein
the tray member and lid member comprise transpar- 25
ent thermoplastic materials, and the flexible film
comprises a transparent ionomeric film material.

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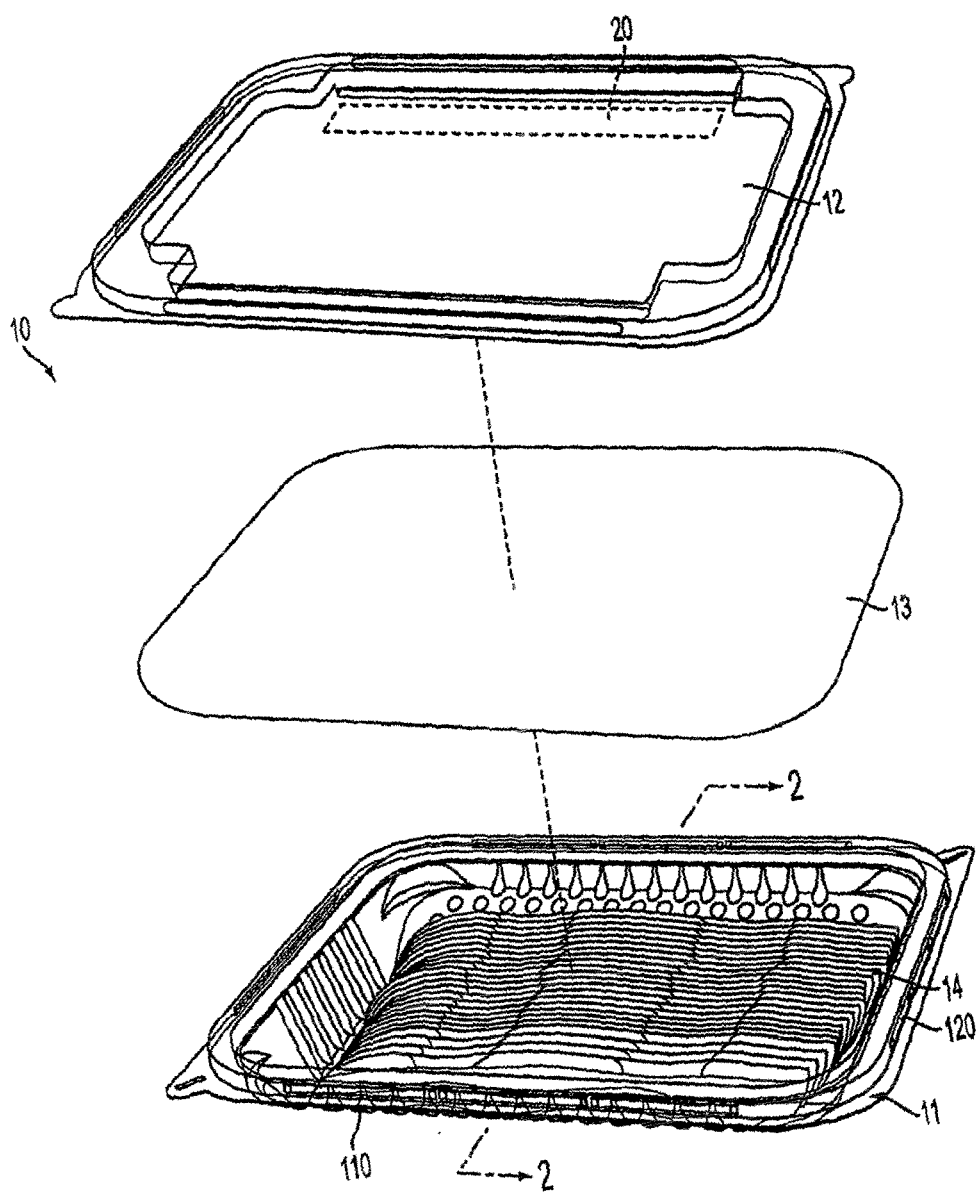
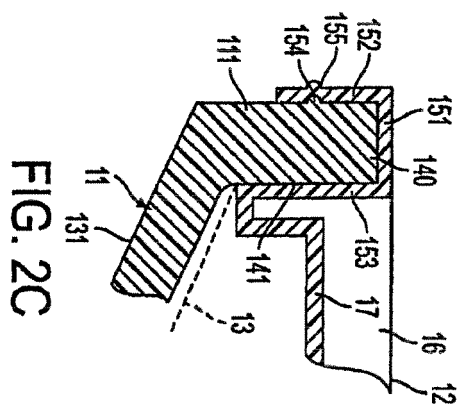
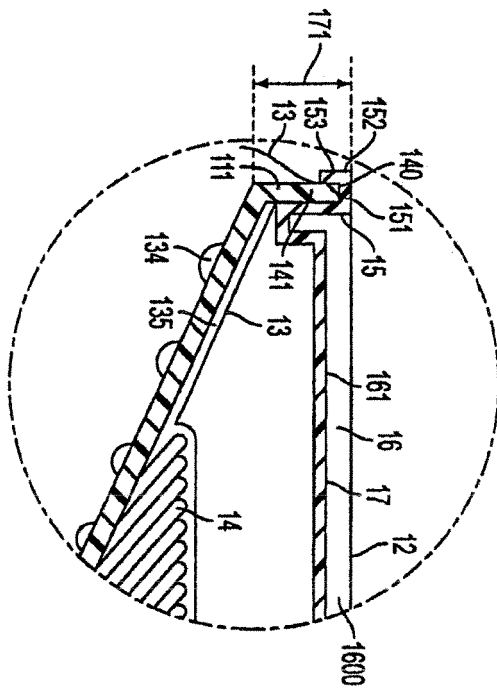
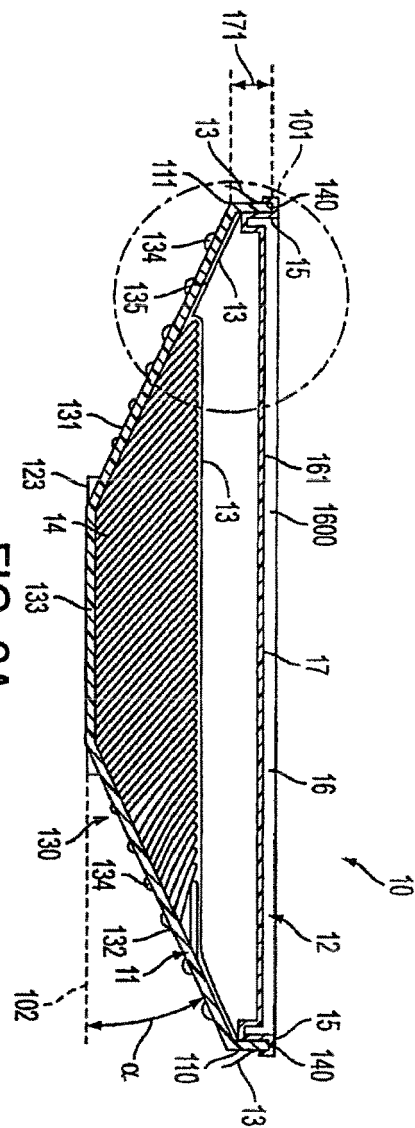


FIG. 1



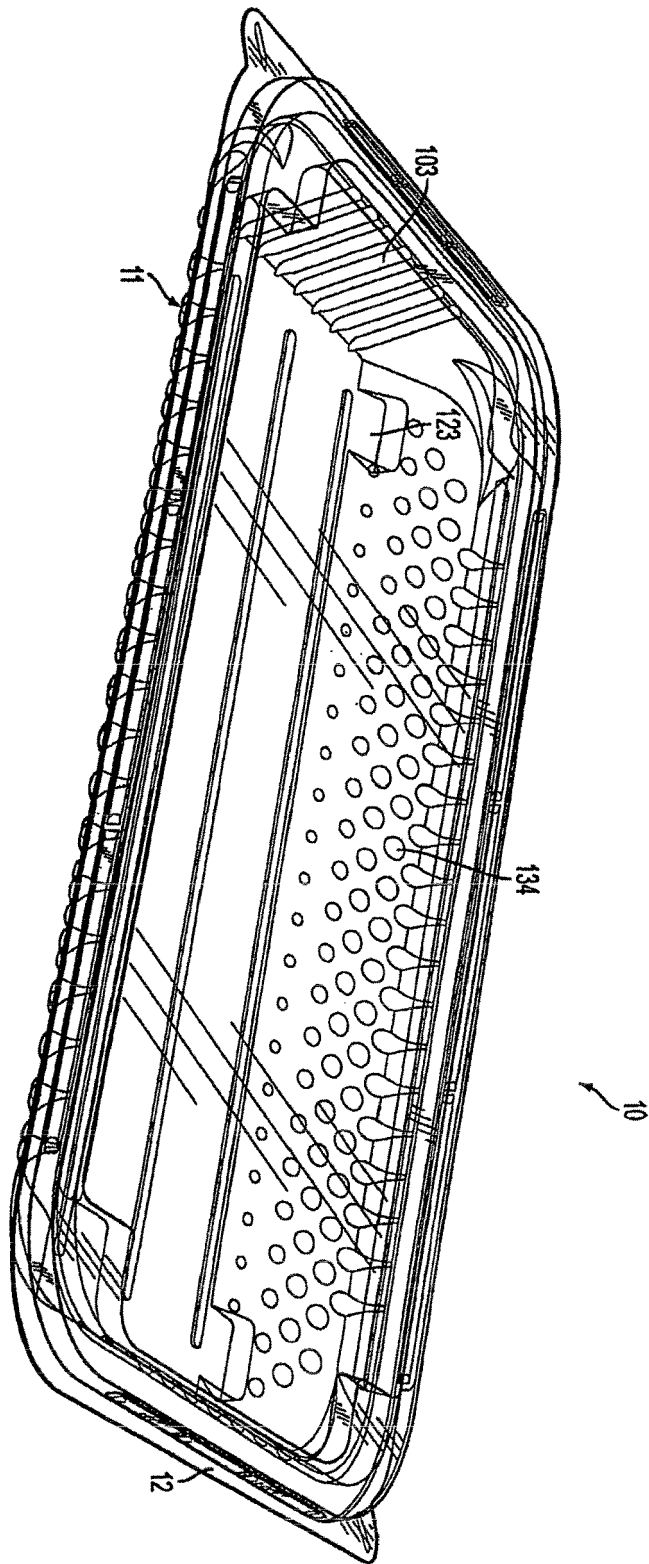


FIG. 3

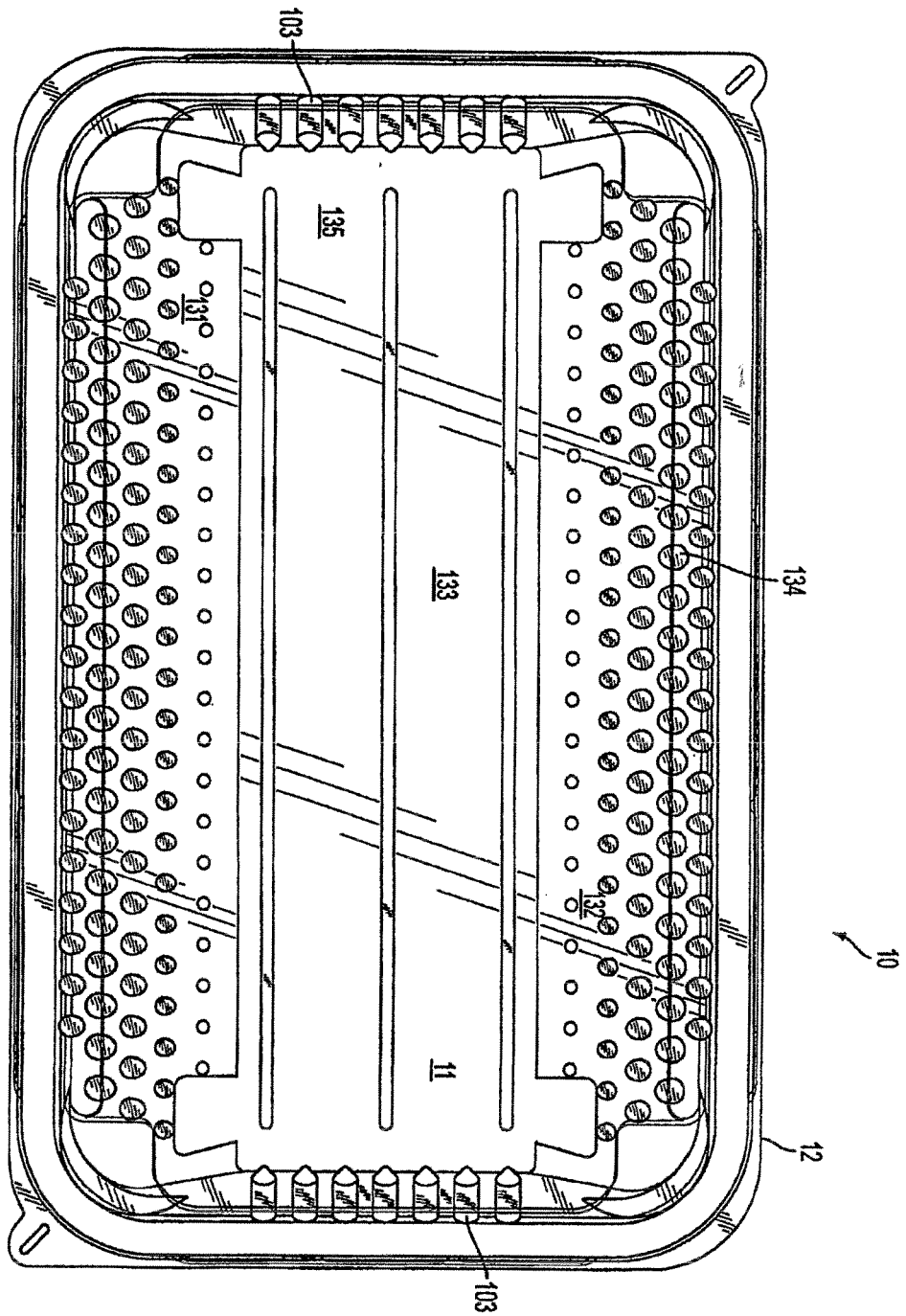


FIG. 4

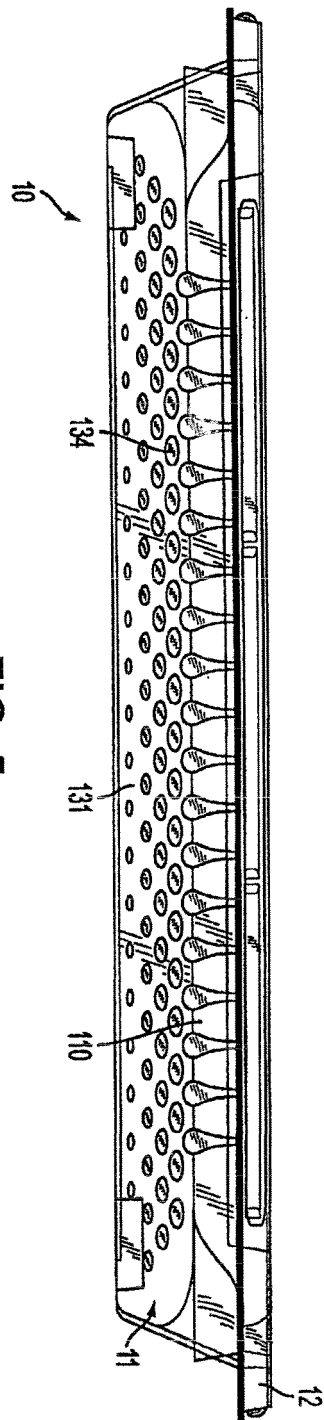


FIG. 5

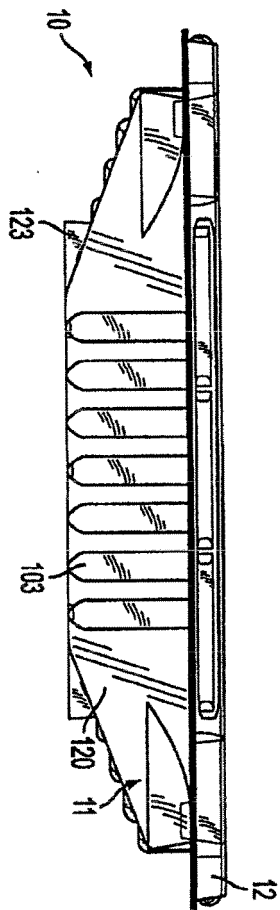


FIG. 6

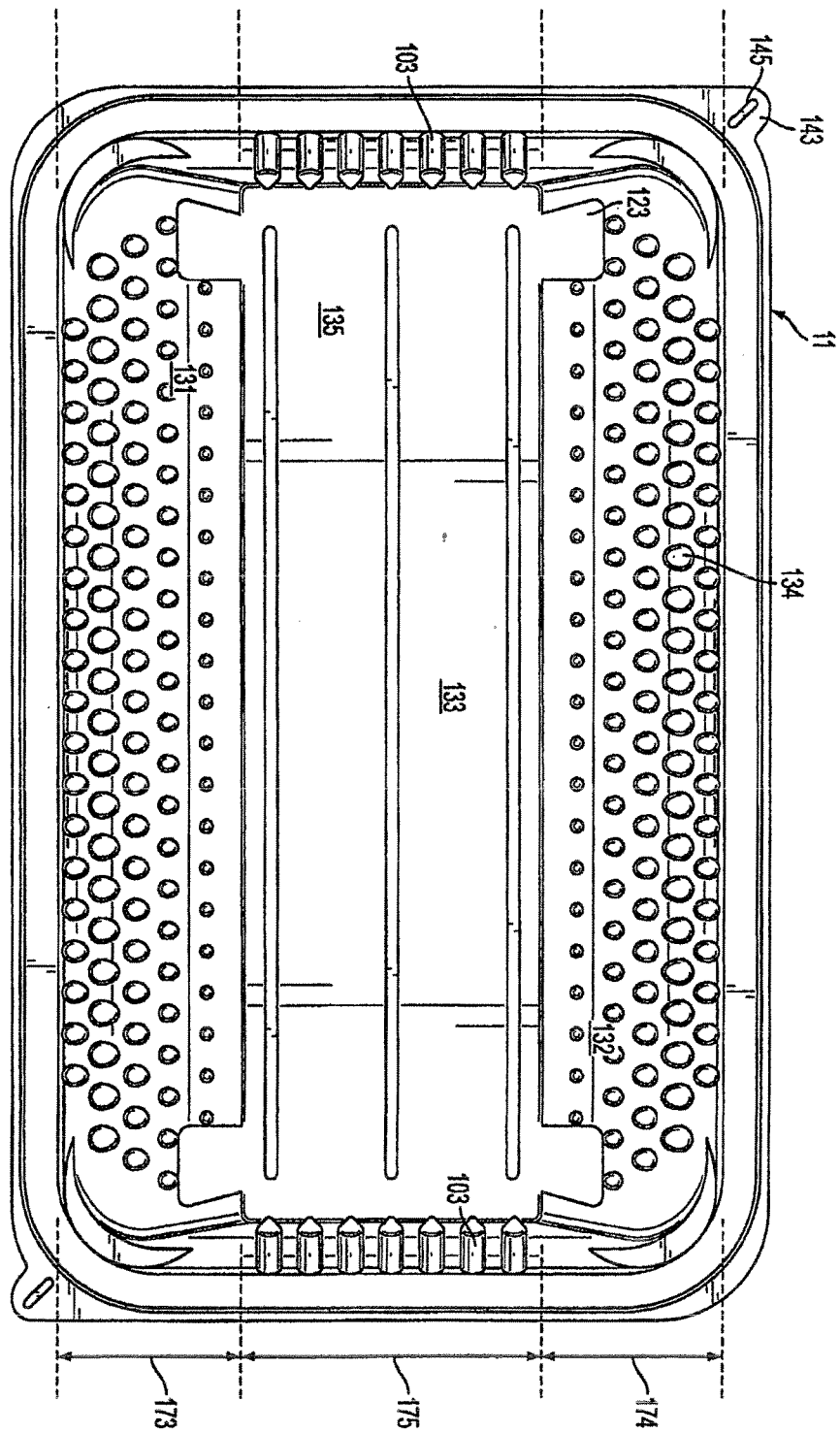


FIG. 7

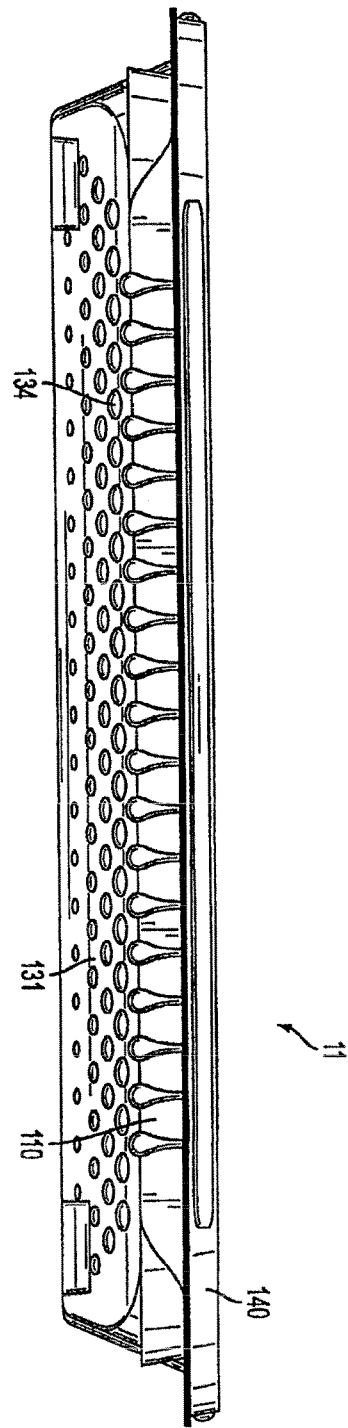


FIG. 8

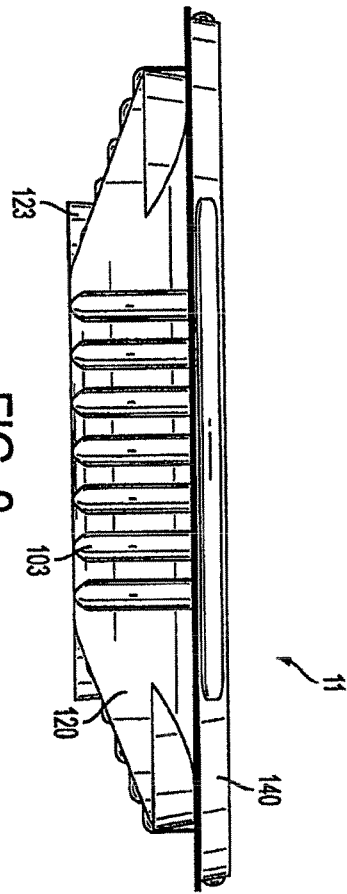


FIG. 9

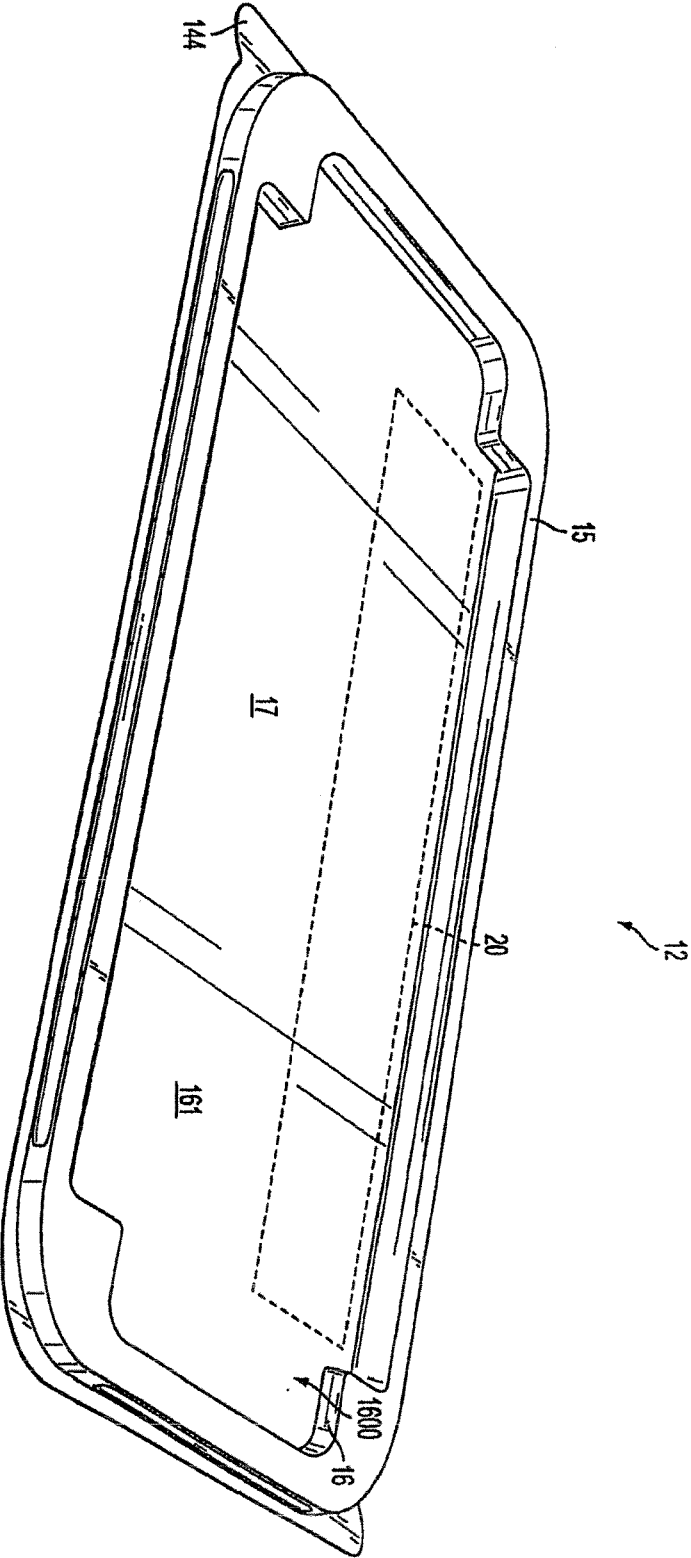
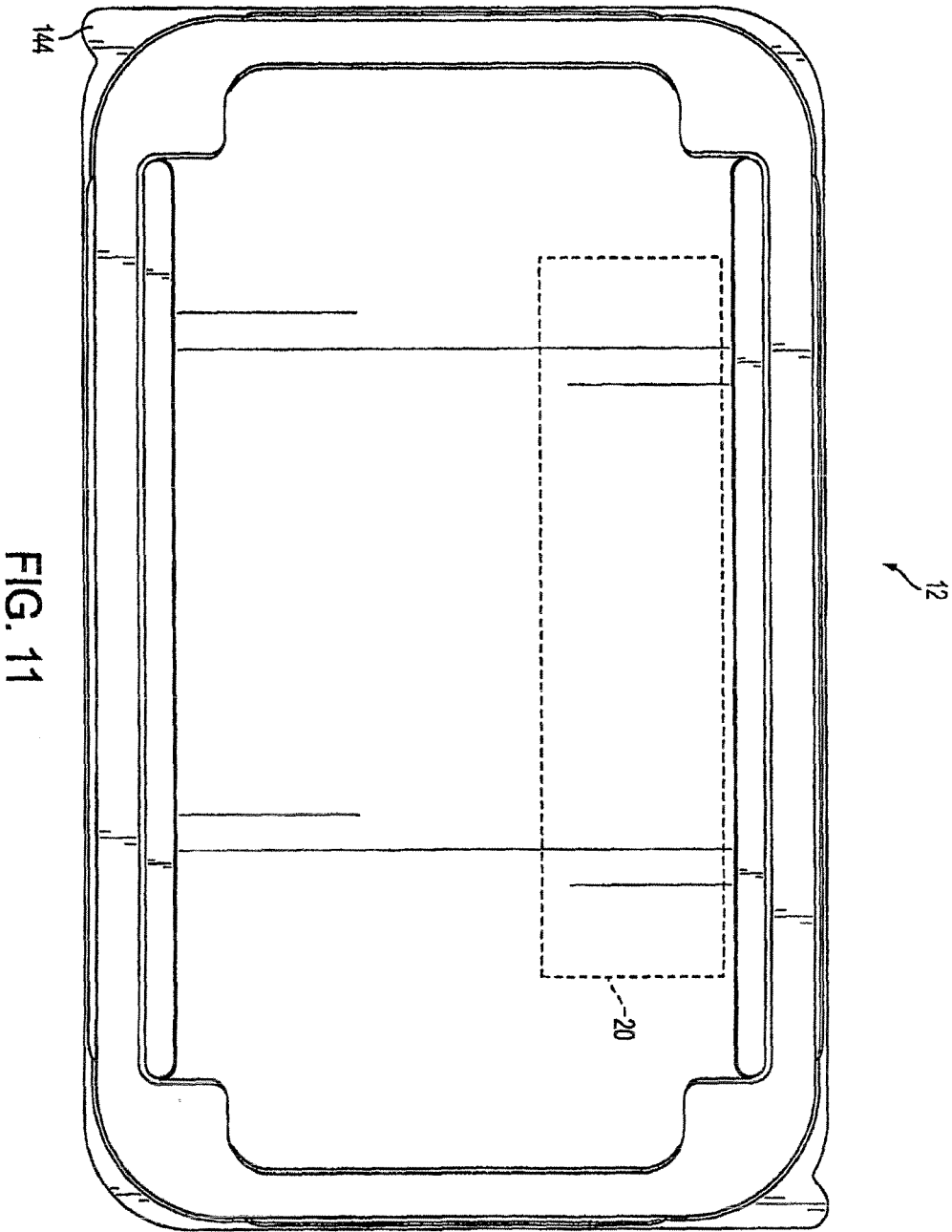


FIG. 10



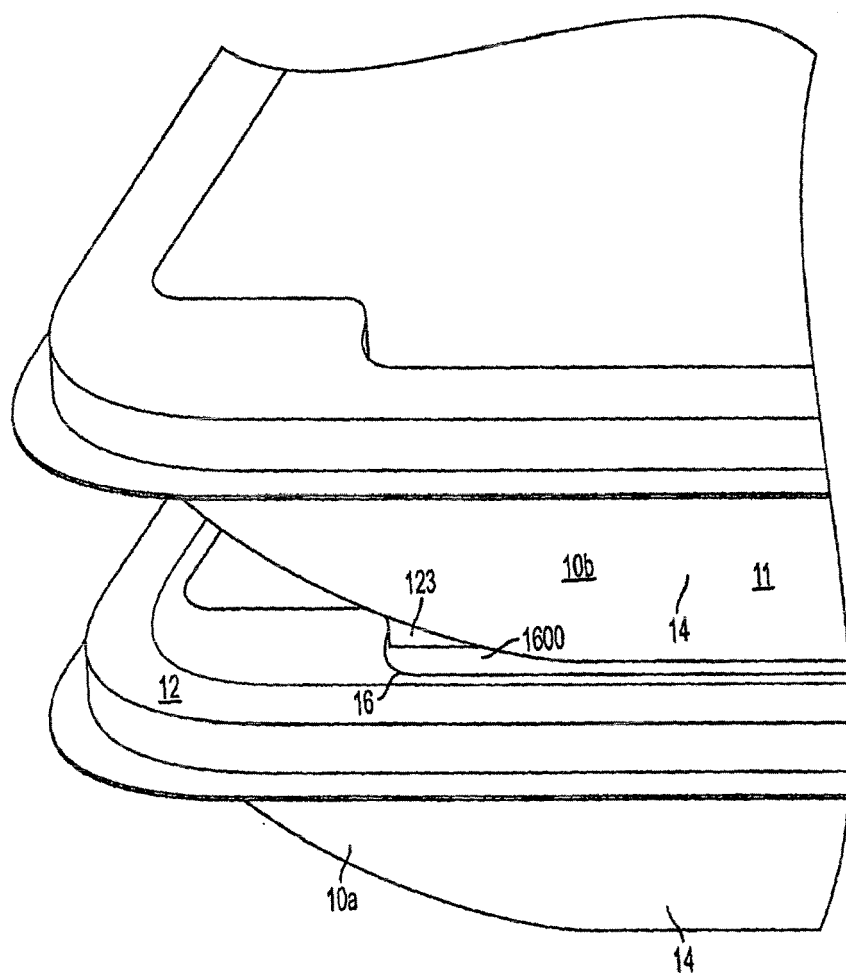


FIG. 12

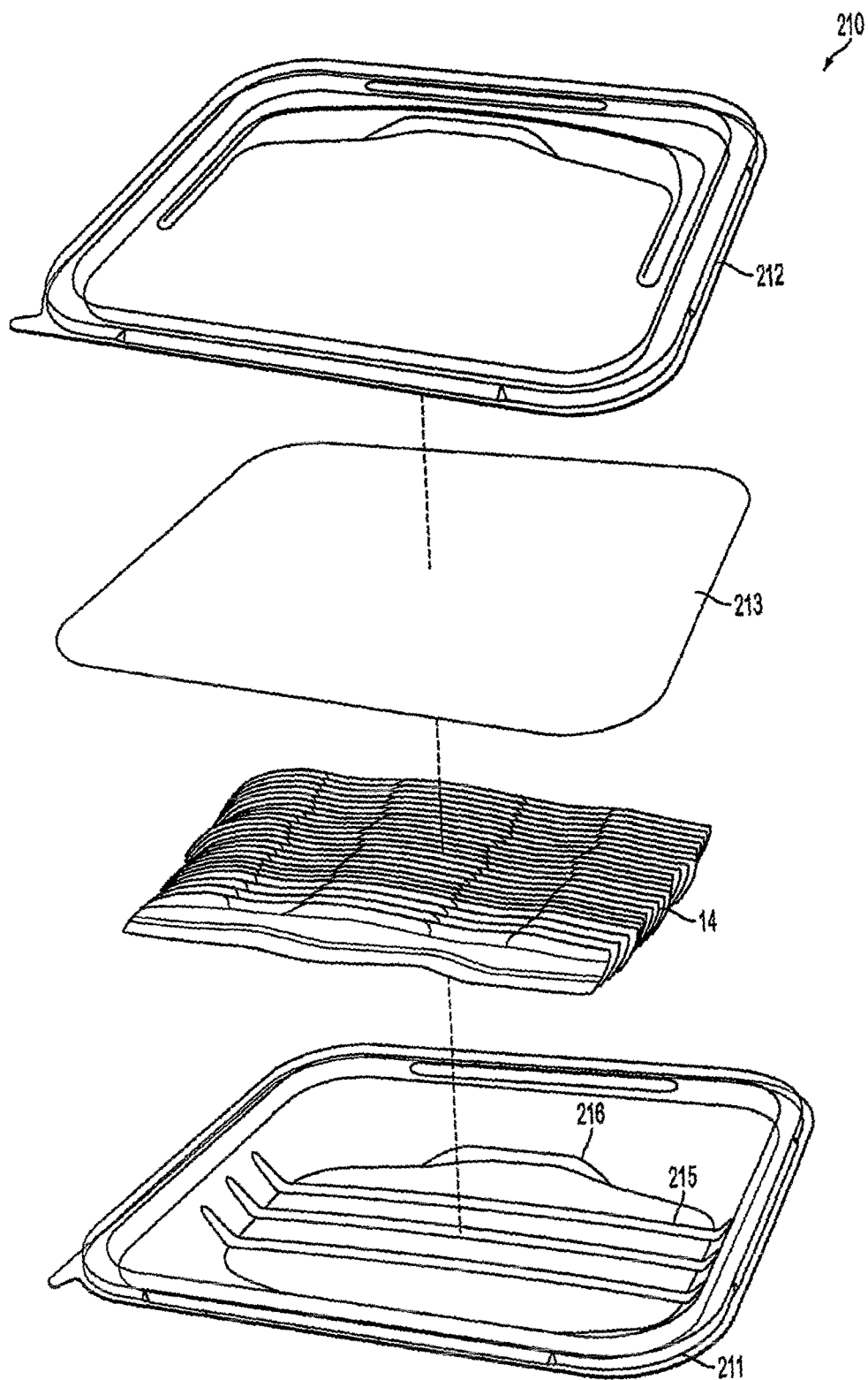


FIG. 13

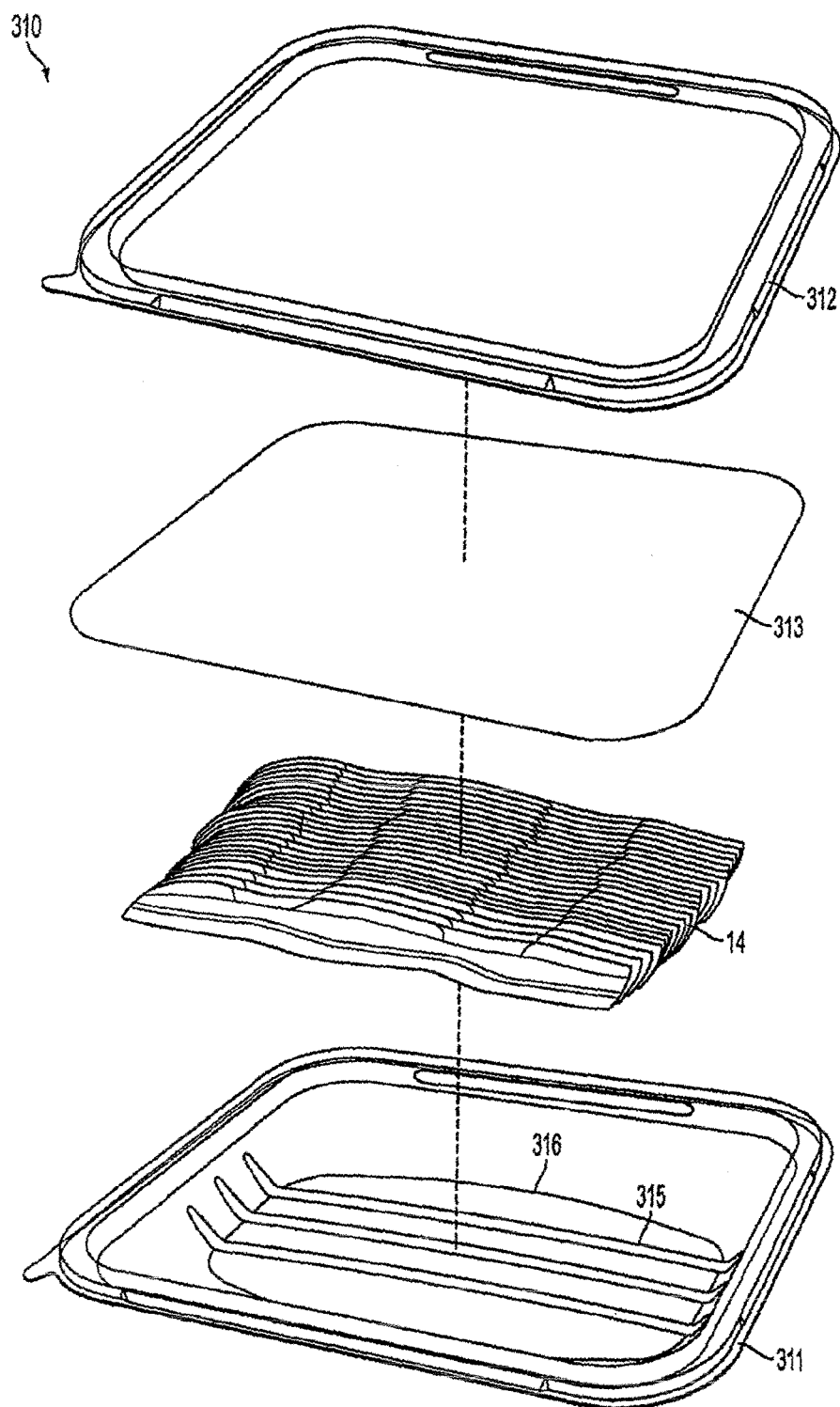


FIG. 14

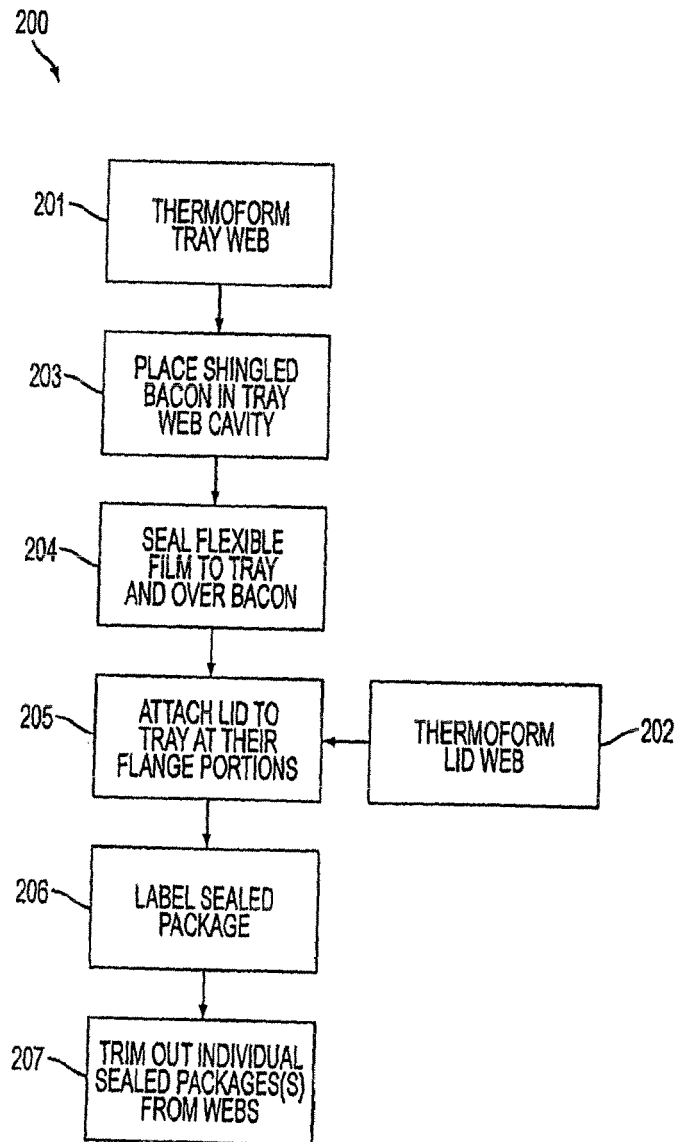


FIG. 15

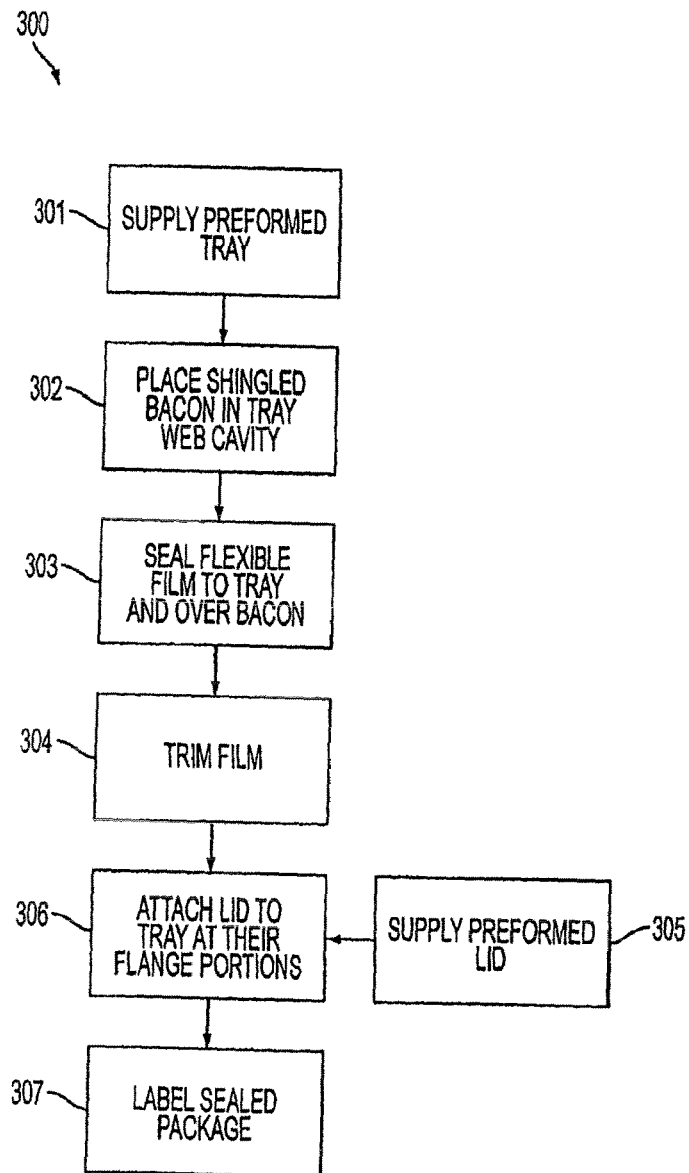


FIG. 16



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EUROPEAN SEARCH REPORT

Application Number
EP 07 11 6878

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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X	DE 295 15 199 U1 (SCHWARZ SIEGFRIED [DE]) 4 January 1996 (1996-01-04) * page 2, paragraph 7 * * page 3, paragraph 2 - page 4, last paragraph; figures 1,2 * -----	1	
A	CH 482 584 A (ANDERSON BROS MFG CO [US]) 15 December 1969 (1969-12-15) * column 2, line 27 - column 3, line 47; figures 1-3 * -----	1-17	
A	US 2005/233036 A1 (FELDMEIER DANIEL R [US] ET AL) 20 October 2005 (2005-10-20) * paragraph [0029] - paragraph [0033]; figures 1-3 * -----	1-17	
A	US 2004/159080 A1 (STEWART MICHAEL [AU] ET AL) 19 August 2004 (2004-08-19) * paragraph [0040] - paragraph [0043]; figure 4 * -----	4	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) B65D
Place of search Munich		Date of completion of the search 11 April 2008	Examiner Derrien, Yannick
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03/82 (P04C01)



European Patent
Office

Application Number

EP 07 11 6878

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☒ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
- ☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



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Office

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 07 11 6878

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-3

A reclosable food package having a base with protuberances,
a flexible film and a lid.

2. claims: 4-17

A reclosable food package having a tray with a peripheral
ridged flange, a lid with a peripheral slotted edge portion
and a flexible film conformably vacuum sealed upon a food
product.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 11 6878

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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11-04-2008

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REFERENCES CITED IN THE DESCRIPTION

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