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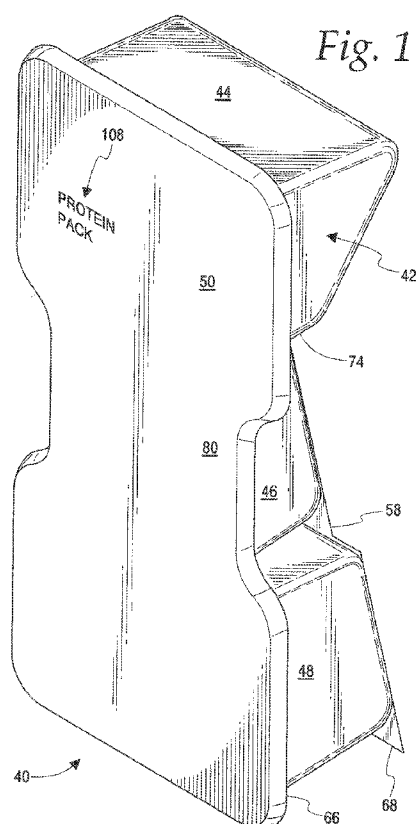
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(54) Title: PACKAGED FOOD PRODUCT



(57) Abstract: A packaged food product may incorporate an angled back card to improve stability by providing an enlarged footprint when the package is standing upright, i.e., vertically oriented. The angled back card can provide a wider base of support between the front of the product and the back card to improve the ability of the package to be self-supporting in an upright position, i.e., to stand up reliably on a shelf without leaning on other structures for external support. The package may be generally dumbbell-shaped as viewed from the front and/or from other angles, and may comprise a center portion that is narrower and/or shallower than adjacent end portions. This may facilitate handling of the product by the consumer and also may help to provide the product with an impactful appearance and theme at retail when the product is viewed from the front and/or from other angles. The product may include high-protein food items, consistent with the theme established by the shape, and may include prominently-displayed information about the protein content of the food items.



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## PACKAGED FOOD PRODUCT

### CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 61/745,915, filed on Dec. 26, 2012, entitled “Packaged Food Product,” the entire disclosure of which is fully incorporated herein by reference.

### FIELD OF THE INVENTION

[0002] This application relates generally to food packaging, and more particularly to a packaged food product that may be displayed in an upright position.

### BACKGROUND

[0003] Packaged food products include meal kits that contain various ready-to-eat (“RTE”) food items to provide an essentially complete meal, as well as snack kits that contain fewer components and/or smaller quantities than meal kits. Such kits may include, for example, farinaceous items such as crackers and breads; proteinaceous items such as meats, nuts and cheeses; sauces; dips; dessert; beverages such as juice drinks; and/or other food and beverage items.

[0004] Upstanding packaged food products that comprise a tray with one or more cavities and a removable lid sometimes include a back card disposed generally parallel to the front wall to facilitate display of the package on a shelf in an upright position. Packaged food products also sometimes include a hanging feature such as a movable tab as shown, e.g., in U.S. Patent No. 7,128,222. Such packages may be made of various materials as disclosed in U.S. Patent No. 5,657,874, the disclosure of which is incorporated by reference herein.

[0005] Food items may be disposed in the cavities with or without wrappers or other packaging materials within the cavities. Some food items may be individually pre-packaged in film wrap, pouches or containers having removable lids. Beverages may be contained in a

cup with a removable flexible lid secured in place by a peel seal; a flexible pouch, such as a tetrahedral pouch; a metal can; a plastic bottle with a screw top; or another type of container. To increase shelf life and stability, the cavities may be gas flushed to reduce or eliminate oxygen, and internal containers within the cavities may be gas flushed or vacuum sealed to reduce or eliminate oxygen.

[0006] In the past, some upstanding packaged food products of the types described above have proven to be somewhat unstable, or susceptible to tipping in response to minor disturbances. There remains a need for improvements in providing stability for such packages. Also, with a wide variety of packaged food products available at grocery stores, there is a continuing need for new and innovative impactful packaging that will enable a product to stand out in a positive way. In addition, there is a continuing need for improvements in handleability of food packaging.

#### SUMMARY

[0007] The packaged food product described below may incorporate an angled back card to improve stability by providing an enlarged footprint when the package is standing upright, i.e., vertically oriented. The angled back card can provide a wider base of support between the front of the product and the back card to improve the ability of the package to be self-supporting in an upright position, i.e., to stand up reliably on a shelf without leaning on other structures for external support.

[0008] The packaged food product may be generally dumbbell-shaped as viewed from the front and/or from other angles, and may comprise a center portion that is narrower and/or shallower than adjacent end portions. This may facilitate handling of the product by the consumer. That is, the recessed midsection of the tray design can help to provide an intuitive, secure and comfortable way of holding the product. Providing a reduced area to hold the package can result in a slimmer/leaner feel. This shape also may help to provide the product with an impactful appearance and theme at retail when the product is viewed from the front and/or from other angles. The product may include high-protein food items,

consistent with the theme established by the shape. For example, in some embodiments, diced meat, nuts, and diced cheese components may be placed in bottom, middle and top compartments, respectively. The package may include prominently-displayed information about the protein content of the food items.

[0009] In some embodiments, the packaged food product may comprise three cavities or compartments, arranged in a vertical row. The compartment(s) on which the back card rests, the side seal widths, and the draft angle of the bottom compartment are designed to provide good standability, product access and product view without making the compartments empty-looking.

[0010] The invention compartments preferably are proportioned to the amount of product. In some embodiments, the product is dimensioned to be convenient for different sizes of hands. In some embodiments, the product is stackable with other like products, and is suitable for display in various ways, e.g., in (1) a self-supported upright or vertical orientation; (2) an upright orientation in which the product leans on other like products or on a wall or other structure in a horizontal stack or array, with the back of a product at the front of the array engaging the front of an adjacent product behind it, etc.; or (3) a flat or horizontal configuration.

[0011] In some embodiments, the flange may have a small return lip dimension of, e.g., 2 to 2.5 mm, and a small flange width of, e.g., 5 to 6 mm to enhance standability of the package with or without a back card. In some embodiments the product is both standable and peggable. Peggability may be achieved by extending the seal flange at the top of the package and including a peg hole in the extension. Alternatively, or in addition, the back card can be extended to the top or the side of the package to be used for pegging purpose.

[0012] In some embodiments, the product is a single item. In other embodiments, the product comprises a multipack.

[0013] Also described below are methods of making packaged food products in a high-speed, high-efficiency commercial operation, and methods of displaying such products.

[0014] In some embodiments, the methods may facilitate precise placement of the back card by providing a surface on the lower side of a compartment, such as a top compartment, that will restrict the back card from moving in the direction of that compartment. More specifically, a notch or shelf can be built in into the bottom side of the top compartment to provide a guide for the back card during assembly.

[0015] In some embodiments, the packaged food product comprises a rigid thermoformed tray comprising a flange and at least one cavity, and a lid sealed to the tray. A food product is disposed within the at least one cavity or cavities. Each cavity has one or more side walls and a rear wall that is angled relative to the flange. A back card extends along and beyond the rear wall. The back card is oriented so that so that the packaged food product is capable of being displayed on edge with the bottom end of the flange and the bottom end of the back card stably supporting the packaged food product on a horizontal surface. The bottom end of the back card is spaced from the flange by a greater distance than the upper end of the back card to provide an enlarged footprint for the packaged food product. The rear wall may be oriented at an angle of, e.g., 5° to 40° or 15° to 30° relative to the flange. The back card may have a front surface flush against and/or affixed to the angled rear wall of a first cavity or compartment, and an upper end abutting a bottom wall of a second cavity or compartment thereabove. The bottom wall of the second compartment may have a stabilizing surface such as a groove or a shelf engaging a portion of the back card. Where a groove or notch is provided, it is desirable that it be sufficiently shallow that it does not prevent efficient manufacture of the tray in a high speed molding process such as a thermoforming or vacuum forming operation. A portion of the back card may extend upward beyond the upper cavity and may have an opening above the upper cavity to facilitate hanging the packaged food product from a peg.

[0016] The tray may comprise a first portion comprising at least one cavity and a second portion comprising at least one cavity, and an area of weakness therebetween to facilitate separation of the first portion from the second portion. Some or all of the compartments may be gas flushed to reduce or eliminate oxygen therein. The lid may comprise a flexible film having moisture-barrier and oxygen-barrier properties. The product may have a generally dumbbell-shaped front surface that has information prominently displayed thereon referring to protein content, and the food product comprises one or more proteinaceous food products such as cheeses, meats and nuts. The tray may comprise an upper cavity, a lower cavity, and a middle cavity therebetween. The middle cavity may be narrower and shallower than the upper and lower cavities. In some embodiments, the mass of the food product in the upper compartment may be less than the mass of the food product in the lower compartment to enhance stability. In other embodiments, the mass of the food product in the upper compartment may be equal to or greater than the mass of the food product in the lower compartment, and the angled back card may provide sufficient stability notwithstanding the higher center of gravity associated with this arrangement.

[0017] In some embodiments, the packaged food product comprises first and second rigid thermoformed trays, each comprising a flange and at least one cavity, each of the cavities having one or more side walls and a rear wall that is angled relative to the flange, food products disposed within the cavities, and means for enclosing the food products within the cavities. One or more back cards may extend along and beyond at least one of the rear walls. The back card(s) may be oriented so that the lower ends of the flanges and of the back card(s) stably support the packaged food product on a horizontal surface, with the lower end(s) of the back card(s) being spaced from the flanges by a greater distance than the upper end of the back card(s) to provide an enlarged footprint for the packaged food product. The compartments may be gas flushed to reduce or eliminate oxygen therein. The means for enclosing the food products within the cavities may comprise a first film lid hermetically sealed to the flange of the first tray and a second film lid hermetically sealed to the flange of the second tray. Alternatively, the means for enclosing the food products within the cavities may comprise a single film lid having a first portion hermetically sealed to the flange of the first tray and a second portion hermetically sealed to flange of the second tray. In this

arrangement, the film lid may have an area of weakness to facilitate separation of the first portion from the second portion.

[0018] The back card(s) may comprise a one or more back cards engaging only the first tray, and/or one or more back cards engaging only the second tray, or may comprise a single back card having a first portion engaging the first tray and a second portion engaging the second tray, with an area of weakness between the first and second portion to facilitate separation of the first portion from the second portion. Each back card may be affixed to the rear wall of a middle compartment. The rear walls and back cards may be oriented at an angle of 5° to 40° or 15° to 30° relative to the flanges. Each tray may also comprise an upper compartment or cavity that has a stabilizing surface such as a shallow groove or a shelf engaging an upper end of one or more of the back cards. Alternatively, a portion of one or more of the back cards may extend upward beyond the upper cavity and may have an opening above the upper cavity to facilitate hanging the packaged food product from a peg.

[0019] In some embodiments, the packaged food product comprises a tray comprising a flange and at least one compartment or cavity; a proteinaceous food product disposed within the compartment(s); and a generally dumbbell-shaped lid enclosing the food product within the compartment(s). The lid may have information prominently displayed thereon concerning protein content of the food product. The tray may be thermoformed, and may comprise an upper cavity, a lower cavity, and a middle cavity therebetween. The middle cavity may be narrower and/or shallower than the upper and lower cavities. A first proteinaceous food product may be disposed within the upper cavity. A second proteinaceous food product may be disposed within the middle cavity. A third proteinaceous food product may be disposed within the lower cavity. A back card may extend along and beyond at least one of the rear walls. The back card may have an upper end and a lower end, and may be oriented so that the lower ends of the flange and of the back card stably support the packaged food product on a horizontal surface, with the lower end of the back card extending downward and rearward of the lower compartment and being spaced from the flange by a greater distance than the upper end of the back card to provide an enlarged footprint for the packaged food product.



[0020] The middle cavity may have an angled rear surface oriented at an angle of 5° to 40° or more specifically an angle of 15° to 30° relative to the flange. The back card may be flush with and attached to the angled rear surface. The upper cavity may have a stabilizing surface that comprises a shallow groove or a shelf or other structure engaging a portion of the back card. A portion of the back card may extend upward or laterally beyond the tray and may have an opening to facilitate hanging the packaged food product from a peg. The cavities may be gas flushed to reduce or eliminate oxygen therein. The food products may be cheeses, meats, nuts, and/or other products. The mass of the food product in the upper compartment may be less than the mass of the food product in the lower compartment. The flange of the tray may define a plane. The upper compartment may have a greater depth than the lower compartment. The distance from the plane of the flange to the bottom end of the angled back card may equal to the depth of the upper compartment, such that in addition to being displayed in upright orientations, the product may be displayed in a horizontal or flat configuration in which it is supported by the rear surface of the top compartment and by the lower end of the back card.

[0021] In some embodiments, a method of packaging a food product in a high-speed commercial packaging operation may comprise:

- (a) forming a tray with a flange and at least one cavity having an angled rear surface;
- (b) placing a food product in the package;
- (c) placing a film over the tray;
- (d) sealing the food product in at least one cavity;
- (e) placing a rigid angled back card on the angled rear surface in a position that will enable the packaged food products to be stably self-supporting in an upright orientation on a generally horizontal surface with an edge of the flange contacting the generally horizontal surface, and with the back card extending down and away from the angled rear surface to contact the generally horizontal surface; and
- (f) repeating steps (a) through (e) to form a plurality of additional packaged food products.

[0022] Steps (a) through (f) may be performed in line in a single efficient high-speed operation. Alternatively, one or more steps, such as forming the trays, may be performed off-line. Where the trays are formed off-line, they may be supplied to a filling and sealing line in stacks, nested together.

[0023] Placing the rigid angled back card on the rear surface may comprise use of an adhesive or other means to affix the back card to the rear surface, and may further comprise affixing the back card to more than one compartment. In some embodiments, the tray may have two lower compartments with coplanar angled rear surfaces, and an upper compartment with a lower surface that has a stabilizing feature such as a notch, groove or shelf for receiving an upper end of the back card.

[0024] Additional steps, such as a gas-flush step, may be included in the process. The process may also include joining the packaged food products in pairs, wherein placing the rigid angled back card on the angled rear surface comprises placing a single rigid angled back card on rear surfaces of two trays.

[0025] After forming, filling and sealing the packages and attaching back cards, the resulting packaged food products may be transported to retail locations and placed on horizontal shelves in upright and vertical positions in which they are stable and self-supporting. Alternatively, they may be displayed in other ways, e.g., on shelves in upright positions in which they lean on adjacent products or other structures; on shelves in flat or horizontal positions; or on pegs, suspended from a top or side hang tab in an upright or sideways position.

[0026] The term “back card” as used herein refers to any panel or similar item. The back cards described herein may be made of any suitable material such as, by way of example and not by way of limitation, card stock, paperboard, polymeric materials, or laminates which may include one or more layers of the above materials and /or other materials such as metal foils and the like.

## BRIEF DESCRIPTION OF DRAWINGS

- [0027] FIG. 1 is a perspective view of a packaged food product in accordance with a first embodiment;
- [0028] FIG. 2 is a front elevation view thereof;
- [0029] FIG. 3 is a rear elevation view thereof;
- [0030] FIG. 4 is a right side elevation view thereof;
- [0031] FIG. 5 is a left side elevation view thereof;
- [0032] FIG. 6 is a top plan view thereof;
- [0033] FIG. 7 is a bottom plan view thereof;
- [0034] FIG. 8 is a right side elevation view of a packaged food product in accordance with a second embodiment;
- [0035] FIG. 9 is a perspective view thereof;
- [0036] FIG. 10 is a right side elevation view of the packaged food product of FIG. 1;
- [0037] FIG. 11 is a right side elevation view of a third embodiment;
- [0038] FIG. 12 is a right side elevation view of a fourth embodiment;
- [0039] FIG. 13 is a right side elevation view of a fifth embodiment;
- [0040] FIG. 14 is a perspective view of a sixth embodiment;
- [0041] FIG. 15 is a rear elevation view thereof;
- [0042] FIG. 16 is a rear elevation view of a seventh embodiment which is similar to that of FIG. 14 except as shown;
- [0043] FIG. 17 is an isometric view of an eighth embodiment;
- [0044] FIG. 18 is a right side cross-sectional elevation view of the tray of FIG. 1;
- [0045] FIG. 19 is an isometric view of a ninth embodiment;
- [0046] FIG. 20 is an isometric view of a tenth embodiment identical to that of FIG. 14, but with a transparent lid;
- [0047] FIG. 21 is a flow chart illustrating a method of making and displaying packaged food products;
- [0048] FIG. 22 is a perspective view of an eleventh embodiment;
- [0049] FIG. 23 is a front elevation view thereof;
- [0050] FIG. 24 is a right side elevation view thereof;

[0051] FIG. 25 is a right side elevation view of a twelfth embodiment.

### DETAILED DESCRIPTION

[0052] In a first embodiment, illustrated in Fig. 1-7, there is provided a packaged food product 40 that comprises a rigid thermoformed tray 42 comprising one or more cavities or compartments, specifically an upper compartment 44, an intermediate compartment 46, and a lower compartment 48; and a lid 50 sealed to the tray. Food products 52, 54 and 56 (shown in Fig. 4) are disposed within the cavities.

[0053] Each cavity has one or more side walls and a rear wall. A back card 58 extends along and beyond coplanar rear walls 60 and 62 of the intermediate and lower compartments. The back card 58 is oriented so that so that the packaged food product is capable of being displayed on edge with the bottom end 64 of the flange 66, and the bottom end 68 of the back card 58 stably supporting the packaged food product on a horizontal surface 70 (Fig. 4).

[0054] The bottom end 68 of the back card extends downward and rearward from the rear surface of the bottom compartment to provide an enlarged footprint for the packaged food product. The rear walls 60, 62 and back card 58 may be oriented at an angle  $\alpha$  of 5° to 40° or 15° to 30° relative to the flange 66.

[0055] The back card 58 has front surface portions flush against and affixed by adhesives and/or other means to the angled rear walls 60 and 62 of the intermediate and lower compartments. The back card further has an upper end 72 abutting a bottom wall 74 of the upper compartment. The bottom wall of the second compartment may have a stabilizing surface 76 such as a shallow groove or a shelf, shown in Fig. 12, engaging the upper end or another portion of the back card. In other embodiments, an example of which is illustrated in Figs. 8 and 9, a portion of the back card 58 may extend upward beyond the upper cavity and may have an opening 104 above the upper cavity to facilitate hanging the packaged food product from a peg. Alternatively, the back card may extend laterally beyond the tray and have an opening to facilitate pegging of the product.

[0056] Some or all of the compartments 44, 46 and 48 may be gas flushed to reduce or eliminate oxygen therein. The lid may comprise a flexible film having moisture-barrier and oxygen-barrier properties.

[0057] To facilitate handling and to communicate information or a thematic concept, the product of claim 1 has a generally dumbbell-shaped front surface 80, with the middle cavity 46 being narrower and shallower than the upper and lower cavities. In keeping with the concept of the product, the front surface has information 108 prominently displayed thereon which may refer to protein content, e.g., the words "Protein Pack," or to the amount of protein contained in the product. The food product may comprise one or more proteinaceous food products such as diced cheese 52, diced meats 54 and nuts 56 that in the aggregate contain a significant amount of protein. By way of example and not by way of limitation, the amount of protein in some embodiments may be, e.g., about 5 to 20 grams; about 12 to 14 grams; or about 13 grams, and the amount of protein may be communicated by text and/or graphics prominently displayed on the front surface 80, or otherwise included on the package. Other text, graphics, colors, etc. may also be included on any of the package surfaces to provide brand information, ingredient information, nutritional information, to make the package attractive, or for other reasons.

[0058] In some embodiments, the mass of the food product in the upper compartment may be less than the mass of the food product in the lower compartment to enhance stability. In other embodiments, the mass of the food product in the upper compartment may be equal to or greater than the mass of the food product in the lower compartment, and the angled back card may provide sufficient stability notwithstanding the higher center of gravity associated with this arrangement.

[0059] The product is preferably sized and shaped so that it has good handling characteristics. To this end, the tray 42 in some embodiments has a height "h" of 3 in. to 10 in., or 6 in. to 7 in.; a maximum width of 2 to 5 in., or 3 to 4 in.; a reduced central width "W<sub>2</sub>," a depth "d<sub>1</sub>" of about 1 in. to 4 in., or 2 in. to 3 in.; and a reduced central depth "d<sub>2</sub>"

that is less than  $d_1$ . The back card 58 in some embodiments extends downward and rearward from the lower compartment, in some embodiments providing the product with an increased depth " $d_3$ " which is greater than  $d_1$  at its bottom. In some embodiments, each of the upper and lower compartments 44 and 48 has a width " $W_3$ ," and the middle compartment has a reduced width " $W_4$ " which is less than  $W_3$ . In the interest of promoting stability, the flange width " $W_5$ " and flange return dimension " $W_6$ " (shown in Fig. 18) are both preferably fairly small. In some embodiments, the flange width  $W_5$  may be, e.g., 5 to 6 mm., and the flange return dimension  $W_6$  may be, e.g., 0 to 5 mm. or 2 to 3 mm.

[0060] Figs. 8 and 9 illustrate an embodiment which is similar to that of Fig. 1 except as noted below. In the embodiment of Figs. 8 and 9, the back card 58 extends upward over and beyond the upper compartment 44 across its entire width, and peg openings 104 are provided in the lid 50, flange 66 and back card 58. In other similar embodiments, the back card may extend vertically beyond the upper edge of the flange, and a single peg opening may be provided in the back card only. Also, the width of the back card may be reduced near its upper end in other embodiments.

[0061] Fig. 10 illustrates an embodiment similar to that of Fig. 1, except that the depth of the lower compartment 48 in the embodiment of Fig. 10 is less than that of the upper compartment 44, and the depth of the product at its bottom, i.e., the distance from a plane defined by a front surface of the flange to the bottom/rearward end 68 of the back card is equal to the depth of the upper compartment 44. The configuration of Fig. 10 may facilitate compact stacking and display of food products 40 in upright, flat or other orientations. For example, a stack of horizontally oriented products like that shown in Fig. 10 may be more stable, absent significant deflection of the back card due to stacking loads. However, the stability of the embodiment of Fig. 10 may not be as great as that of the embodiment of Figs. 1-7 due to the decreased depth at the bottom or base. Also, prior to attachment of the back card, if the tray of Fig. 10 is resting on the rear wall 82 of upper compartment 44 and rear wall 62 of lower compartment 48, the flange 66 will not be horizontal, which may complicate high speed filling and sealing of the trays.

[0062] As shown in Fig. 13, the back card need not be adhered to both the intermediate and lower compartments 46 and 48, but rather may be adhered only to the intermediate compartment 46, and may be spaced from the lower compartment 48.

[0063] Figs. 14, 15 and 20 illustrate a “multipack” packaged food product that comprises first and second trays 42 similar to those described above, each comprising a flange 66 and at least one cavity. The means for enclosing the food products within the cavities may comprise a first film lid hermetically sealed to the flange of the first tray and a second film lid hermetically sealed to the flange of the second tray. Alternatively, or additionally, the means for enclosing the food products within the cavities may include a single opaque (Fig. 14) or transparent (Fig. 20) film lid 84 having a first portion 88 covering the first tray and a second portion 90 covering the second tray. Provision of a transparent lid, as shown in Fig. 20, provides an advantage in that it may enable the underlying trays, food products contained therein, and/or graphics, text, etc. on underlying surfaces, to be viewed therethrough. The film lid 84 may have an area of weakness 86 such as a perforation to facilitate separation of the first portion from the second portion.

[0064] In multipack embodiments, the back card 58 may comprise a single back card having a first portion 92 engaging the first tray and a second portion 94 engaging the second tray, with an area of weakness 96 between the first and second portion to facilitate separation of the first portion from the second portion. The area of weakness 96 may comprise a removable strip of material defined by a pair of parallel vertical perforations 98. A portion of one or more of the back cards may extend upward beyond the upper cavity and may have an opening above the upper cavity to facilitate hanging the packaged food product from a peg.

[0065] Fig. 16 and 17 illustrate further embodiments which are similar to that of Figs. 14 and 15 except as noted below.

[0066] In the embodiment of Fig. 16, a hang tab 100 with a peg opening 104 is provided on an extension 102 of removable strip 96, extending upward between the upper

compartments 44. The hang tab 100 may have an enlarged head to facilitate handling and provide additional strength and durability at around the opening.

[0067] In the embodiment of Fig. 17, the back card extends upward over and beyond the upper compartments 44 across its entire width, and peg openings 104 are provided in the lid 50 and the back card 58.

[0068] Fig. 21 illustrates a method of packaging and displaying a food product in a high-speed commercial packaging operation comprising the following steps (a) – (f) 211 – 216:

- [0069] (a) forming 211 a tray with a flange and at least one cavity having an angled rear surface;
- [0070] (b) placing 212 a food product in the cavity;
- [0071] (c) placing 213 a film over the tray;
- [0072] (d) sealing 214 the food product in at least one cavity;
- [0073] (e) placing 215 a rigid angled back card on the angled rear surface in a position that will enable the packaged food products to be stably self-supporting in an upright orientation on a generally horizontal surface with an edge of the flange contacting the generally horizontal surface, and with the back card extending down and away from the angled rear surface to contact the generally horizontal surface;
- [0074] (f) repeating 216 steps (a) through (e) to form a plurality of additional packaged food products; and
- [0075] (g) standing 217 a plurality of packaged food products upright in a retail display.

[0076] Step (b) may take place with the tray in a generally horizontal position, rotated 90° clockwise from the position of Fig. 4, with the rear of the tray resting on a conveyor.

[0077] Steps (a) through (f) may be performed in line in a single efficient high-speed commercial operation. Alternatively, one or more steps, such as forming the trays, may be performed off-line. Where the trays are formed off-line, they may be supplied to a filling and sealing line in stacks, nested together with stacking legs 106 (Fig. 19) provided to facilitate de-nesting.



[0078] Placing the rigid angled back card on the rear surface may comprise use of an adhesive or other means to affix the back card to the rear surface, and may further comprise affixing the back card to more than one compartment. In some embodiments, the tray may have two lower compartments with coplanar angled rear surfaces, and an upper compartment with a lower surface that has a stabilizing feature such as a notch, groove or shelf for receiving an upper end of the back card.

[0079] Additional steps, such as a gas-flush step, may be included in the process. The process may also include joining the packaged food products in pairs, wherein placing the rigid angled back card on the angled rear surface comprises placing a single rigid angled back card on rear surfaces of two trays.

[0080] After forming, filling and sealing the packages and attaching back cards, the resulting packaged food products may be transported to retail locations and placed on horizontal shelves in upright and vertical positions in which they are stable and self-supporting. Alternatively, they may be displayed in other ways, e.g., on shelves in upright positions in which they lean on adjacent products or other structures; on shelves in flat or horizontal positions; or on pegs, suspended from a top or side hang tab in an upright or sideways position.

[0081] Figs. 22-24 illustrate a further embodiment comprising a tray 42 for use in a packaged food product like that of Fig. 1. The tray 42 of Figs. 22-24 includes an upper compartment 44, an intermediate compartment 46 and a lower compartment 48. The tray 42 is generally dumbbell-shaped and is otherwise similar to the tray of Fig. 1, except that (1) the tray is symmetrical about a horizontal axis, with its intermediate compartment 46 having a generally vertical back wall 60 and (2) the tray is wider than the tray of Fig. 1. Food packages employing the tray of Figs. 22-24 may include a back panel, but will not necessarily include a back panel.

[0082] FIG. 25 illustrates a further embodiment similar to that of Figs. 1-7, except that in the embodiment illustrated in Fig. 25, the back wall 82 of the upper compartment 44 has a generally planar surface 83 disposed in a plane that is tangent to the deepest portion of the bottom compartment 48. In this embodiment, the maximum depth of the upper compartment is equal to the maximum depth of the bottom compartment 48. That is, the distance from a plane defined by a front surface of the flange 66 to the rearmost portion of the bottom compartment 48 is equal to the distance from the same plane to the rearmost portion of the top compartment. This configuration may provide increased stability of the rigid thermoformed tray 42 during filling due to increased surface area being in contact with a conveyor. That is, if the tray is filled prior to attachment of the back card 58, with the tray being in a generally horizontal position on a conveyor or other supporting surface, the generally planar surface 83 provides increased contact area, to increase stability such that the tray is less susceptible to tipping, sliding, rocking or other undesirable movement relative to the conveyor or other supporting surface.

What is claimed is:

1. A packaged food product capable of being displayed on edge comprising:
  - a tray comprising a flange and at least one cavity;
  - a lid sealed to the tray;
  - the flange having a first end and a second end; and
  - a food product disposed within the at least one cavity;
  - the at least one cavity having one or more side walls and a rear wall that is angled relative to the flange; and
  - a back card that extends along and beyond the rear wall;
  - the back card having a first end and a second end;
  - the back card being oriented so that so that the packaged food product is capable of being displayed on edge with the first end of the flange in an elevated position above the second end of the flange, and with the first end of the back card in an elevated position above the second end of the back card, and with the second end of the flange and the second end of the back card stably supporting the packaged food product on a horizontal surface, and with the second end of the back card being spaced from the flange by a greater distance than the first end of the back card to provide an enlarged footprint for the packaged food product.
2. The packaged food product of claim 1 wherein the rear wall is oriented at an angle of 5° to 40° relative to the flange.
3. The packaged food product of claim 2 wherein the tray comprises an upper cavity and at least one lower cavity, and wherein the upper cavity has a stabilizing surface engaging a portion of the back card.
4. The packaged food product of claim 3 wherein the back card is affixed to the rear wall, and wherein the stabilizing surface comprises either a shallow groove or a shelf.

5. The packaged food product of claim 1 wherein the tray comprises an upper cavity and at least one lower cavity, and wherein a portion of the back card extends upward beyond the upper cavity and has an opening above the upper cavity to facilitate hanging the packaged food product from a peg.
6. The packaged food product of claim 1 wherein the tray comprises a first portion comprising at least one cavity and a second portion comprising at least one cavity, and an area of weakness therebetween to facilitate separation of the first portion from the second portion.
7. The packaged food product of claim 1 wherein the at least one cavity is gas flushed to reduce or eliminate oxygen therein.
8. The packaged food product of claim 1 wherein the packaged food product has a generally dumbbell-shaped front surface that has information prominently displayed thereon referring to protein content, and wherein the food product comprises one or more proteinaceous food products selected from the group consisting of cheeses, meats and nuts.
9. The packaged food product of claim 8 wherein the tray comprises an upper cavity, a lower cavity, and a middle cavity therebetween, the middle cavity is narrower than the upper and lower cavities, the upper cavity contains a first food product, the lower cavity contains a second food product, and the mass of the food product in the upper compartment is less than the mass of the food product in the lower compartment.
10. A packaged food product capable of being displayed on edge comprising:
  - first and second rigid thermoformed trays, each comprising a flange and at least one cavity, each of the cavities having one or more side walls and a rear wall that is angled relative to the flange, the flange having an upper end and a lower end;
  - food products disposed within the cavities;
  - means for enclosing the food products within the cavities; and
  - back card means extending along and beyond at least one of the rear walls, the back card means having an upper end and a lower end, and being oriented so that the lower ends of the flanges and of the back card means stably support the packaged food product on a horizontal surface, with the lower

end of the back card means being spaced from the flange by a greater distance than the upper end of the back card means to provide an enlarged footprint for the packaged food product.

11. The packaged food product of claim 10 wherein the cavities are gas flushed to reduce or eliminate oxygen therein.

12. The packaged food product of claim 11 wherein the means for enclosing the food products within the cavities comprise a first film lid hermetically sealed to the flange of the first tray and a second film lid hermetically sealed to the flange of the second tray.

13. The packaged food product of claim 11 wherein the means for enclosing the food products within the cavities comprise a film lid having a first portion hermetically sealed to the flange of the first tray and a second portion hermetically sealed to flange of the second tray, the film lid having an area of weakness to facilitate separation of the first portion from the second portion.

14. The packaged food product of claim 11 wherein the back card means comprise a first back card engaging the first tray and a second back card engaging the second tray.

15. The packaged food product of claim 11 wherein the back card means comprise a back card having a first portion engaging the first tray and a second portion engaging the second tray, the back card having an area of weakness to facilitate separation of the first portion from the second portion.

16. The packaged food product of claim 11 wherein the rear walls are oriented at an angle of 5° to 40° relative to the flanges.

17. The packaged food product of claim 11 wherein each tray comprises an upper cavity and at least one lower cavity, and wherein each upper cavity has a stabilizing surface engaging a portion of the back card means.

18. The packaged food product of claim 17 wherein the back card means are affixed to the rear wall, and wherein the stabilizing surface comprises either a shallow groove or a shelf, and wherein the area of weakness of the back card comprises a removable strip of material defined by parallel perforations.

19. The packaged food product of claim 11 wherein the tray comprises an upper cavity and at least one lower cavity, and wherein a portion of the back card means extends upward beyond the upper cavity and has an opening above the upper cavity to facilitate hanging the packaged food product from a peg.

20. A packaged food product comprising:

- a thermoformed tray comprising a flange and at least one cavity;

- a proteinaceous food product disposed within the at least one cavity; and

- a generally dumbbell-shaped lid enclosing the food product within the at least one cavity, the lid having information prominently displayed thereon concerning protein content of the food product.

21. The packaged food product of claim 20 wherein the thermoformed tray comprises an upper cavity, a lower cavity, and a middle cavity therebetween, and wherein the middle cavity is narrower than the upper and lower cavities.

22. The packaged food product of claim 21 wherein a first proteinaceous food product is disposed within the upper cavity, a second proteinaceous food product is disposed within the middle cavity, and a third proteinaceous food product is disposed within the lower cavity.

23. The packaged food product of claim 22 further comprising back card means extending along and beyond at least one of the rear walls, the back card means having an upper end and a lower end, and being oriented so that the lower end of the flange and of the back card means stably support the packaged food product on a horizontal surface, with the lower end of the back card means being spaced from the flange by a greater distance than the upper end of the back card means to provide an enlarged footprint for the packaged food product.

24. The packaged food product of claim 23 wherein the middle cavity has an angled rear surface oriented at an angle of  $5^{\circ}$  to  $40^{\circ}$  to the flange, and wherein the back card means are attached to the angled rear surface;

the upper cavity has a stabilizing surface that comprises either a shallow groove or a shelf engaging a portion of the back card means;

the packaged food product has a central portion of reduced width and depth to enable the product to be easily and comfortably held in one hand;

the flange has a width of about 5 to 6 mm;

the flange has a return lip dimension of about 0 to 4 mm;

a portion of the back card extends upward beyond the upper cavity and has an opening above the upper cavity to facilitate hanging the packaged food product from a peg;

the cavities are gas flushed to reduce or eliminate oxygen therein;

the food products provide a total of about 13 grams of protein and are selected from the group consisting of cheeses, meats and tree nuts; and the mass of the food product in the upper compartment is less than the mass of the food product in the lower compartment.

25. The packaged food product of claim 24 wherein the flange defines a plane, and wherein the tray includes an upper compartment having a rear surface, a lower compartment having a rear surface, and an intermediate compartment having a rear surface, the upper compartment having a greater depth than the lower compartment, and wherein the distance from the plane of the flange to the bottom end of the angled back card is equal to the depth of the upper compartment.

26. The packaged food product of claim 24 wherein the flange defines a plane, and wherein the tray includes an upper compartment having a rear surface, a lower compartment having a rear surface, and an intermediate compartment having a rear surface, the upper compartment having a greater depth than the lower compartment, and wherein the distance from the plane of the flange to the bottom end of the angled back card is equal to the depth of the upper compartment.

27. A method of providing a packaged food product, comprising:

- (a) forming a tray with a flange and at least one cavity having an angled rear surface;
- (b) placing a food product in the tray;

- (c) placing a film over the tray;
- (d) sealing the food product in at least one cavity;
- (e) placing a rigid angled back card on the angled rear surface in a position that will enable the packaged food products to be stably self-supporting in an upright orientation on a generally horizontal surface with an edge of the flange contacting the generally horizontal surface, and with the back card extending down and away from the angled rear surface to contact the generally horizontal surface; and
- (f) repeating steps (a) through (e) to form a plurality of additional packaged food products.

28. The method of claim 27 wherein steps (a) through (f) are performed in line.

29. The method of claim 27 wherein the trays are pre-formed off line.

30. The method of claim 27 further comprising joining the packaged food products in pairs, wherein placing the rigid angled back card on the angled rear surface comprises placing a single rigid angled back card on rear surfaces of two trays.

31. The method of claim 27 wherein the tray includes an upper compartment having a rear surface, a lower compartment having a rear surface, and an intermediate compartment having a rear surface, the upper and lower compartments having substantially the same depth, and wherein placing a food product in the tray comprises placing the tray in a horizontal position with the tray resting on the rear surfaces of the upper and lower compartments prior to placement of the angled back card on the angled rear surface.

32. The method of claim 31 wherein the flange defines a plane and the tray includes an upper compartment having a rear surface, a lower compartment having a rear surface, and an intermediate compartment having a rear surface, the upper compartment having a greater depth than the lower compartment, the distance from the plane of the flange to the bottom end of the angled back card being equal to the depth of the upper compartment; the method further comprising displaying the product in a horizontal configuration in which it is supported by the rear surface of the top compartment and by the lower end of the back card.



33. A method of packaging a food product in a high-speed commercial packaging operation and thereafter displaying the food product in a retail setting, comprising:

- (a) forming a tray with a flange and at least one cavity having an angled rear surface;
- (b) placing a food product in the package;
- (c) placing a film over the tray;
- (d) sealing the food product in at least one cavity;
- (e) placing a rigid angled back card on the angled rear surface;
- (f) repeating steps (a) through (e) to form a plurality of additional packaged food products; and
- (g) standing a plurality of the packaged food products upright in a retail display such that each of the packaged food products is stably self-supporting in an upright orientation on a generally horizontal surface with an edge of the flange contacting the generally horizontal surface, and with the back card extending down and away from the angled rear surface to contact the generally horizontal surface.

34. The method of claim 33 wherein the tray comprises an upper cavity and at least one lower cavity, the lower cavity having the angled rear surface, the method further comprising placing a portion of the back card into a notch on the upper cavity.

35. A package that is capable of being displayed on edge comprising:

- a rigid thermoformed tray comprising a flange and at least one cavity;
- a lid sealed to the tray; and
- the flange having a first end and a second end;
- the at least one cavity having one or more side walls and a rear wall that is angled relative to the flange; and
- a back card that extends along and beyond the rear wall;
- the back card having a first end and a second end;
- the back card being oriented so that so that the package is capable of being displayed on edge with the first end of the flange in an elevated position above the second end of the flange, and with the first end of the back card in an elevated position above the second end of the back card, and with the

second end of the flange and the second end of the back card stably supporting the package on a horizontal surface, and with the second end of the back card being spaced from the flange by a greater distance than the first end of the back card to provide an enlarged footprint for the package.

36. The package of claim 35 wherein the rear wall is oriented at an angle of 5° to 40° or relative to the flange; and

wherein the tray comprises an upper cavity and at least one lower cavity, and wherein the upper cavity has a stabilizing surface engaging a portion of the back card; and

wherein the back card is affixed to the rear wall, and wherein the stabilizing surface comprises either a shallow groove or a shelf; and

wherein the tray comprises an upper cavity and at least one lower cavity, and wherein a portion of the back card extends upward beyond the upper cavity and has an opening above the upper cavity to facilitate hanging the package from a peg; and

wherein the tray comprises a first portion comprising at least one cavity and a second portion comprising at least one cavity, and an area of weakness therebetween to facilitate separation of the first portion from the second portion; and

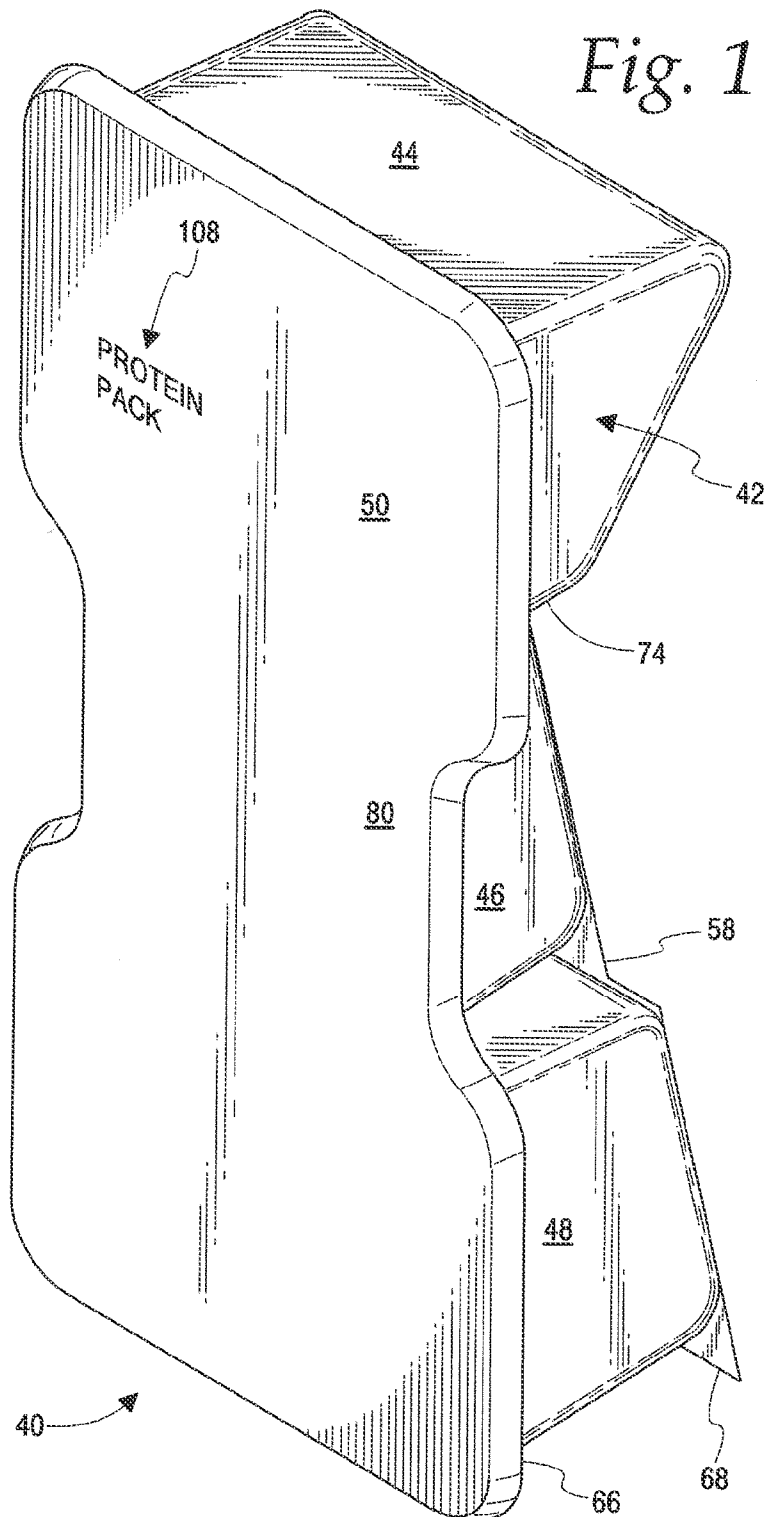
wherein the at least one cavity is gas flushed to reduce or eliminate oxygen therein; and

wherein the package has a generally dumbbell-shaped front surface that has information prominently displayed thereon referring to protein content; and

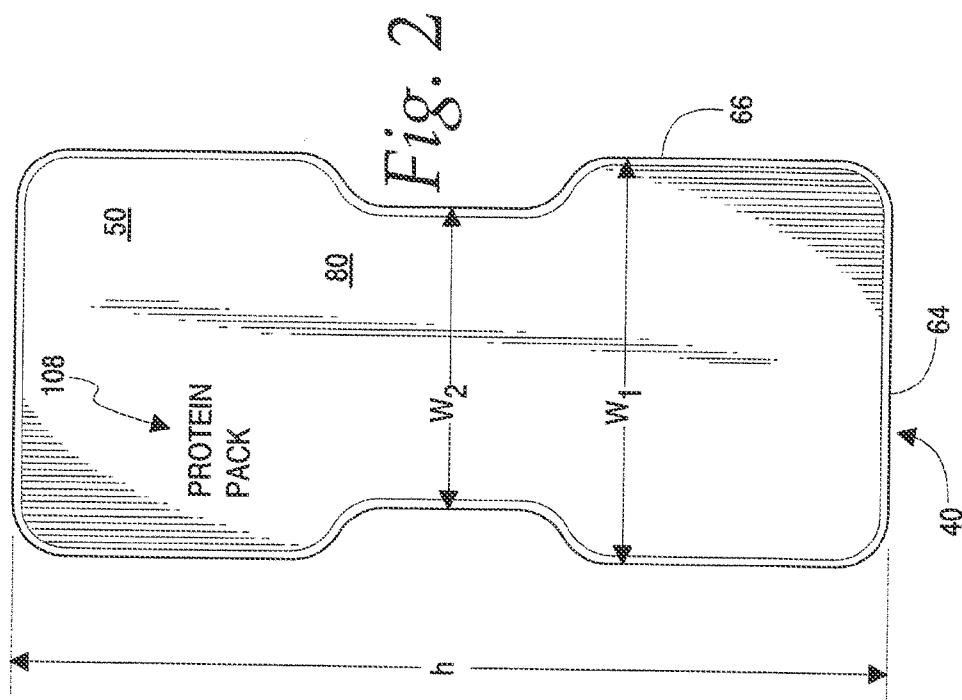
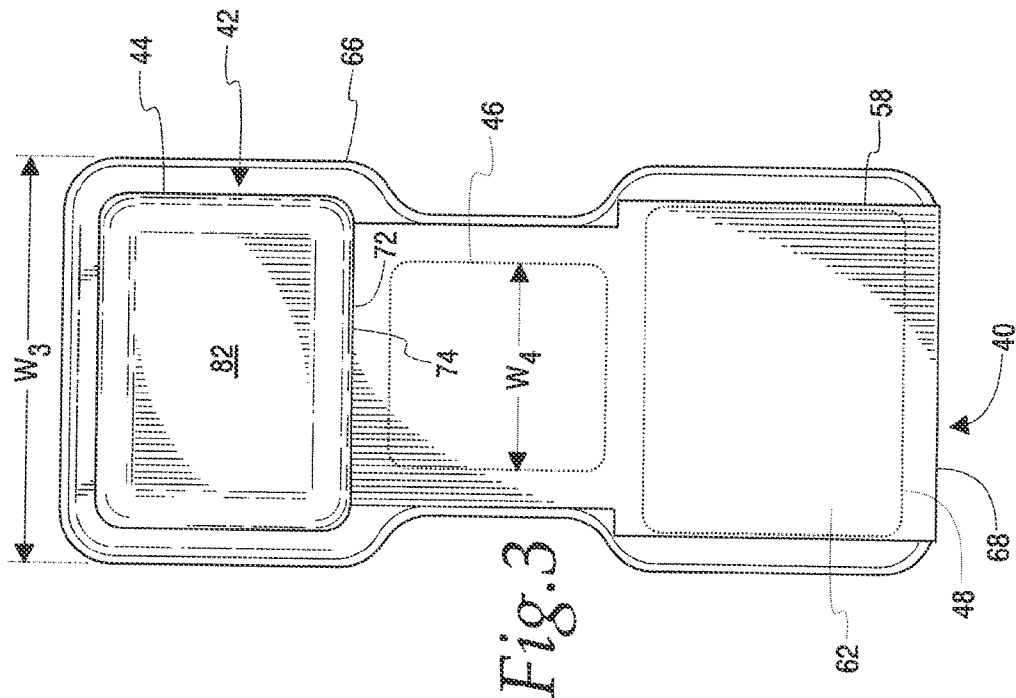
wherein the tray comprises an upper cavity, a lower cavity, and a middle cavity therebetween, the middle cavity is narrower than the upper and lower cavities, and the volume of the upper compartment is less than that of the lower compartment.

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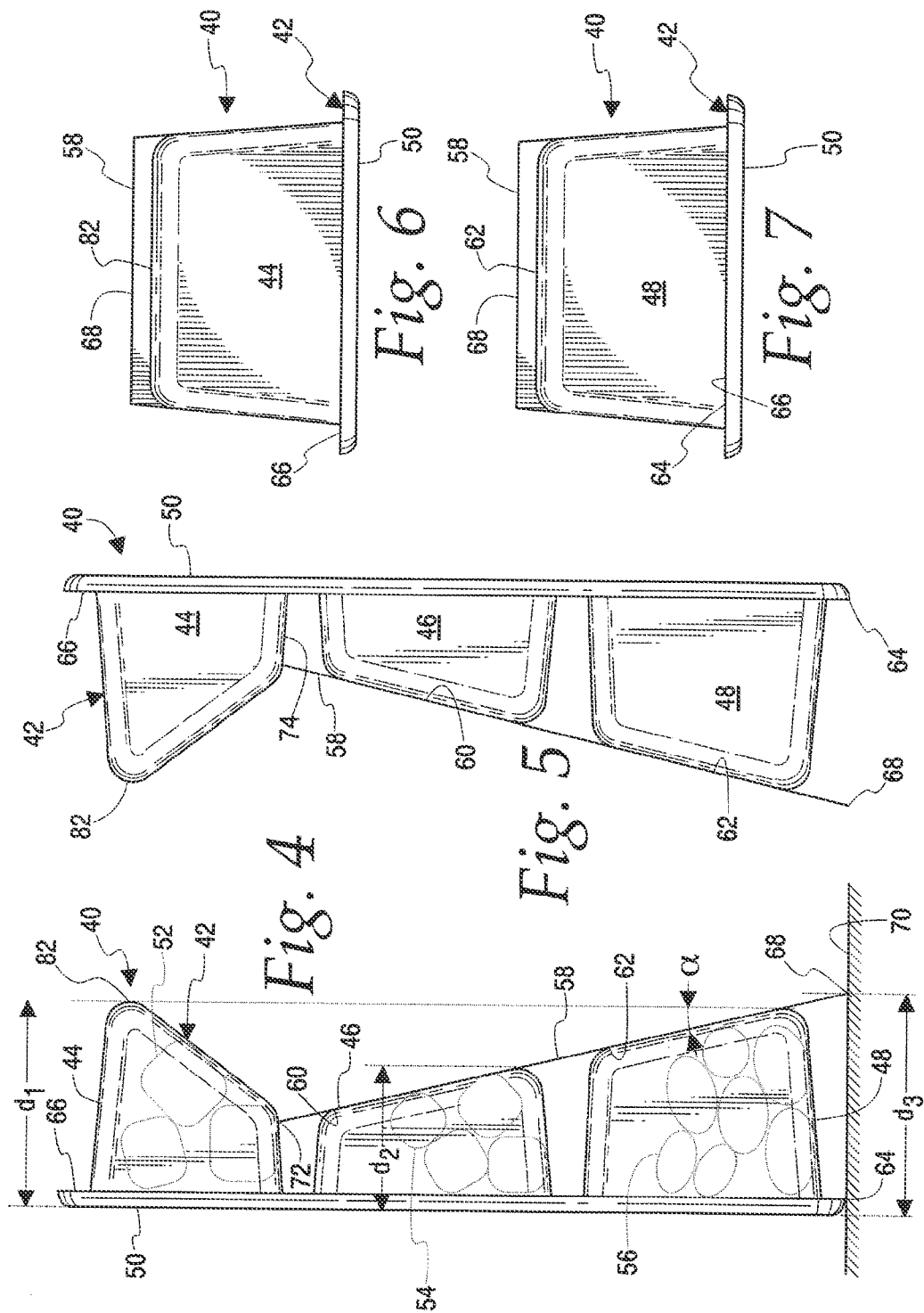
*Fig. 1*



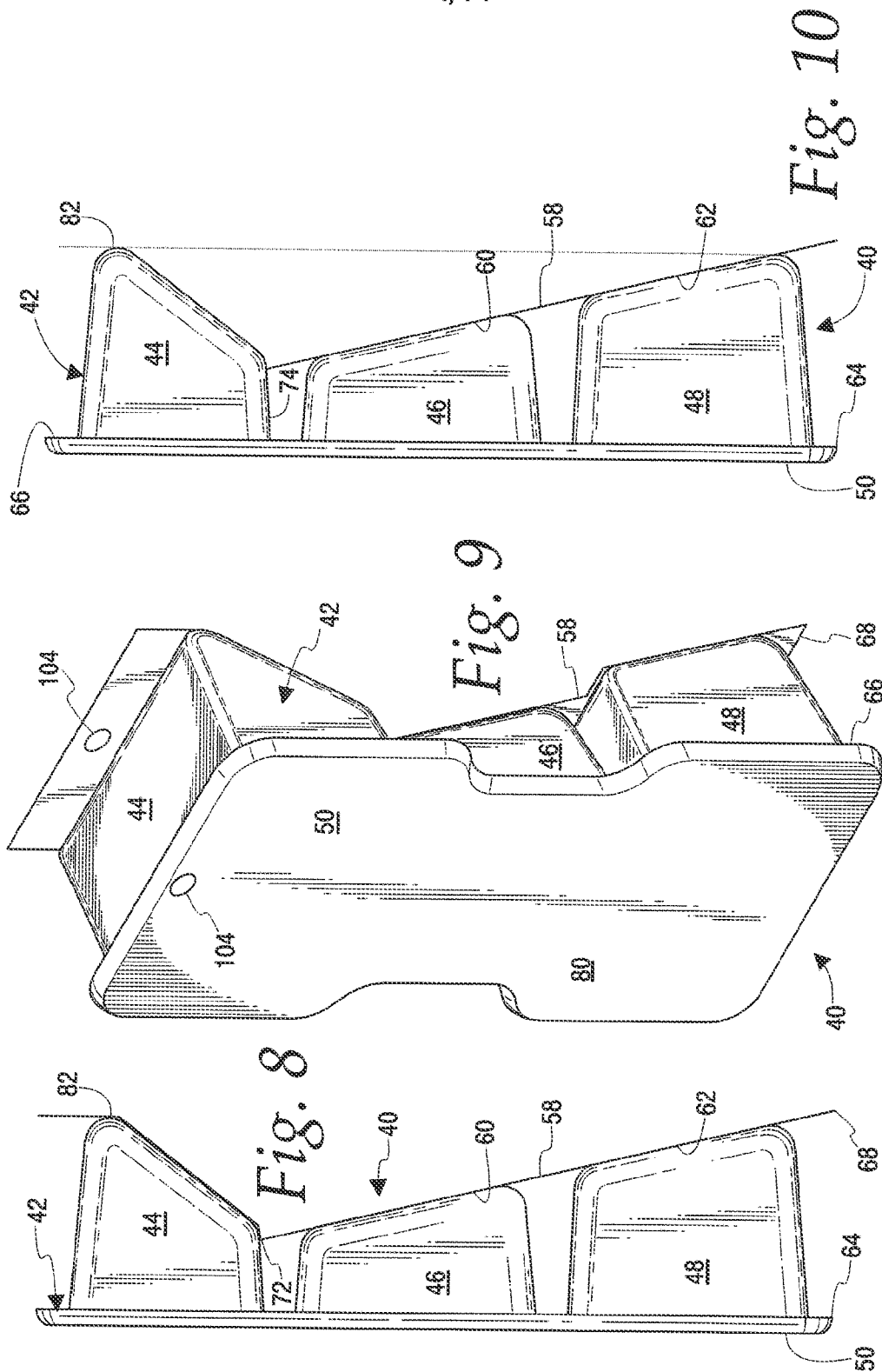
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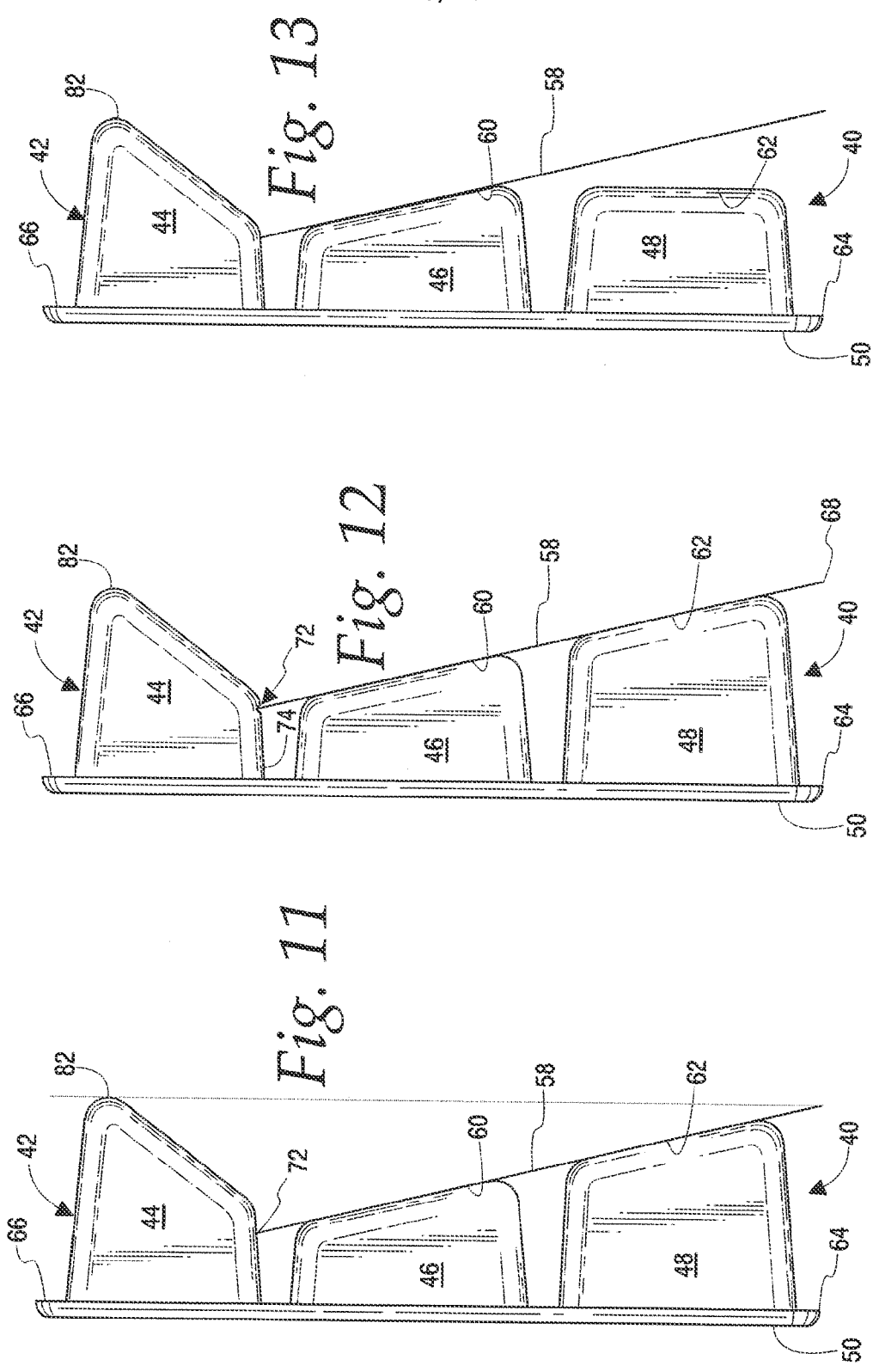


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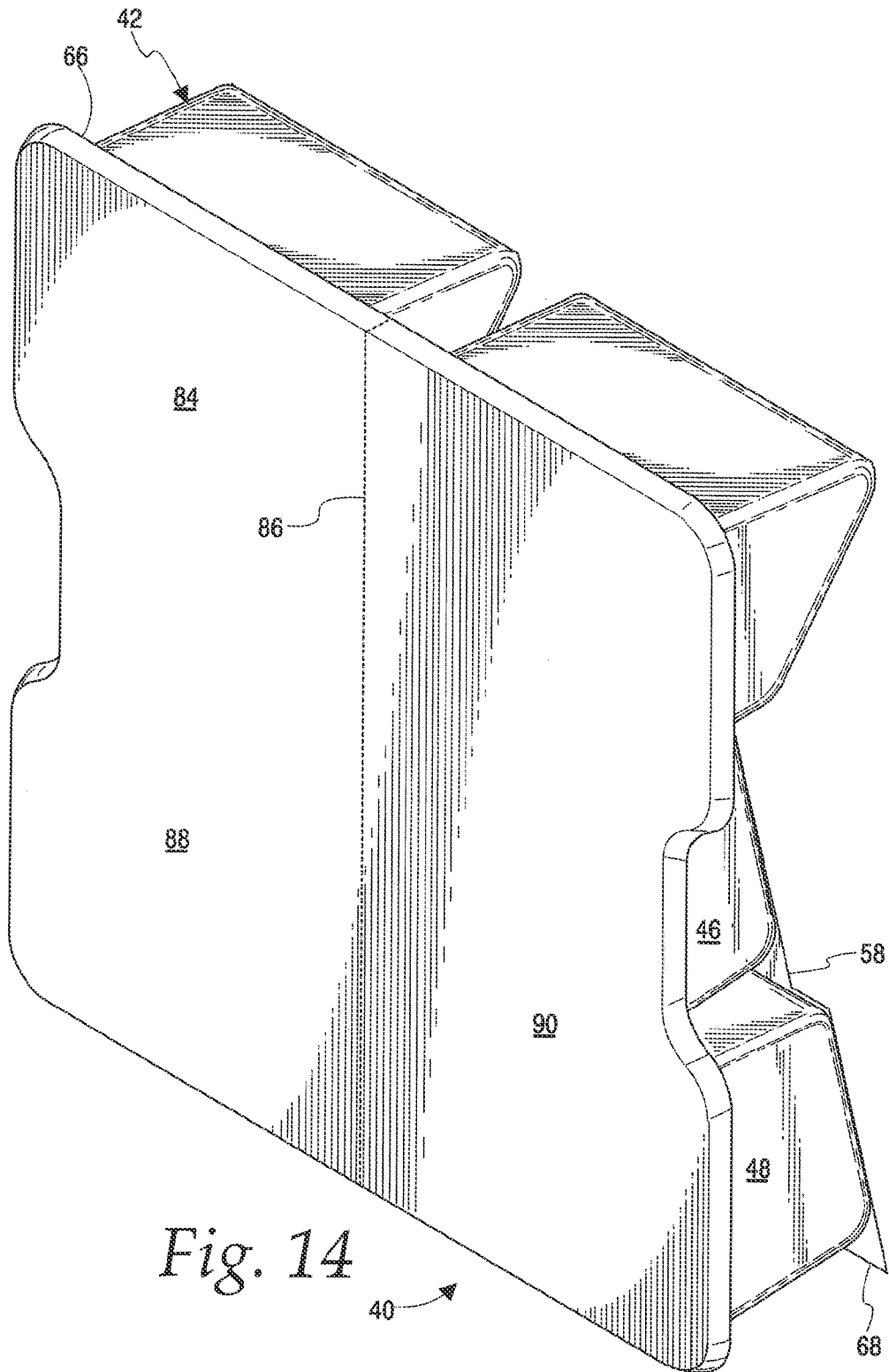


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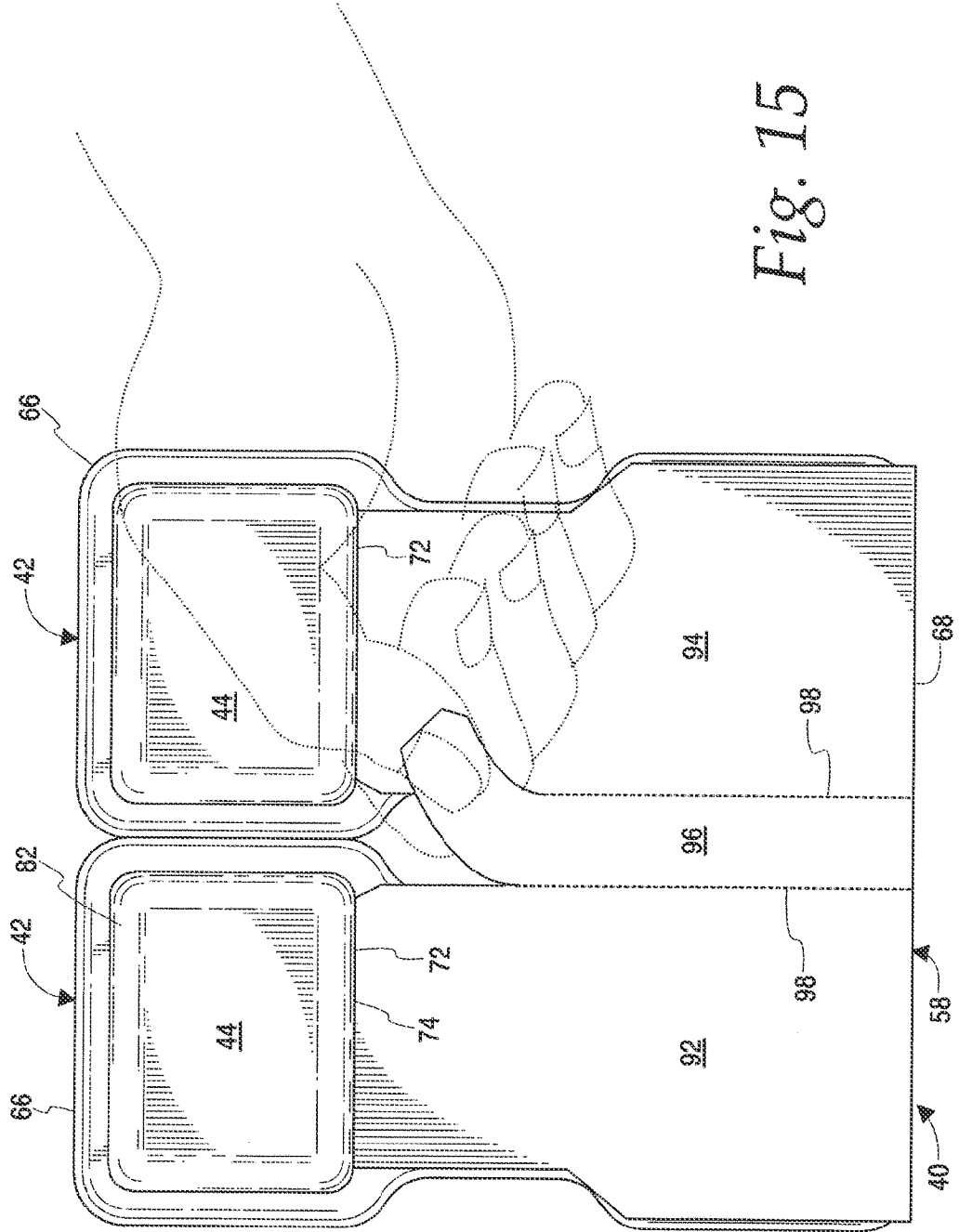


Fig. 15

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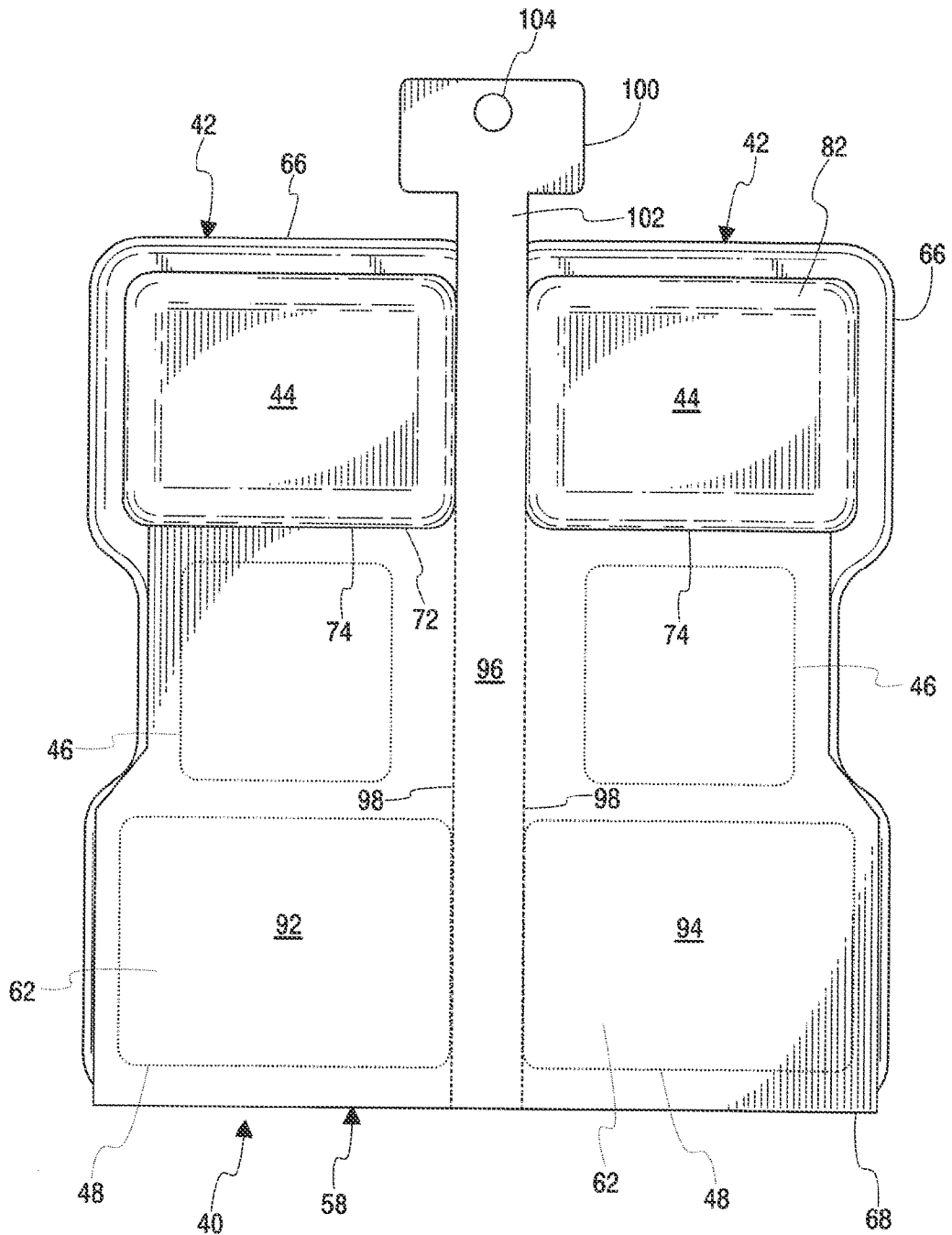
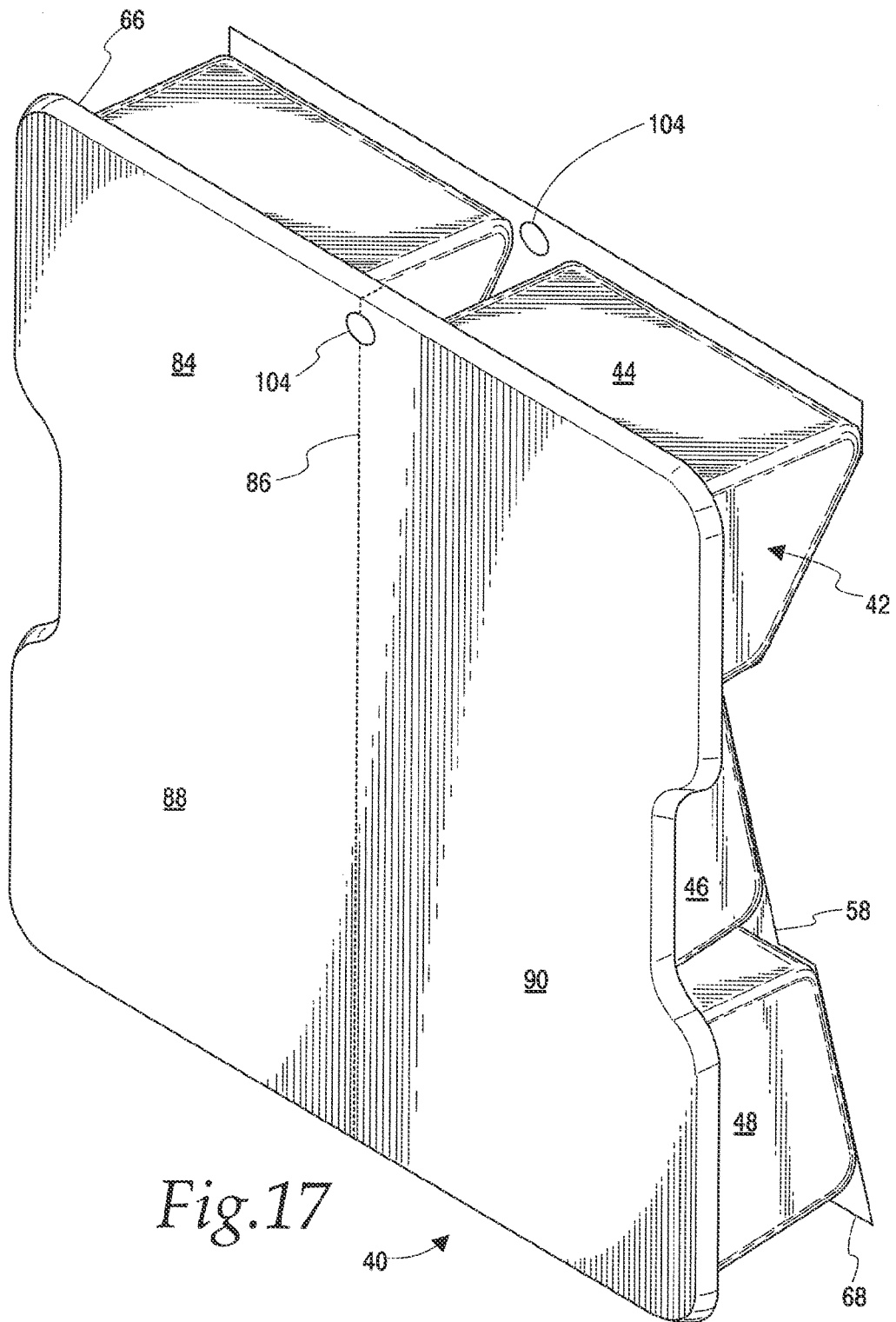


Fig. 16

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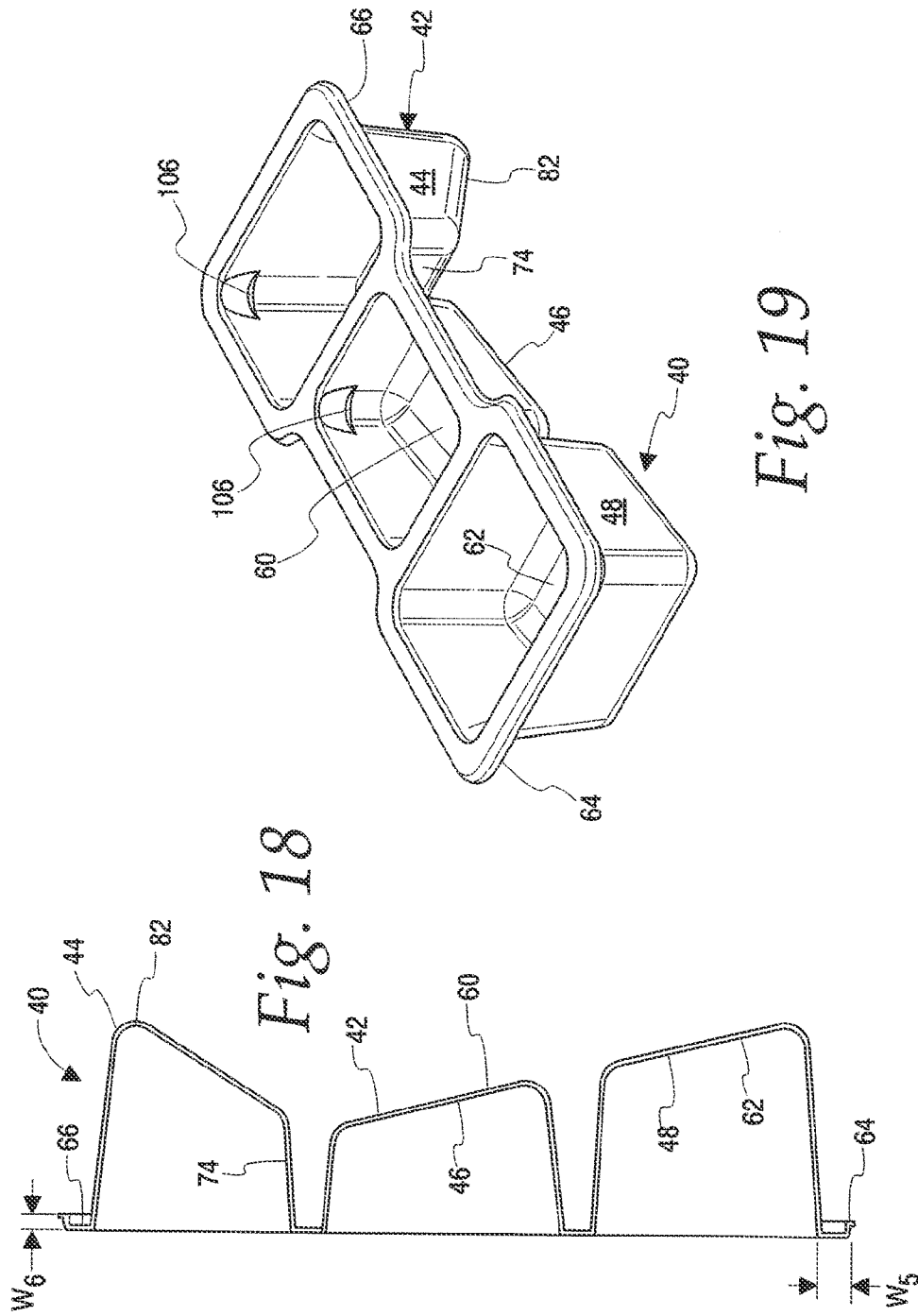
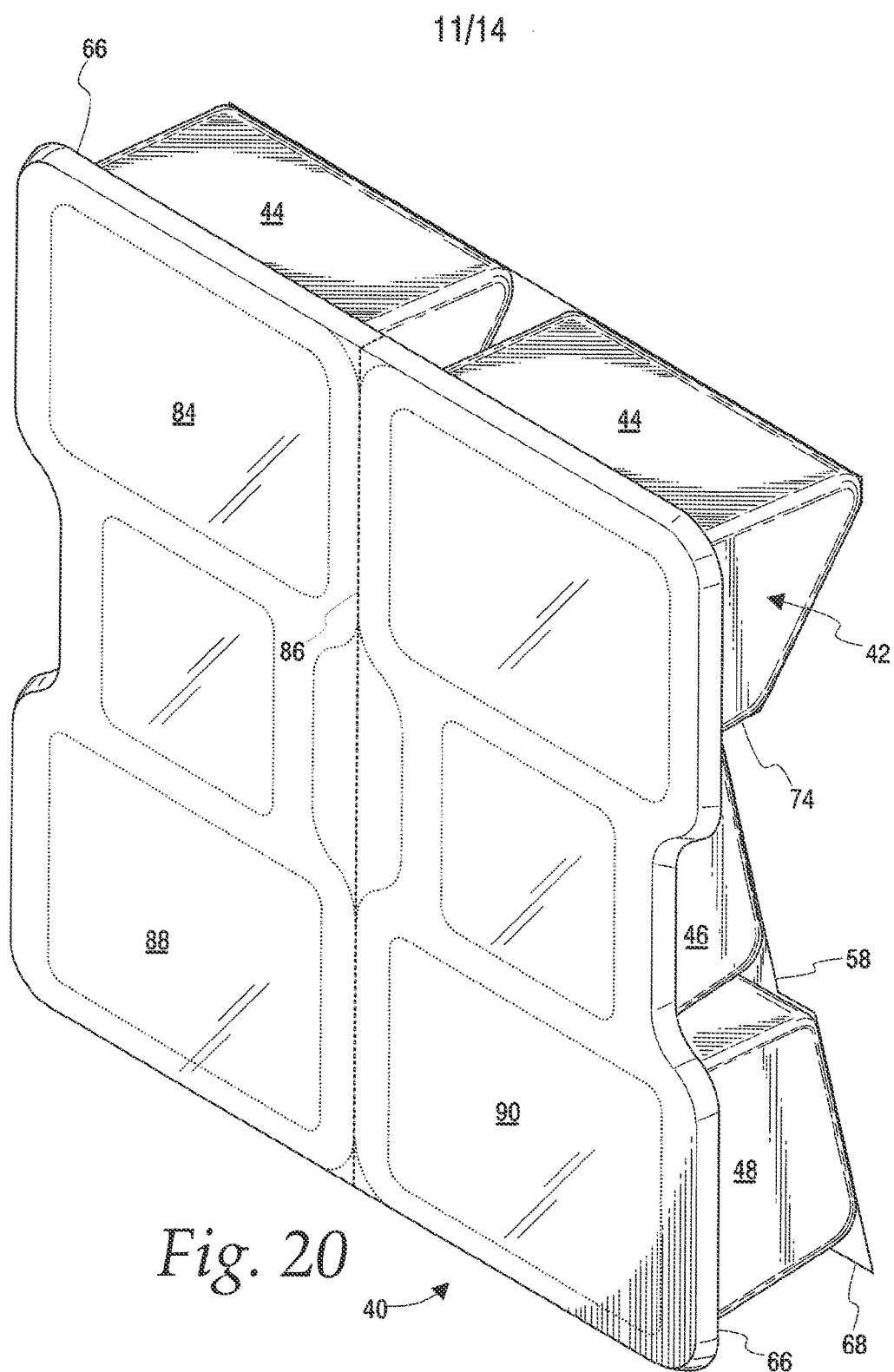
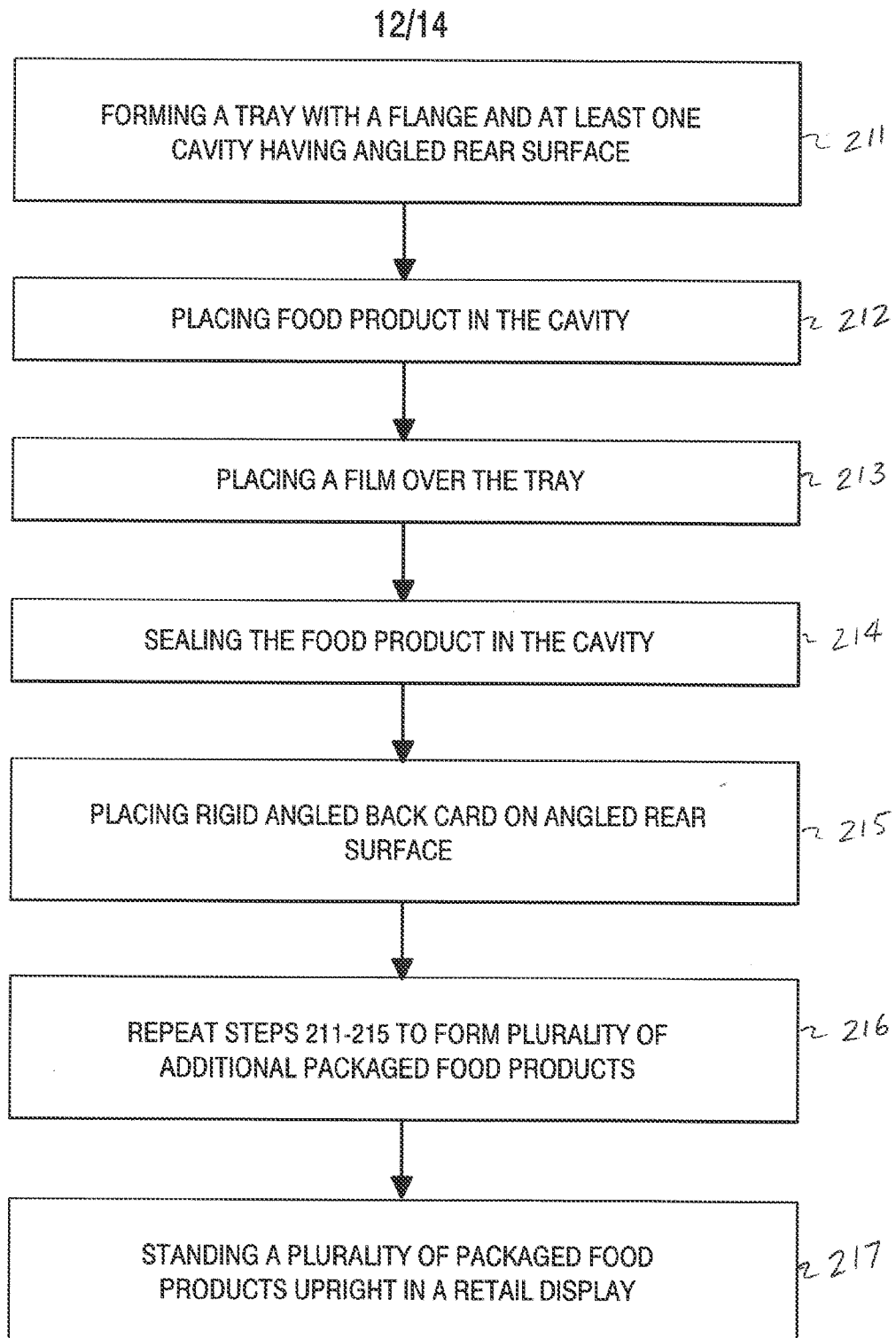


Fig. 19

Fig. 18



*Fig. 21*

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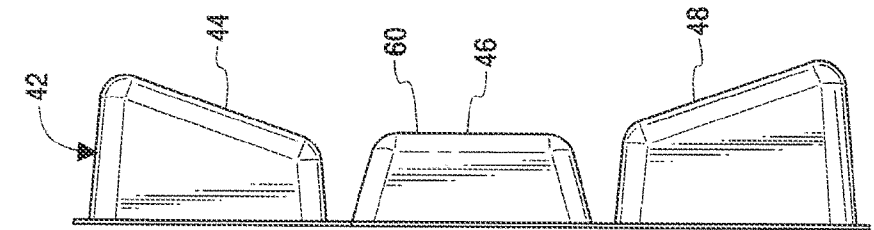


Fig. 24

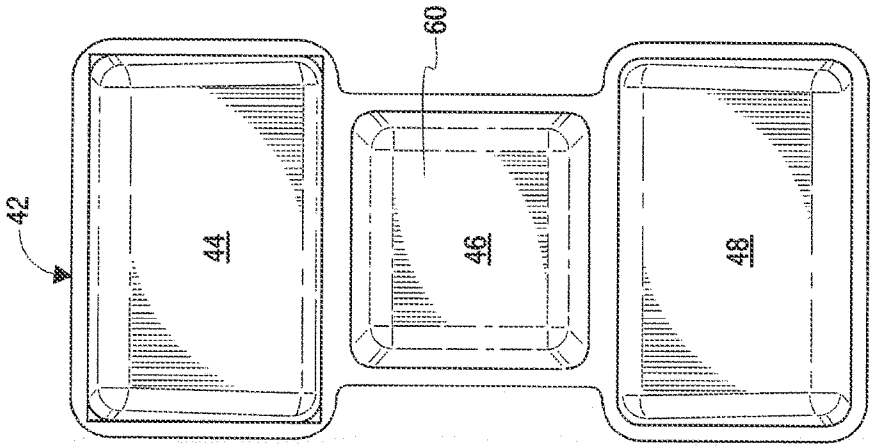


Fig. 23

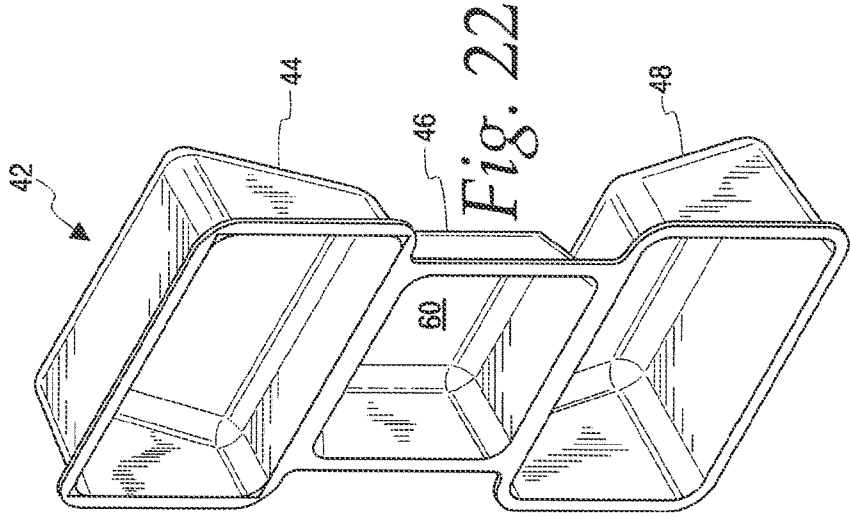


Fig. 22

