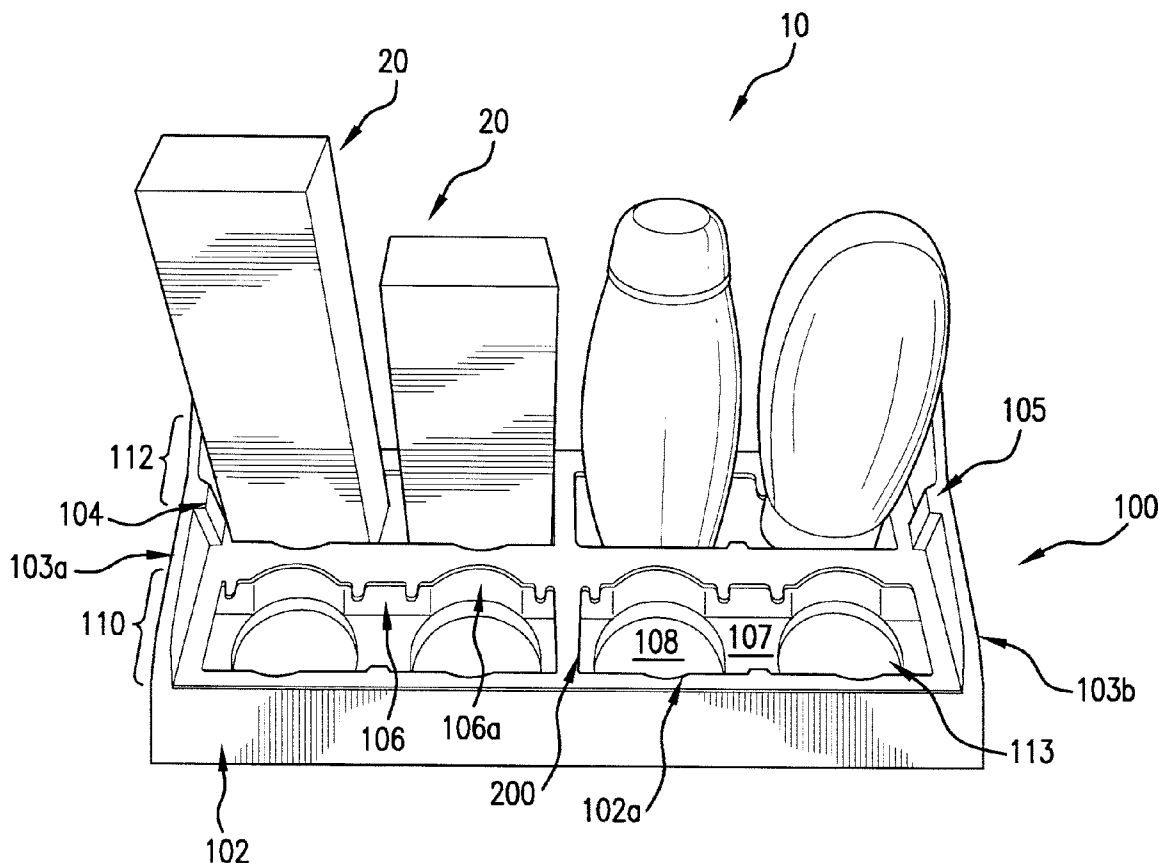




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Polvere et al.(10) **Pub. No.: US 2008/0121563 A1**(43) **Pub. Date: May 29, 2008**(54) **PRODUCT DISPLAY SYSTEMS****Publication Classification**(76) Inventors: **Dennis Polvere**, Cream Ridge, NJ
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WASHINGTON, DC 20006(52) **U.S. Cl. 206/763; 206/736; 206/561; 206/564;**
206/562(21) Appl. No.: **11/810,732**(22) Filed: **Jun. 6, 2007****Related U.S. Application Data**(60) Provisional application No. 60/811,573, filed on Jun.
6, 2006.(57) **ABSTRACT**

An adjustable display including a base and one or more gripping portions for engaging and holding articles in the adjustable display is disclosed. Articles of various sizes and shapes can be accommodate in the same adjustable display. The display and the gripping portions can be cut width-wise. A modular display system and a product packaging system are also disclosed.



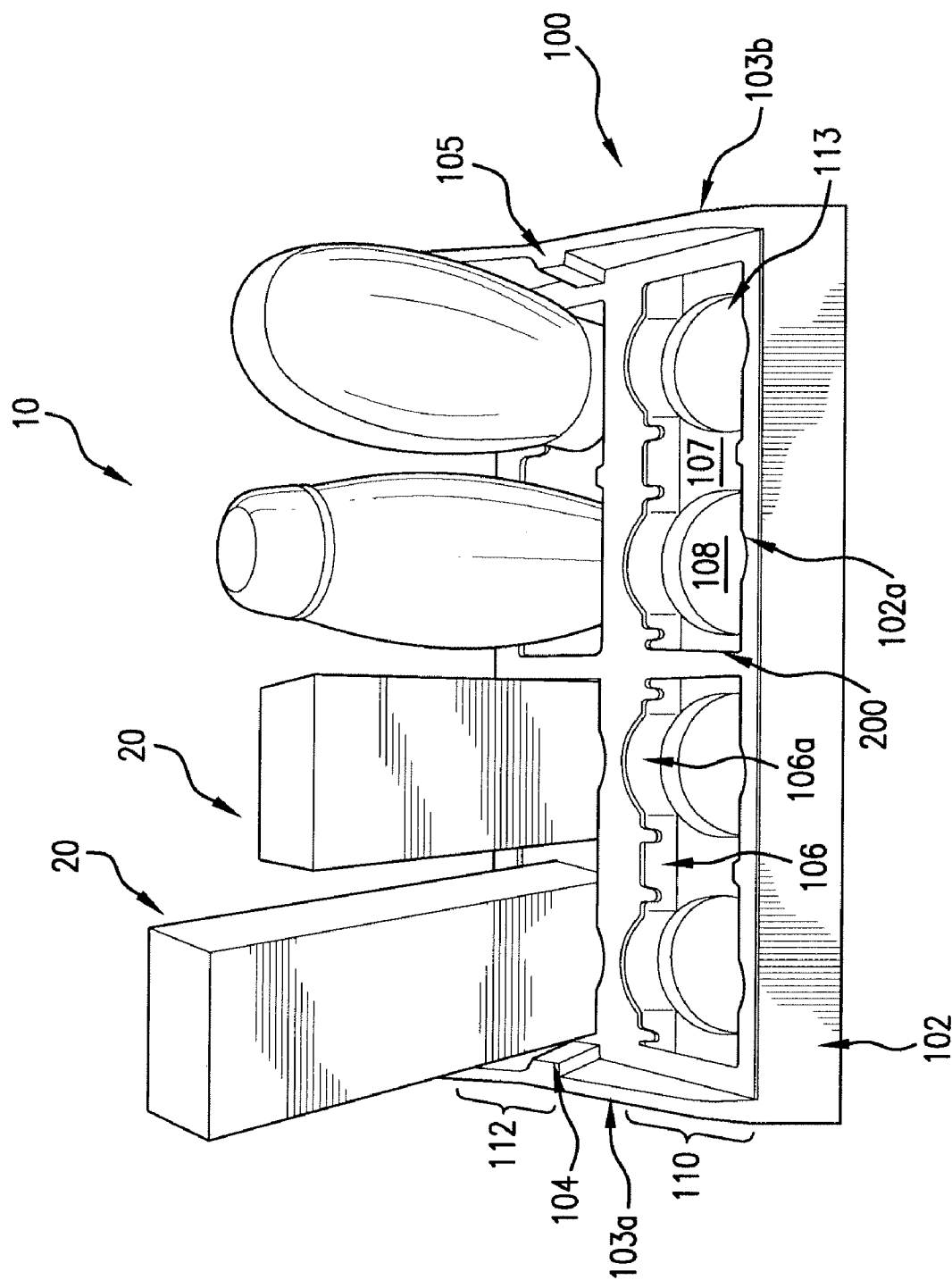


FIG. 1

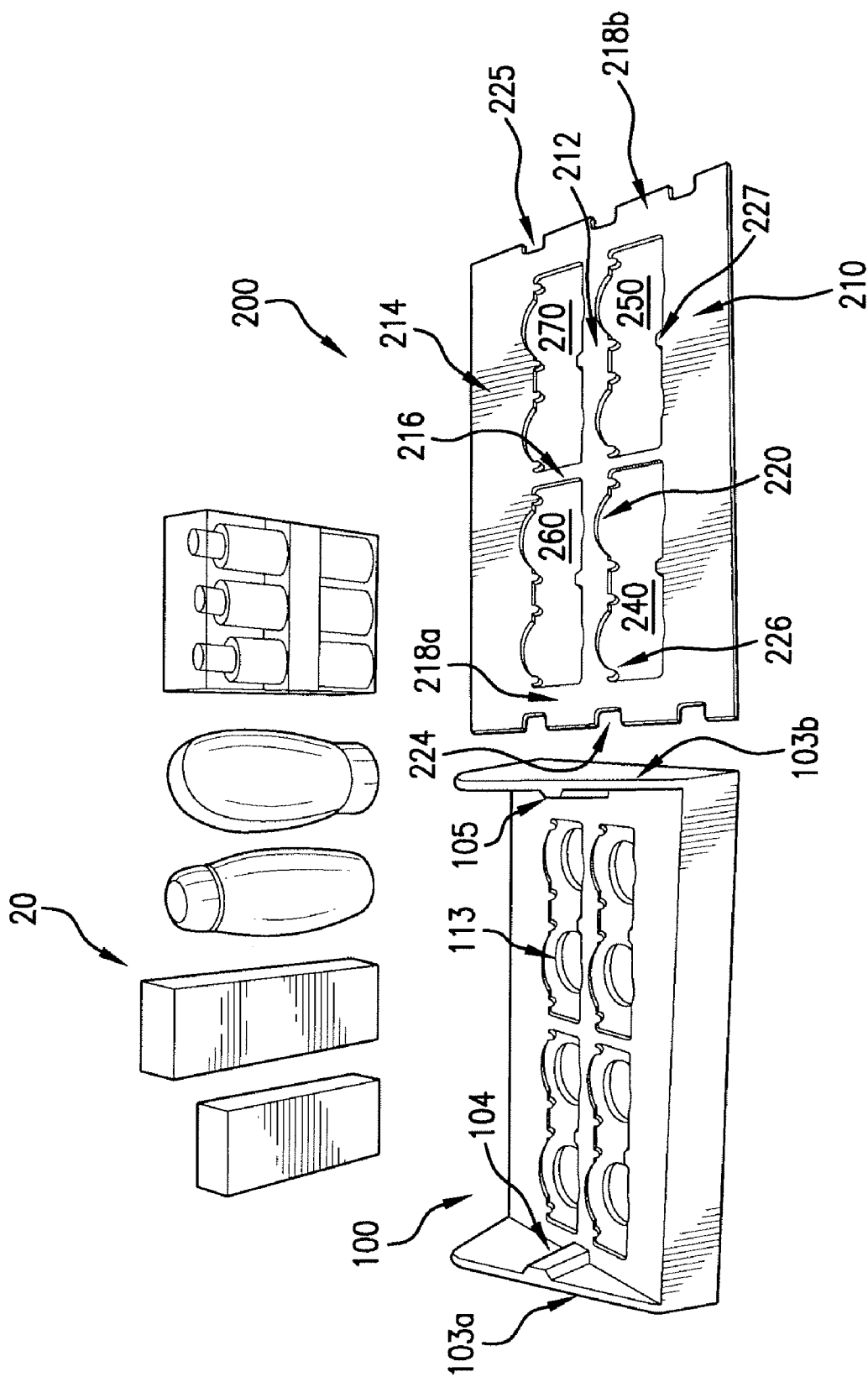


FIG. 2

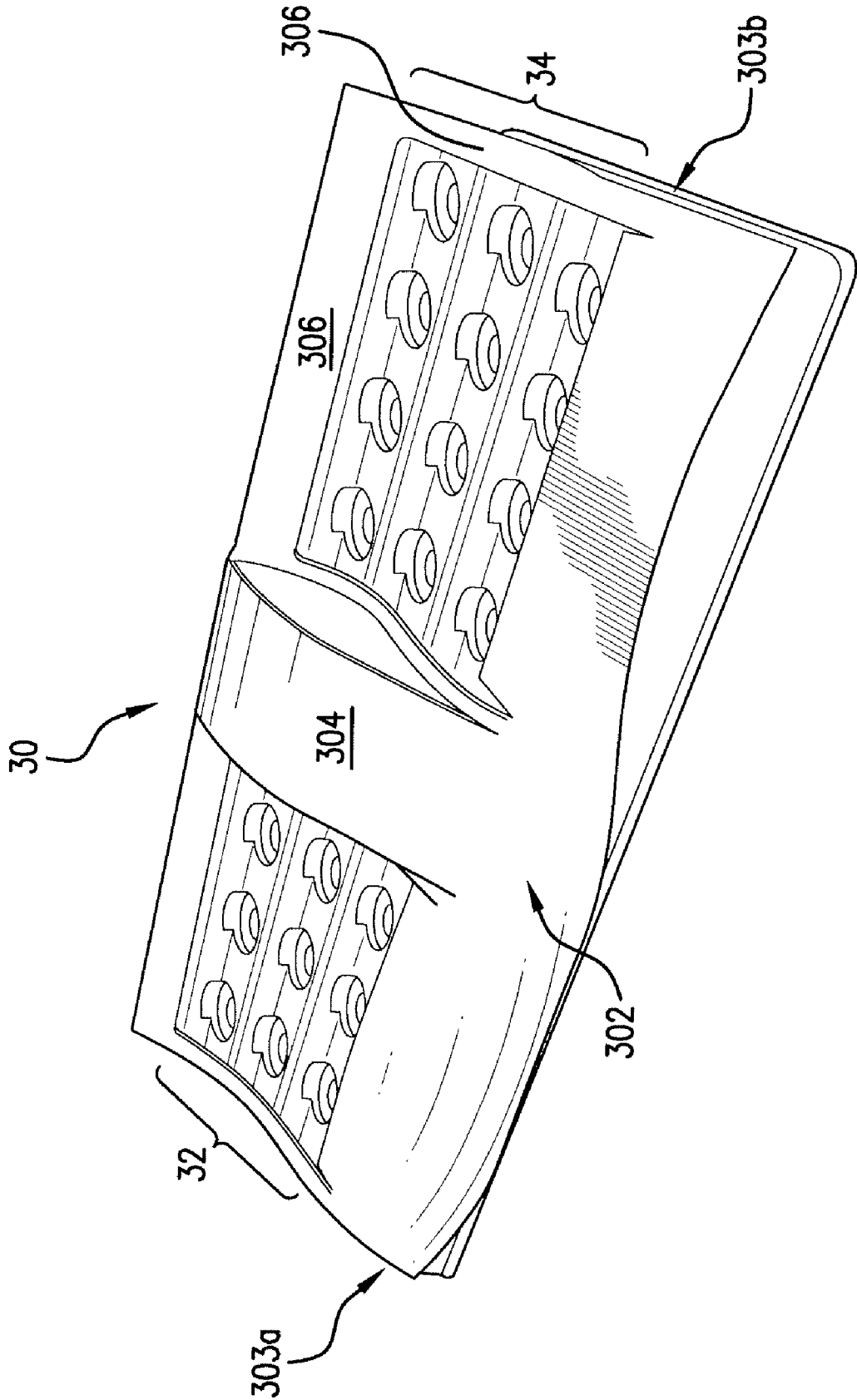


FIG. 3

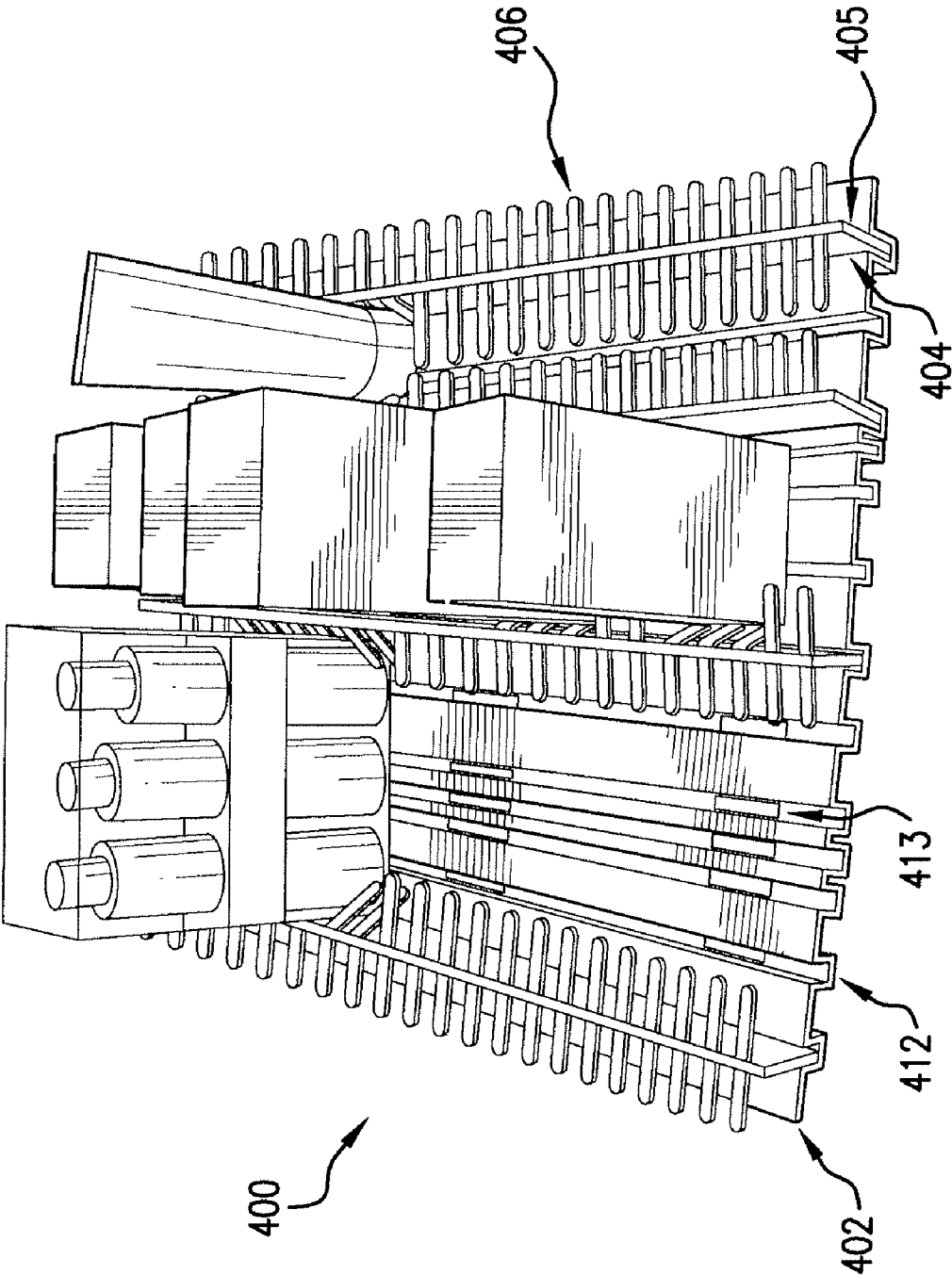


FIG. 4

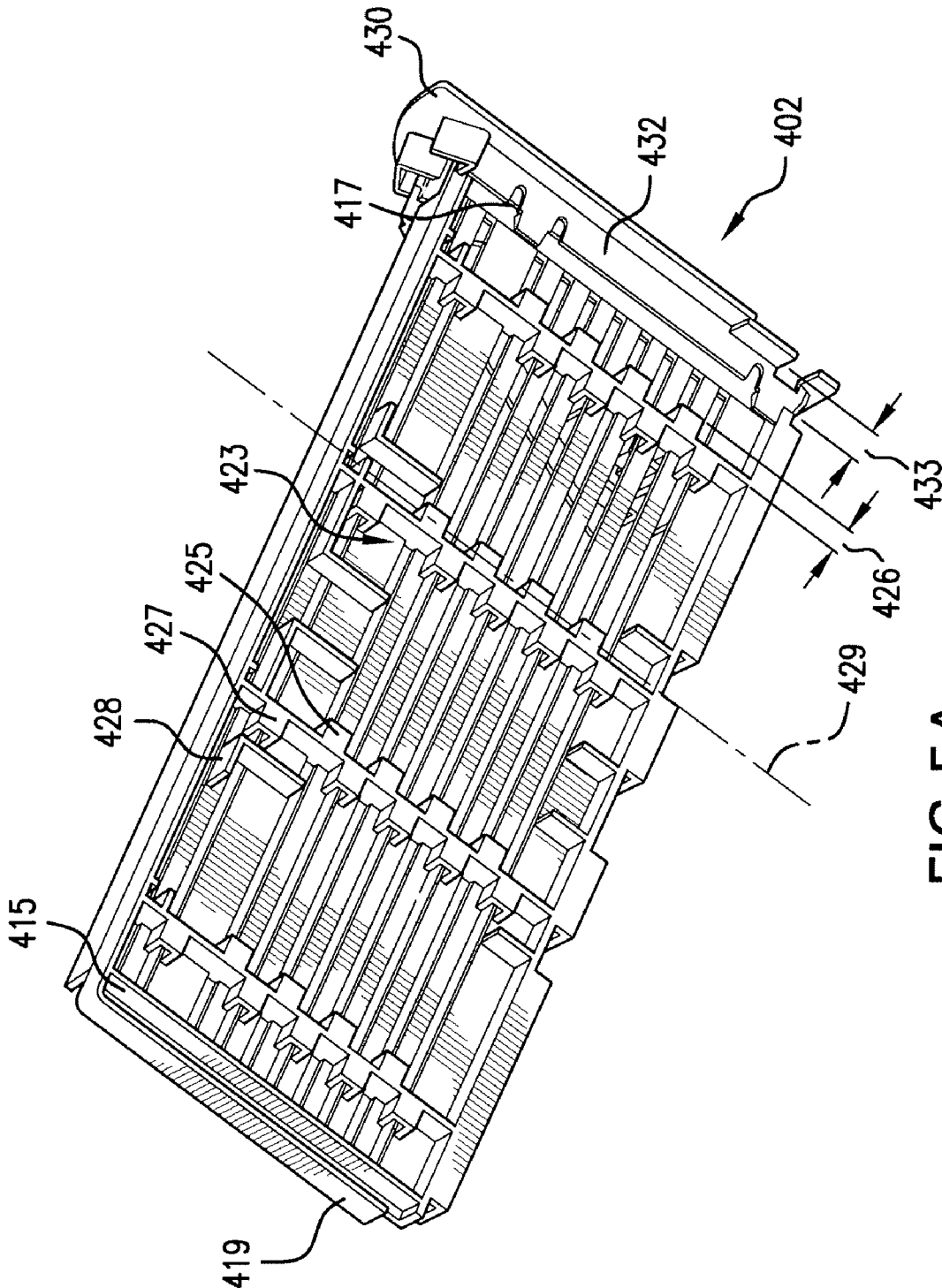


FIG. 5A

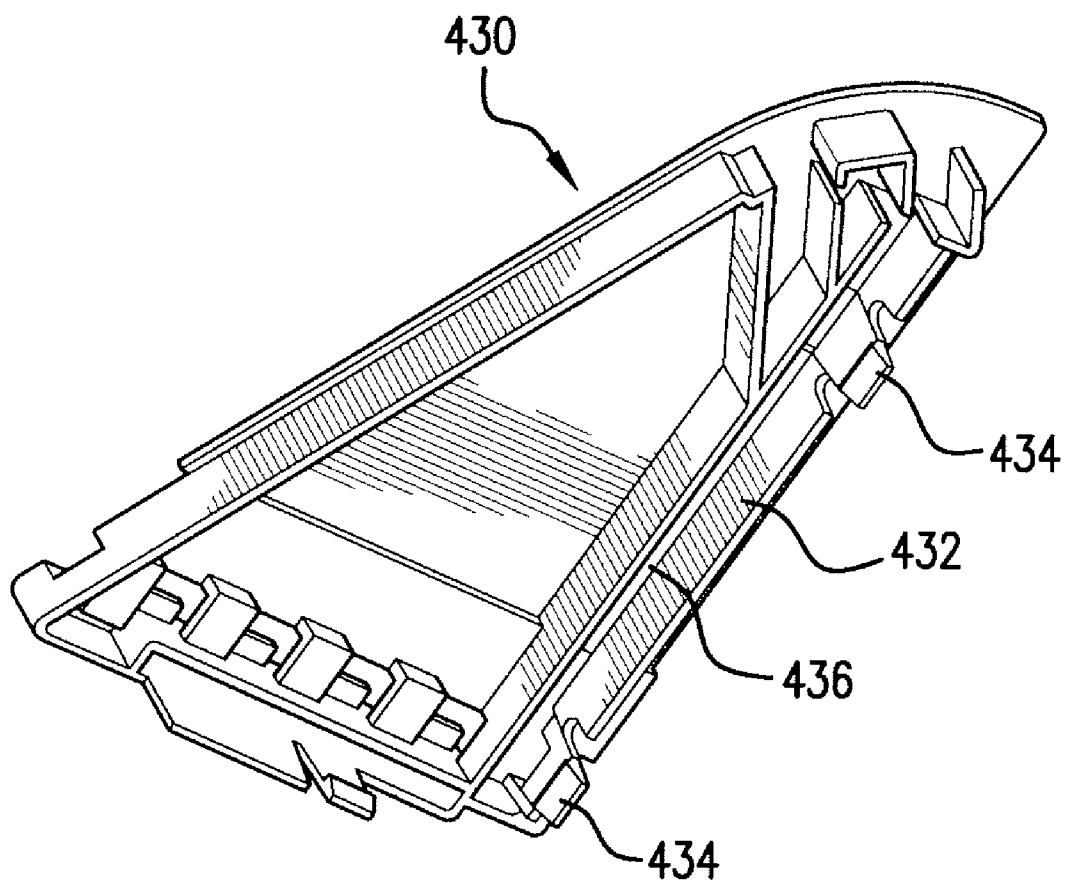
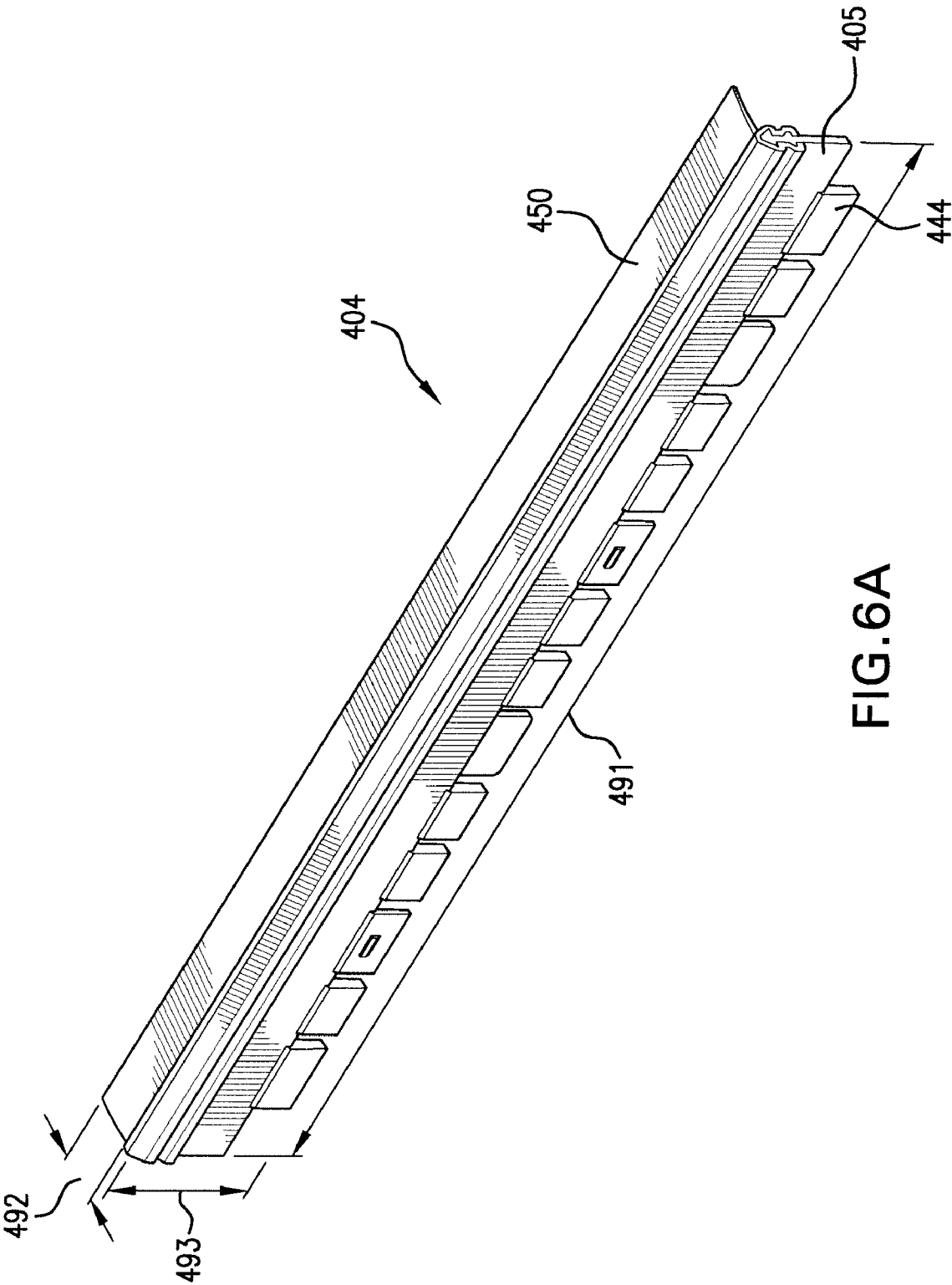
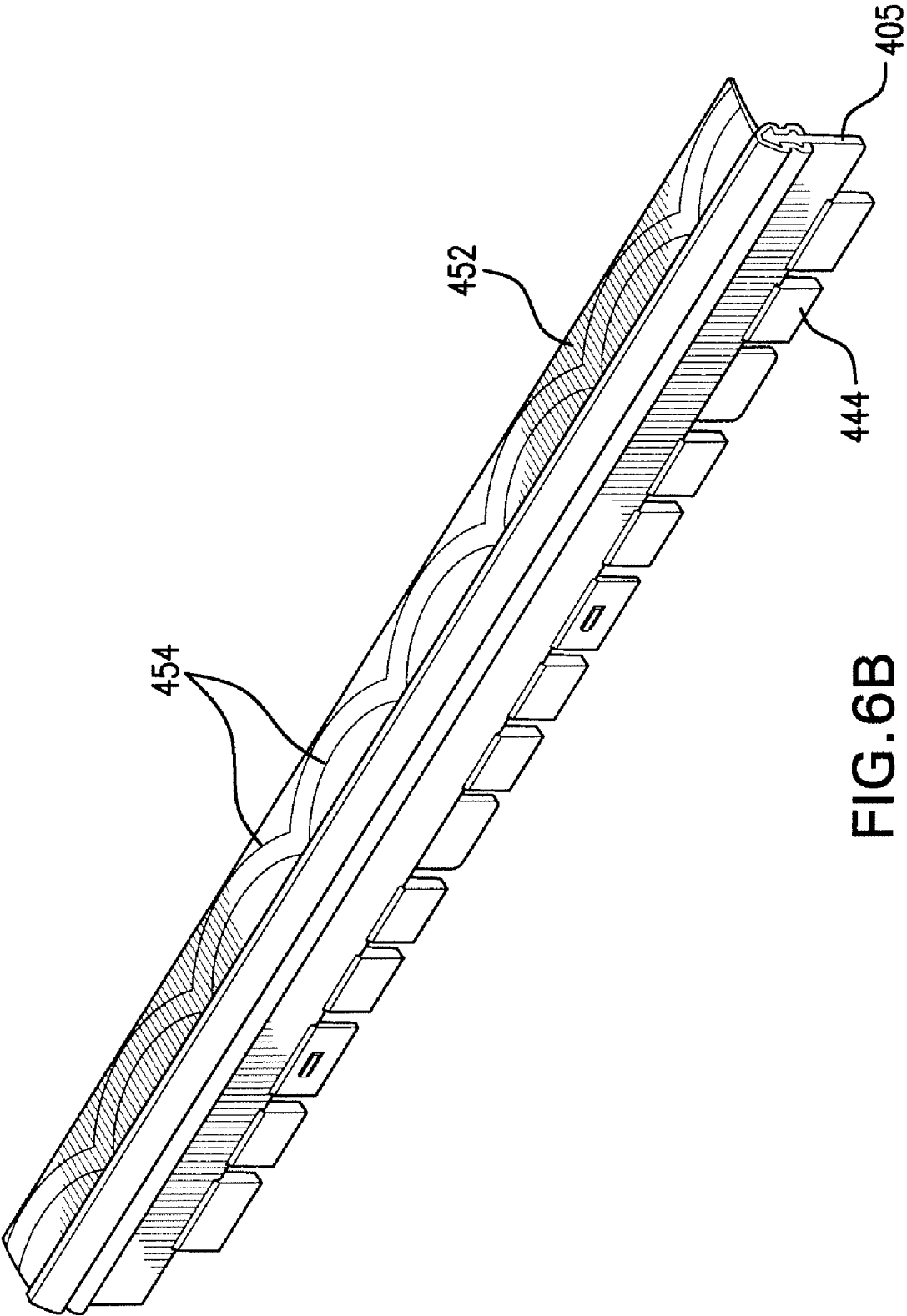


FIG. 5B





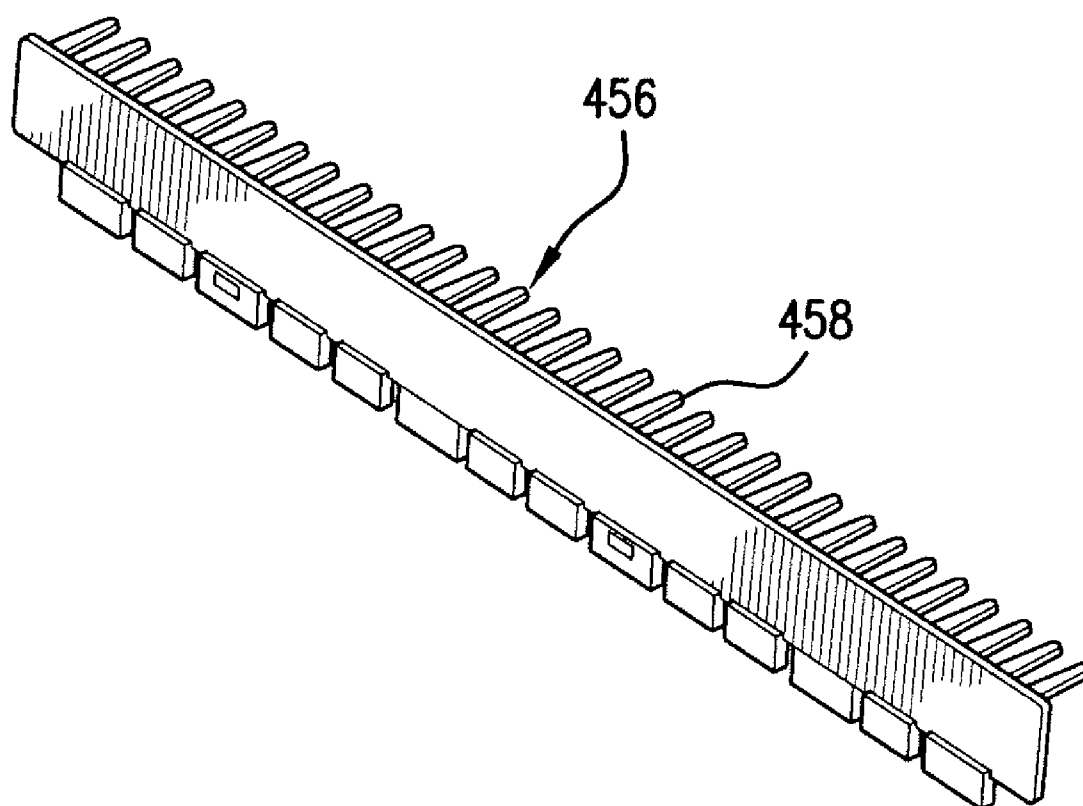


FIG. 6C

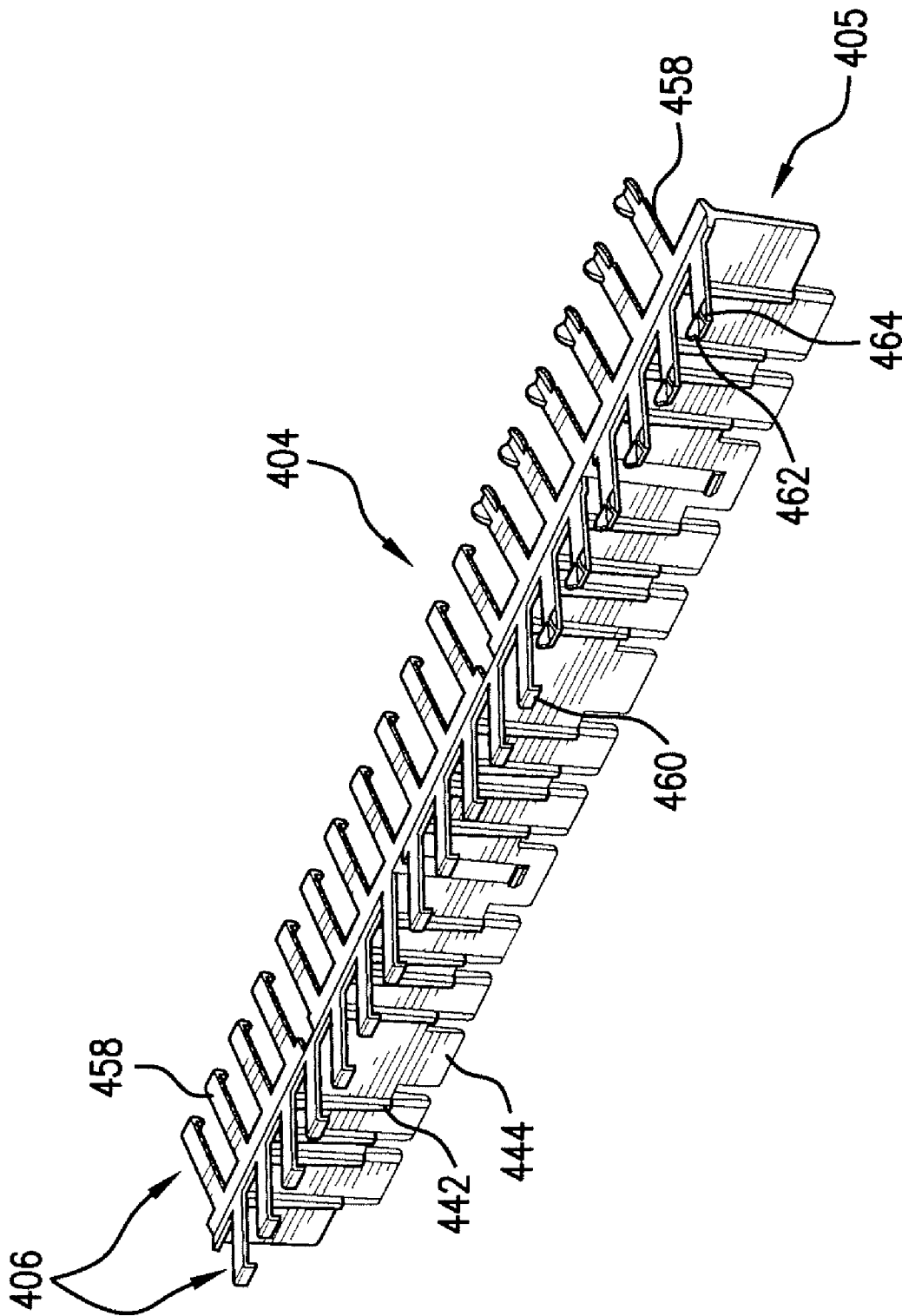


FIG. 6D

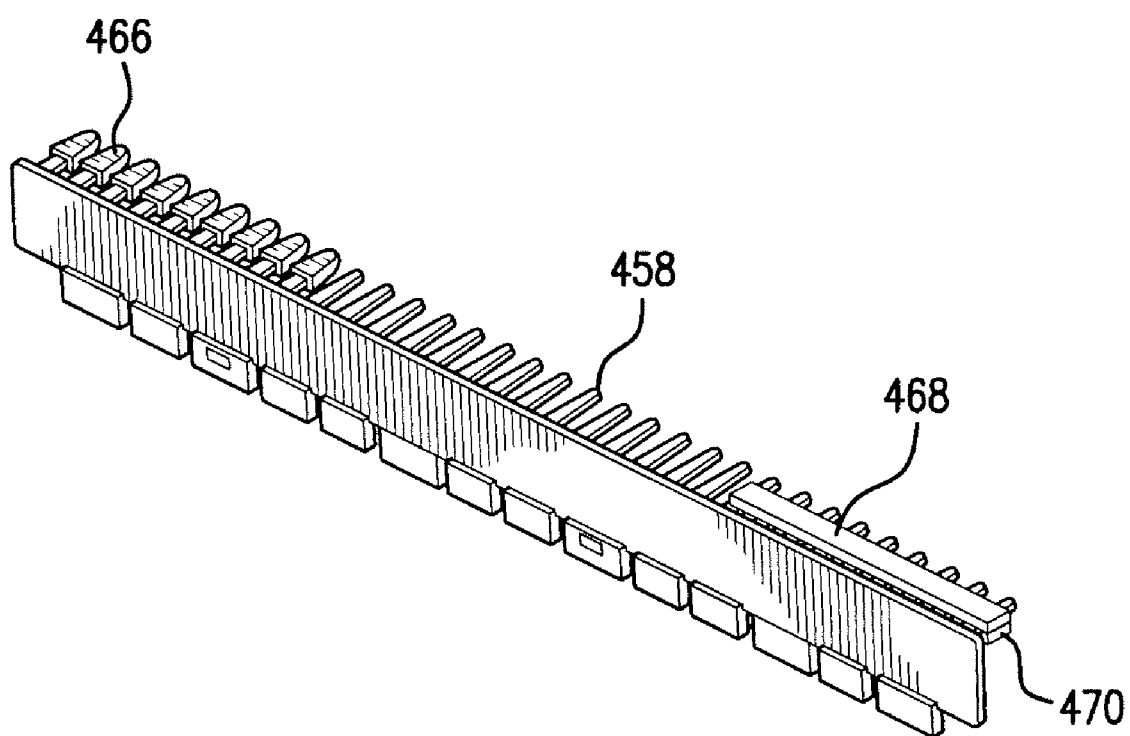


FIG. 6E

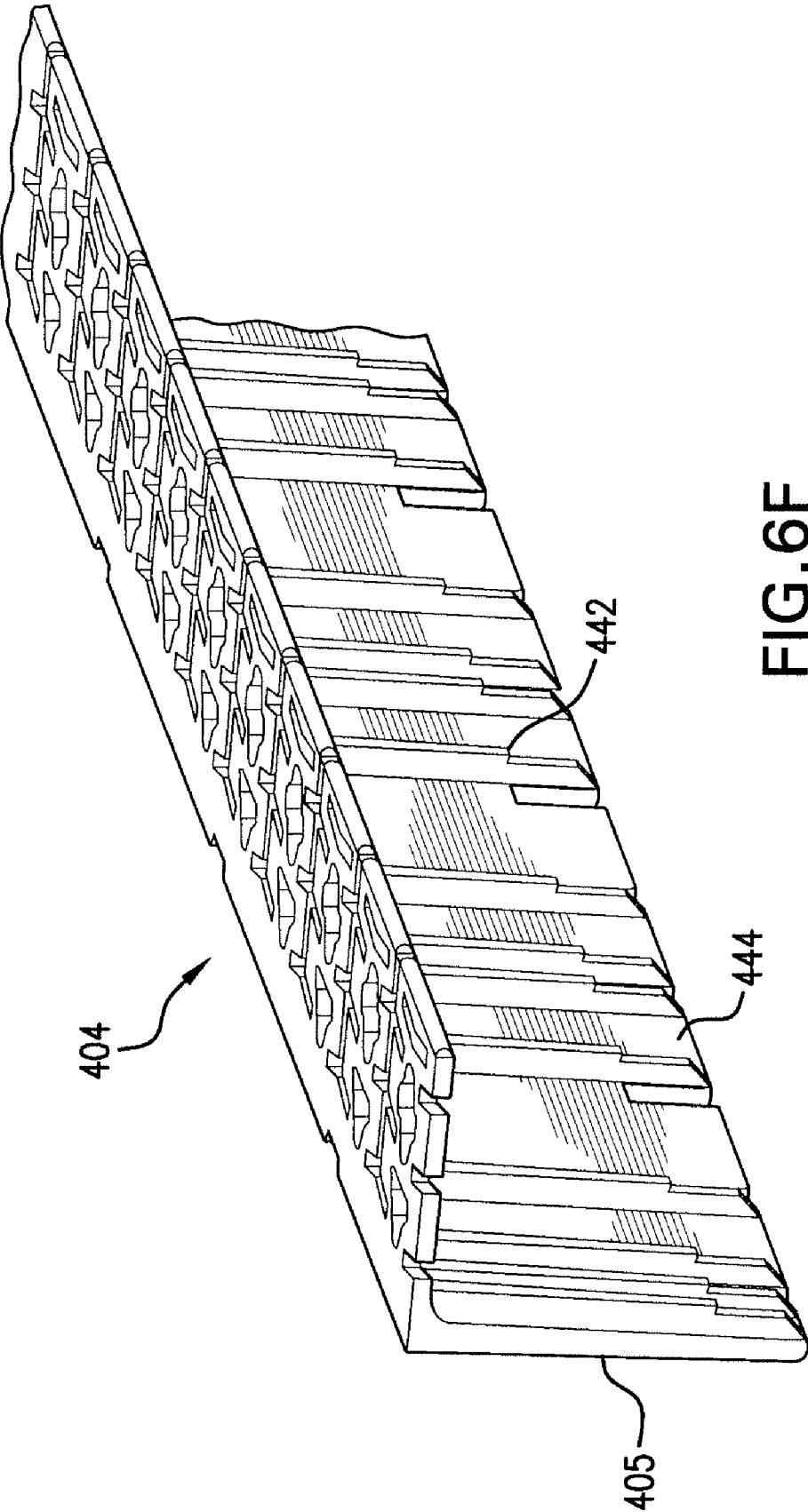


FIG. 6F

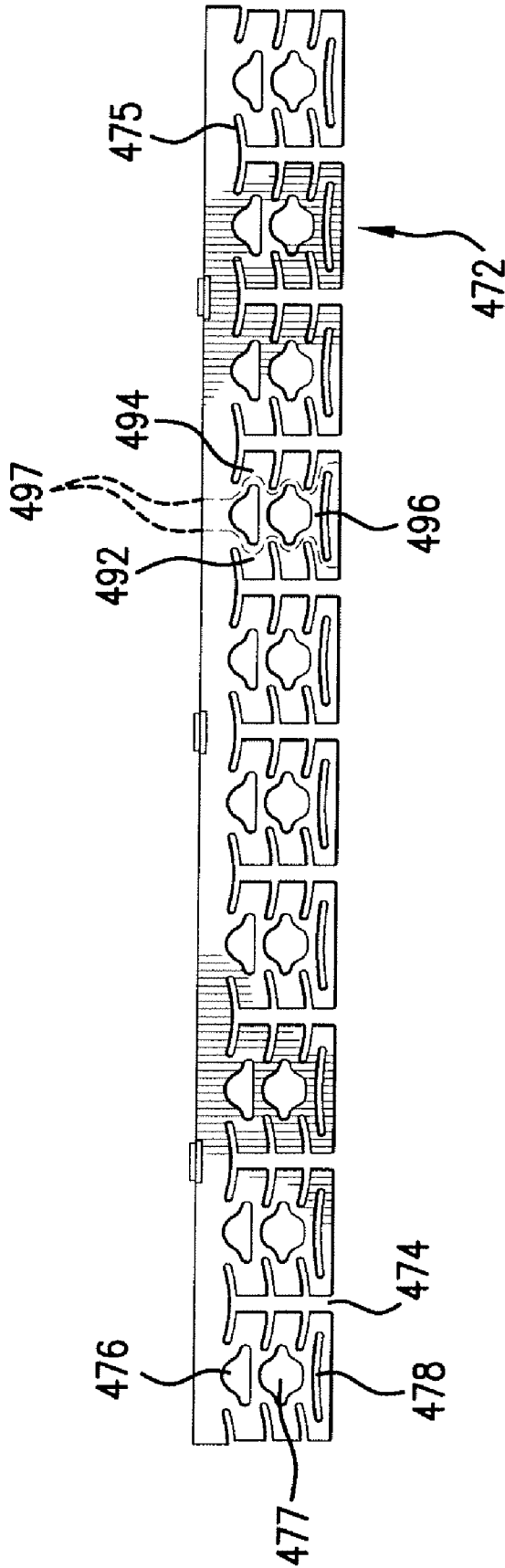


FIG. 6G

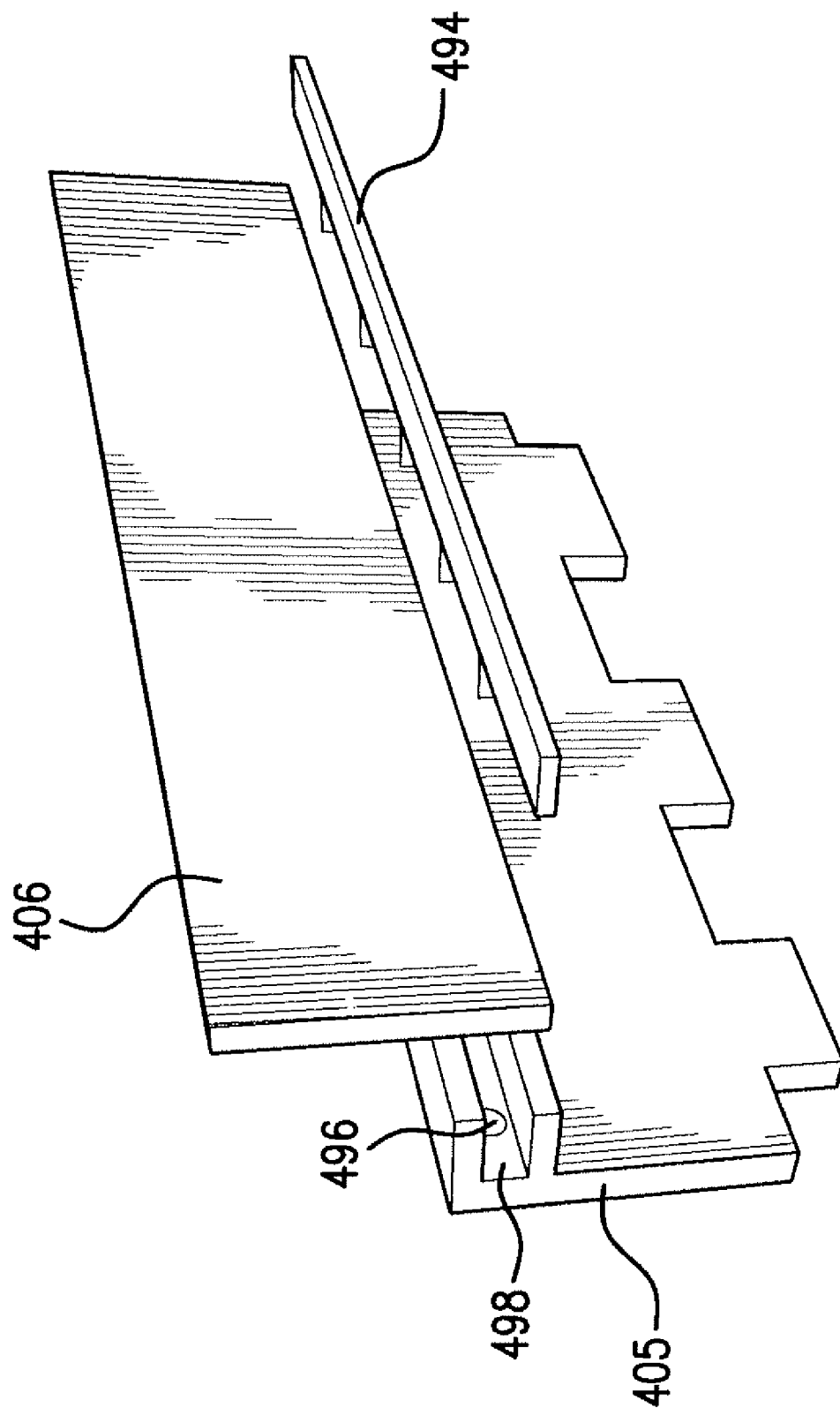


FIG. 7

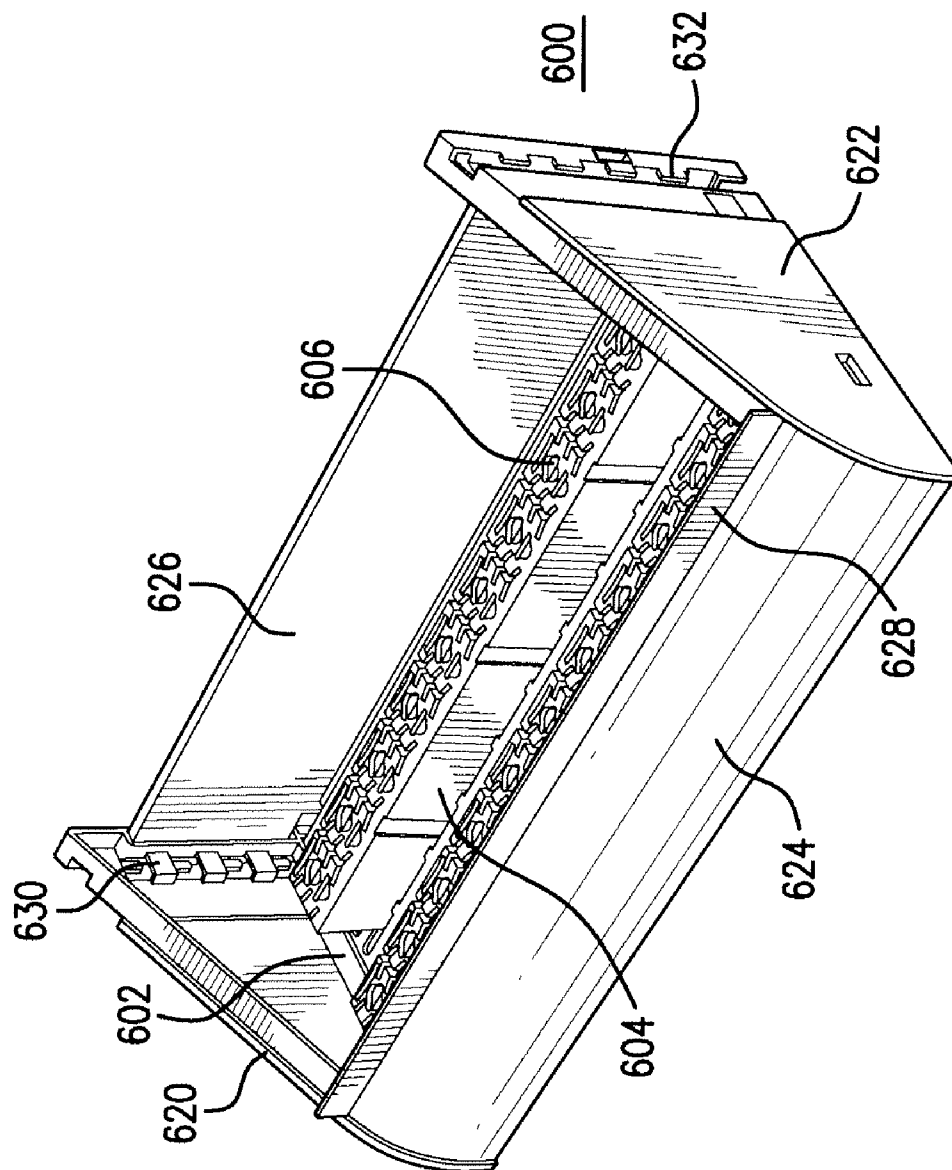


FIG. 8A

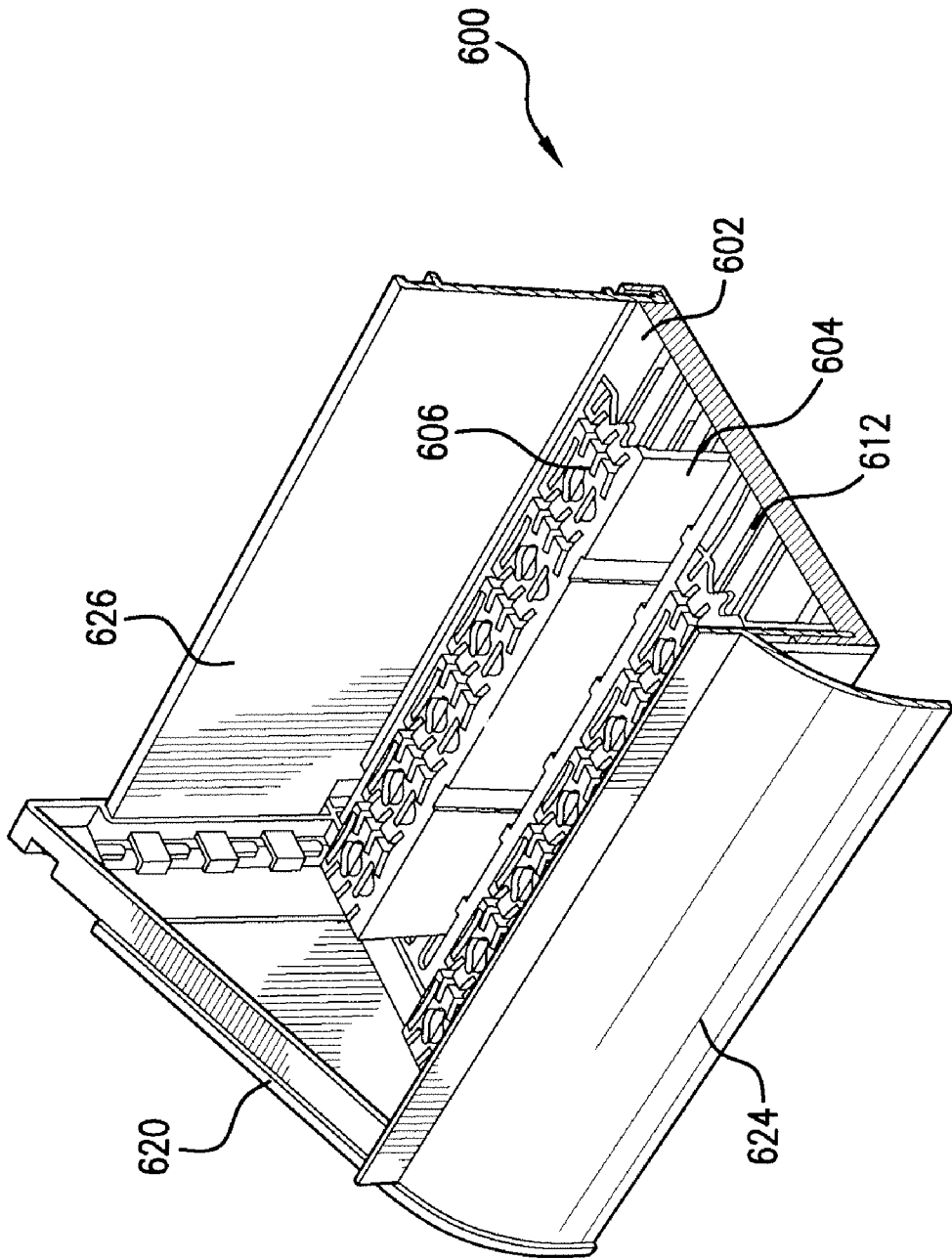


FIG. 8B

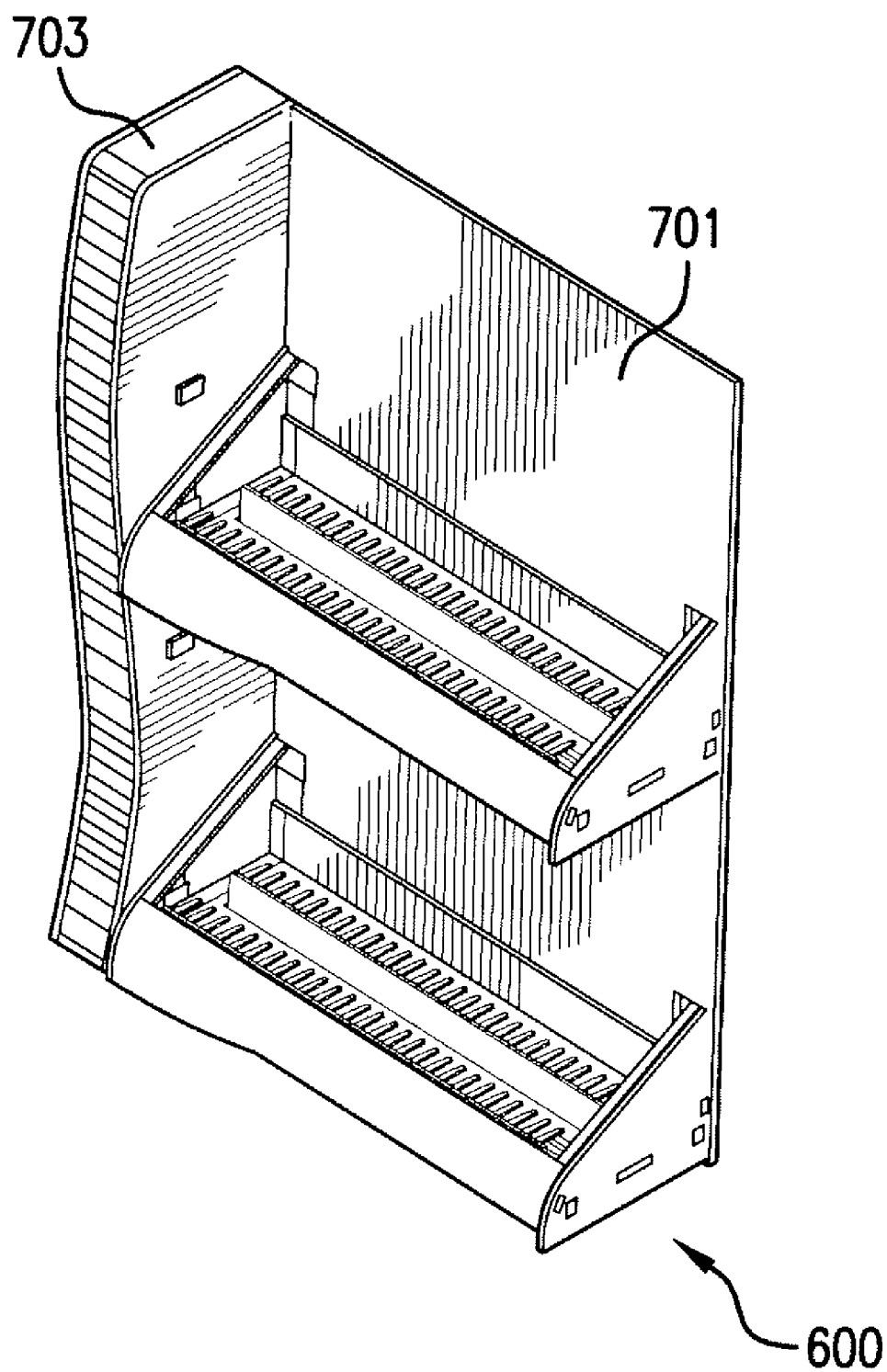


FIG. 9A

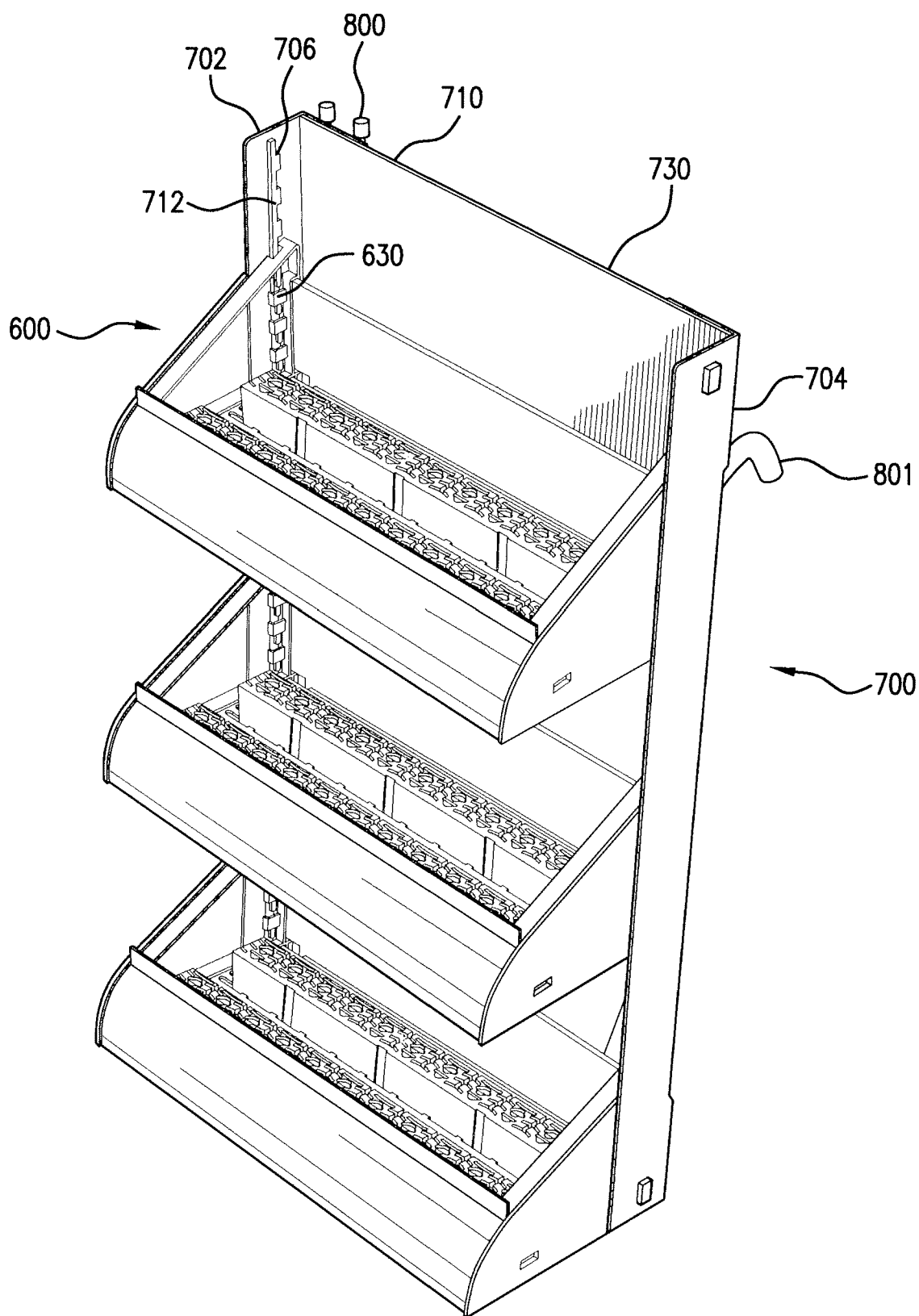


FIG. 9B

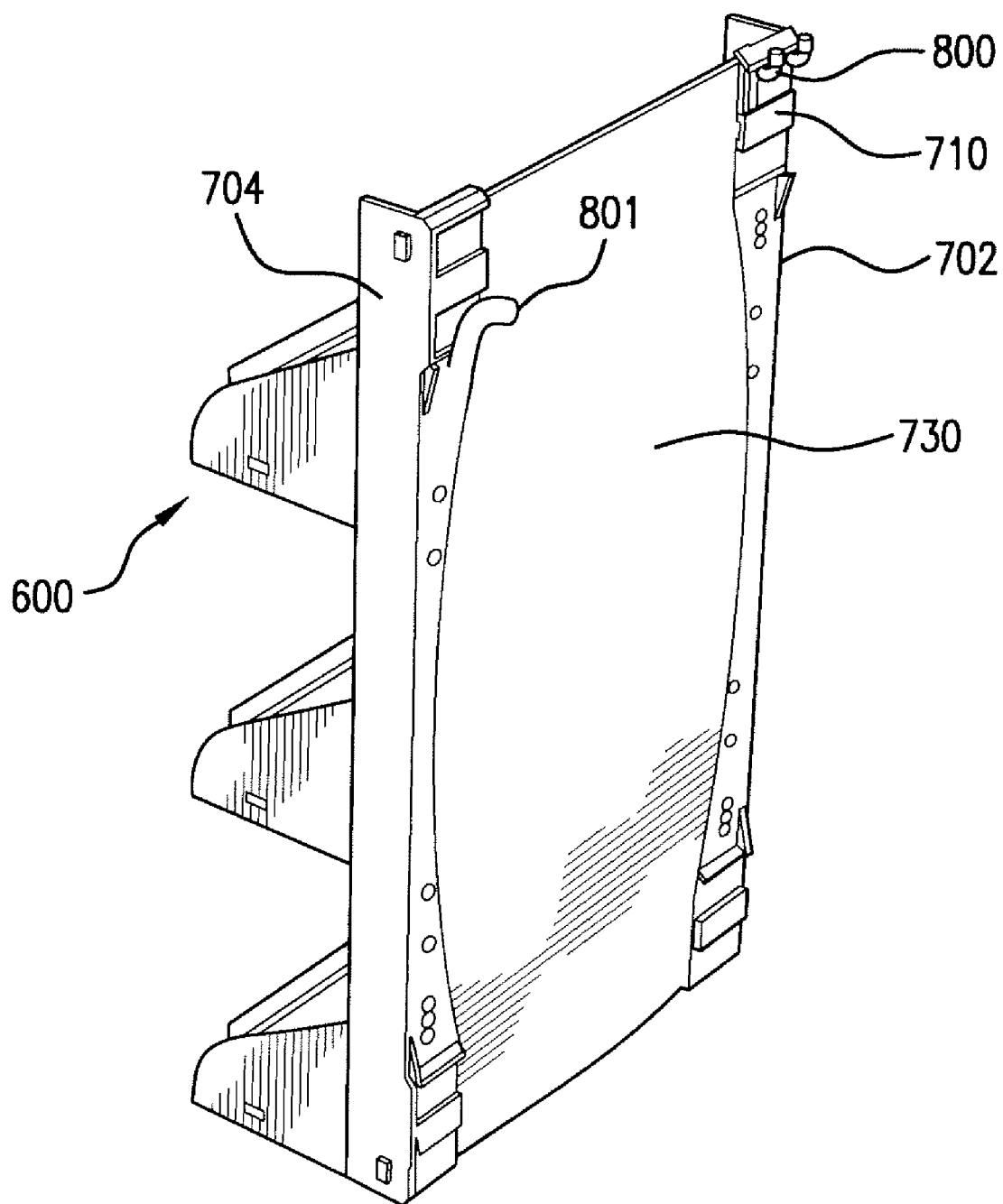


FIG.9C

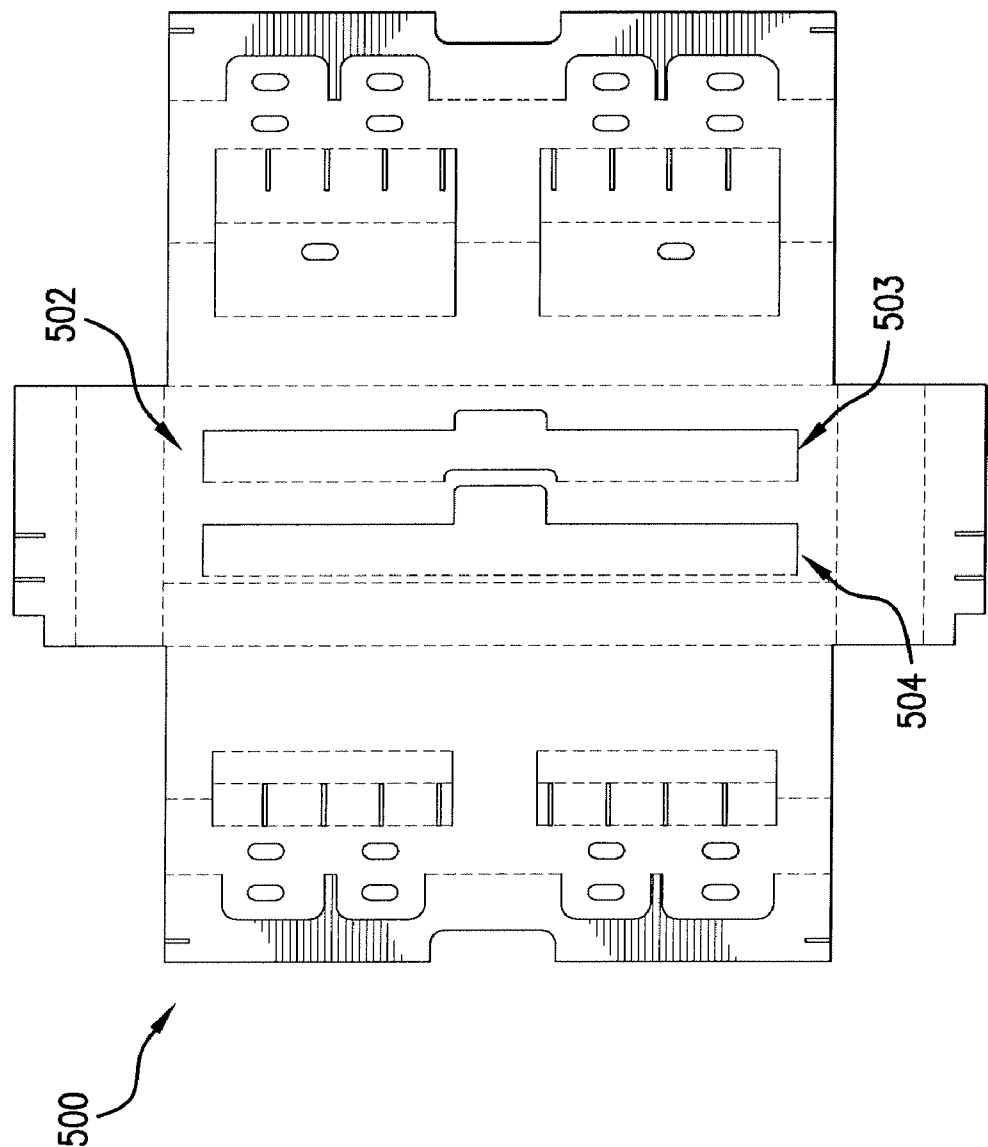


FIG. 10

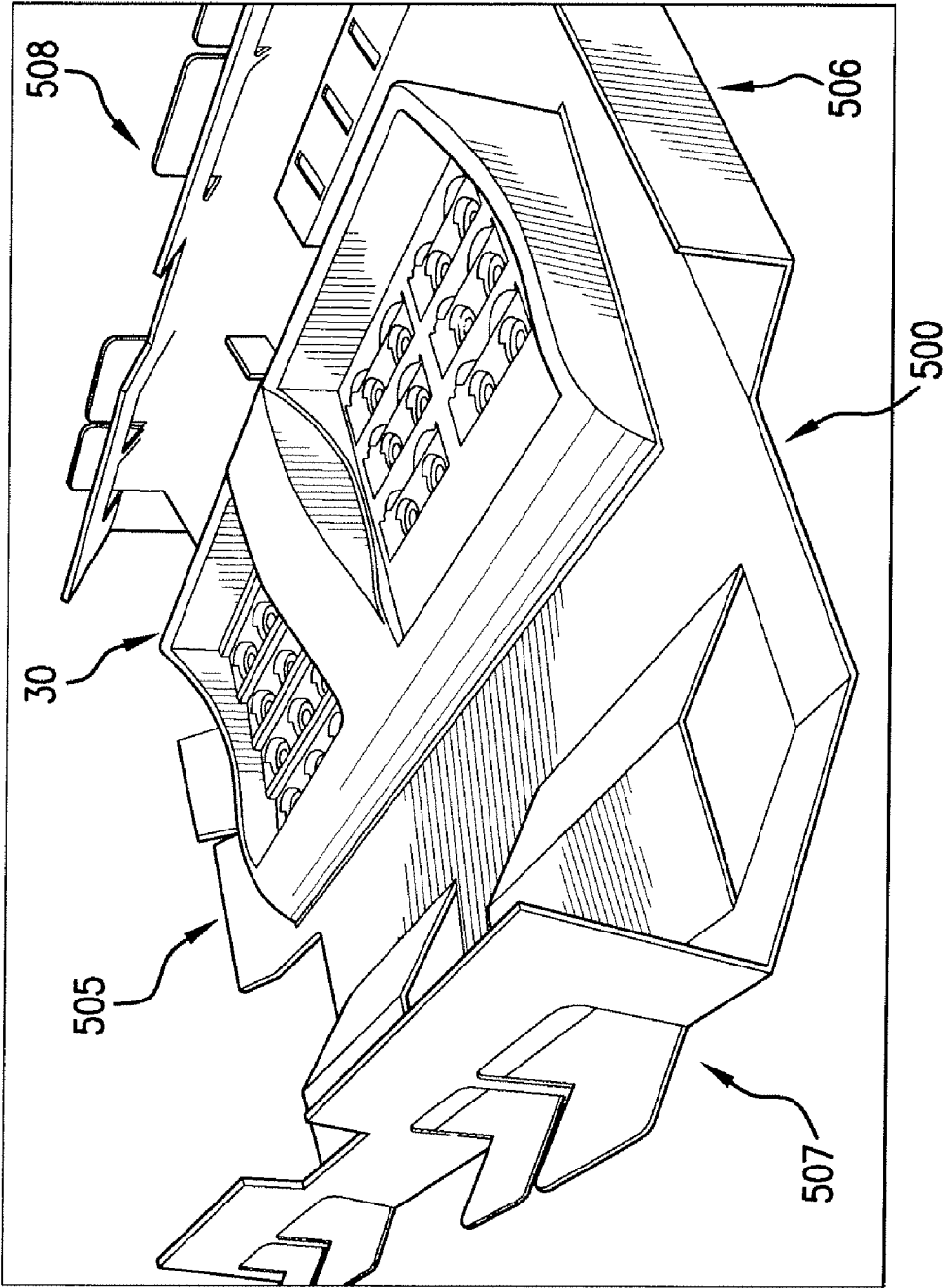


FIG. 11

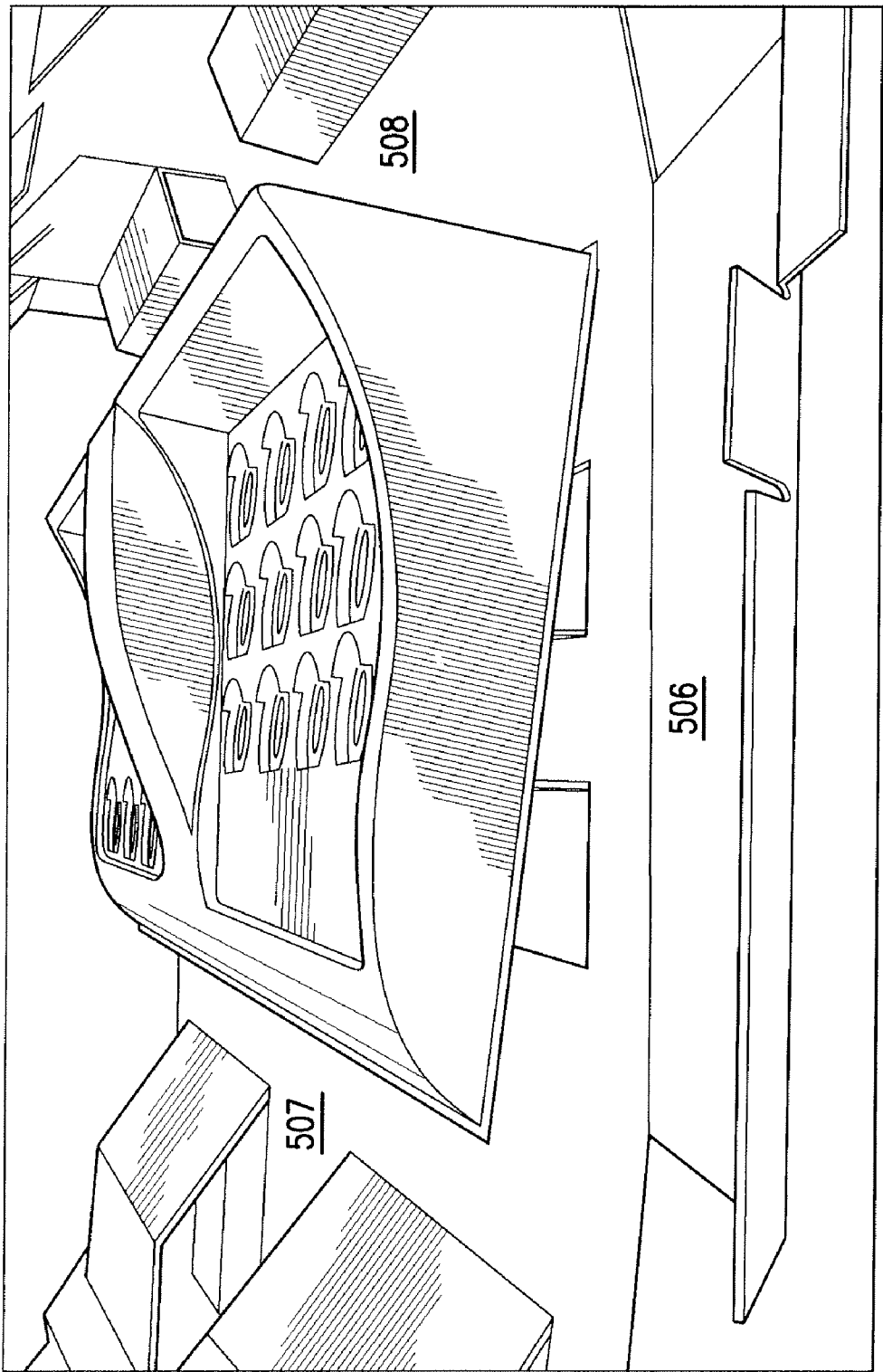


FIG.12

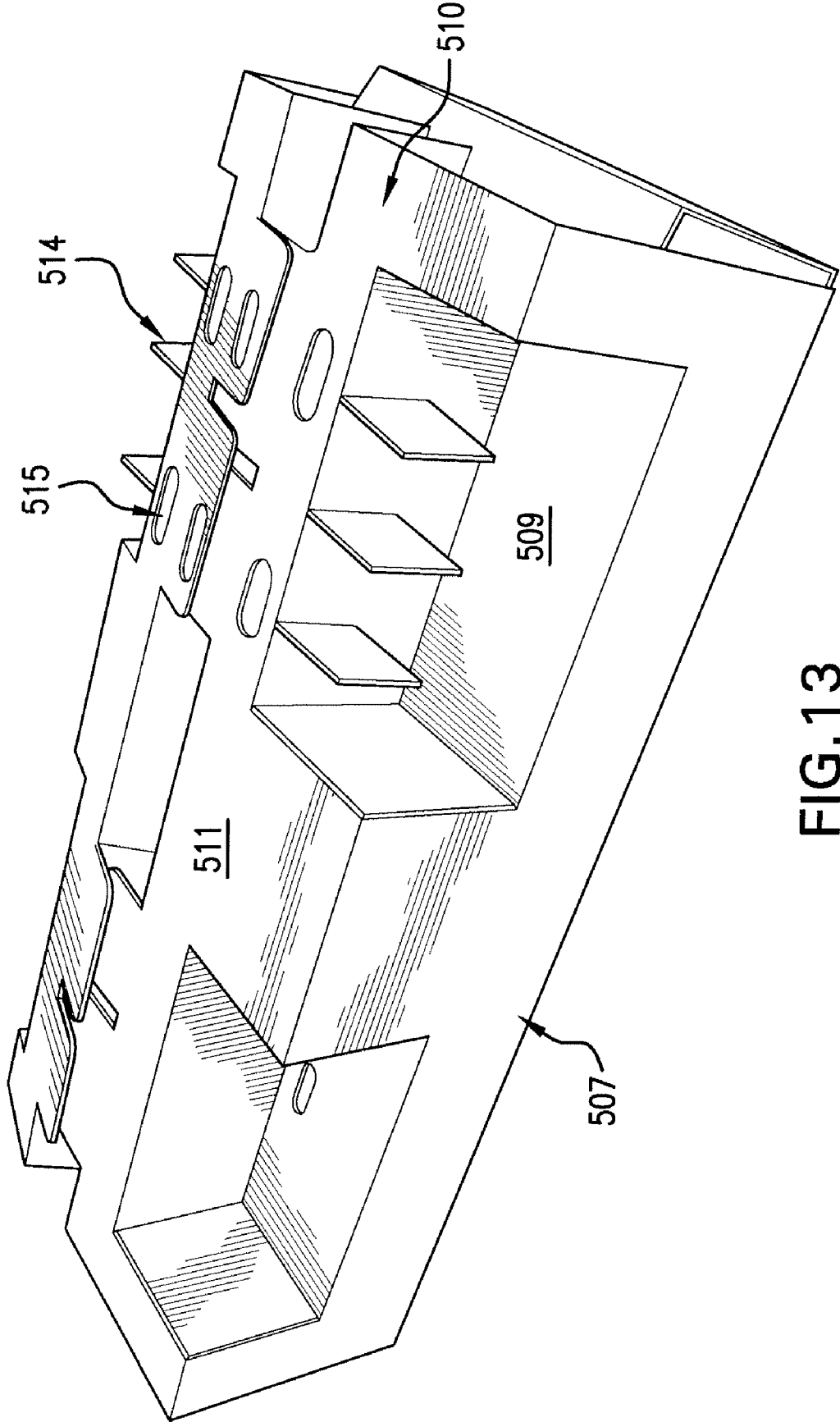


FIG. 13

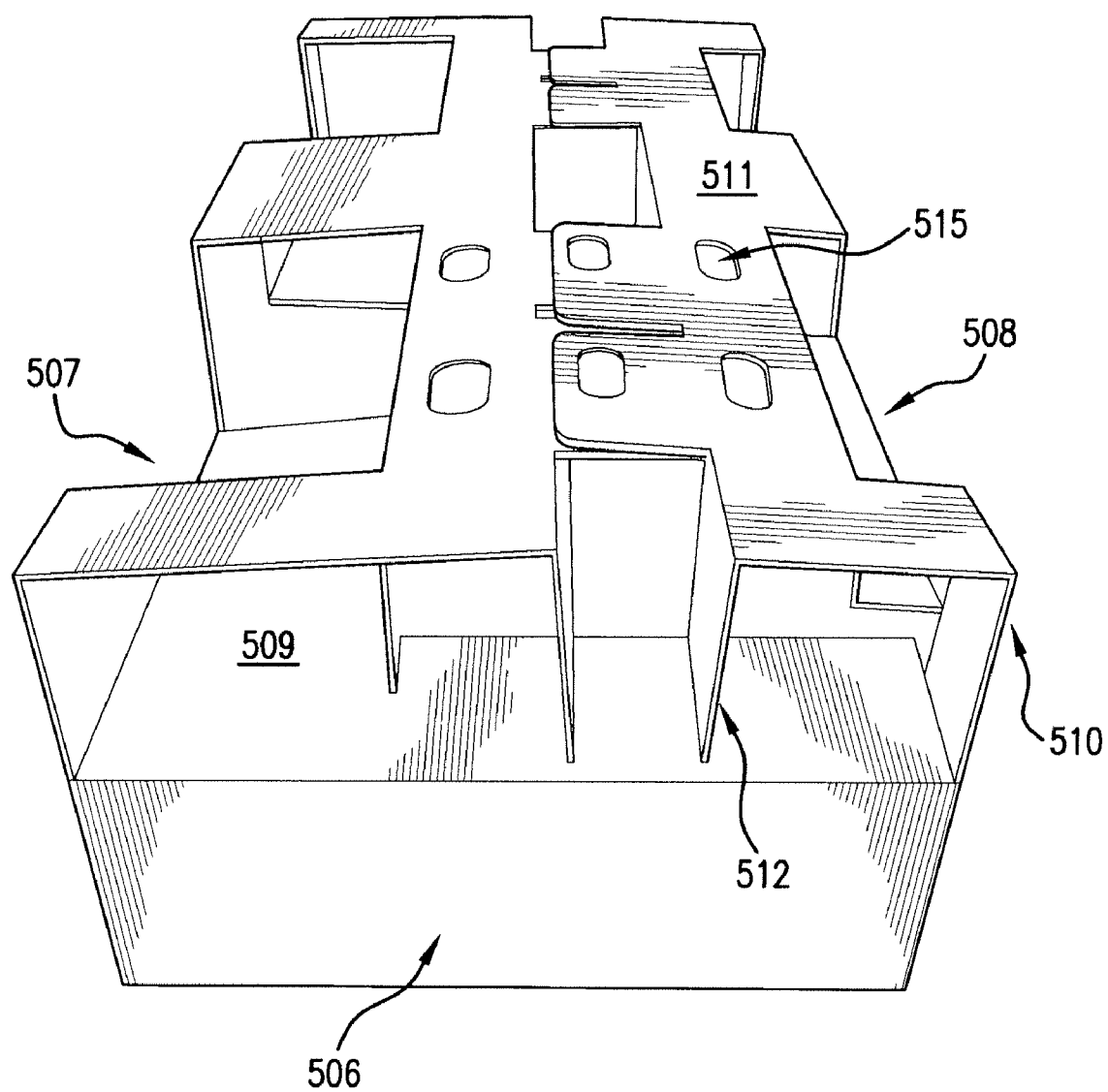


FIG. 14

PRODUCT DISPLAY SYSTEMS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Provisional Application No. 60/811,573, filed Jun. 6, 2006, the entire content of which is expressly incorporated herein by reference thereto.

FIELD OF THE INVENTION

[0002] The invention relates to product display systems for displaying articles of various configurations. The invention also relates to a packaging system that provides stable transportation of articles of various configurations.

BACKGROUND OF THE INVENTION

[0003] Article display stands and systems are known for advertising and merchandizing of products such as cosmetic products, perfumes, and lotions to potential customers. An example of a conventional display stand is disclosed in U.S. Pat. No. 3,774,774, in which rows of pockets having uniform size and shape are arranged to receive correspondingly sized and shaped articles. The pockets can receive only articles of a specific size and shape, such as a cylindrical shape, and cannot be used to hold articles of a different size or shape. Another example of a conventional display stand is disclosed in U.S. Pat. No. 6,336,564. This patent discloses elements having apertures of various sizes and shapes for receiving various cosmetic articles. Each aperture has a permanent, pre-determined size and shape, and therefore can receive only an article having the corresponding size and shape.

[0004] Although these conventional systems generally have been considered satisfactory for their intended purpose, the utility of such systems is limited to a single product line or article size. Thus, it would be desirable to provide a display system that is not limited to a predetermined product configuration but is capable of displaying various product configurations.

[0005] Further, systems for packaging and shipping display stands that can be converted to a display case at the retail location, such as a convertible display case disclosed in U.S. Pat. No. 4,116,330, are known. Conventional systems, however, generally require complex assembly as well as significant counter or floor space. Thus, an improved packaging system for containing display stands that is more user-friendly and efficient is needed.

SUMMARY OF THE INVENTION

[0006] In an embodiment, a display tray for holding an article is provided. The display tray comprising a base for supporting an article thereon and a divider having a mounting portion that is securable to the base in a position protruding therefrom by a mounting portion height and a gripping portion extending at an angle from the mounting portion longitudinally to overlay an area of the base. The divider can have weakened zones disposed and configured for facilitating splitting off a lateral portion of the divider.

[0007] The mounting portion is securable to the base at any mounted location provided by mounting elements of the base. The mounting portion is selectively securable for selectively configuring the tray by positioning the divider at a desired mounting element. The gripping portion is configured for flexing towards the mounting portion by amounts that are

variable along a lateral direction of the gripping portion for conforming to variously sized and shaped articles for holding the articles with respect to the base. The gripping portion can comprise flexible members (e.g., a plurality of spaced projections such as tabs or fingers) that are flexible substantially independently from each other and are disposed along the lateral direction for flexing by different amounts according to a curvature of an article held thereby.

[0008] The tray can include retention elements and can be attached to a pair of rails comprising complementary retention elements to form a modular display system.

[0009] In an embodiment, a display tray comprises at least one recess defining an article receiving cavity, the recess comprising a first article receiving portion and a second article receiving portion, and a support device placed on the base, the support device surrounding at least a portion of the recess and comprising a tab member extending inwardly towards the recess, wherein the first and second article receiving portions have different general configurations.

[0010] In another embodiment, a combination of a article display case and a shipping carton is provided, wherein the shipping carton surrounds the display case and retains the articles placed in the display case.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The accompanying drawings, which are incorporated in and constitutes part of this specification, illustrate and provide a further understanding of embodiments of the invention.

[0012] FIG. 1 is a schematic representation of a display tray according to an embodiment of the invention;

[0013] FIG. 2 is a plan view of the tray, die cut insert, and products shown in FIG. 1;

[0014] FIG. 3 is a schematic representation of a merchandising display case according to an embodiment of the invention;

[0015] FIG. 4 is a schematic representation of a tray according to an embodiment of the invention;

[0016] FIG. 5A is a bottom view of a base of a tray according to an embodiment of the invention, attached to a single side wall;

[0017] FIG. 5B is an illustration of a side wall of a tray according to an embodiment of the invention;

[0018] FIGS. 6A-6G are illustrations of gripping portion configurations according to embodiments of the invention;

[0019] FIG. 7 illustrates attachment of a mounting portion and a divider according to an embodiment of the invention;

[0020] FIGS. 8A-8B are illustrations of a tray according to an embodiment of the invention;

[0021] FIGS. 9A-9C are illustrations of display systems according to embodiments of the invention; and

[0022] FIGS. 10-14 are illustrations of a shipping carton according to an embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0023] In the embodiment shown in FIG. 1, a display 10 (e.g., a vacuum formed display stand) generally includes a tray 100 (e.g., a vacuum formed tray) for receiving products 20. The tray is typically formed from plastic and has a vertical rear wall 101, an arcuate front wall 102, with two vertical side walls 103a, 103b extending therebetween. The vertical rear wall (not shown) extends to a predetermined height, for

example, to a height approximately 1.5 times the height of the arcuate front wall **102**. The side walls **103a**, **103b** extend in an undulating fashion to a maximum height proximate the rear wall, and a minimum height proximate the front wall, wherein the minimum height is equal to the height of the front wall **102**. An inner surface of each side wall contains one or more protrusions **104**, **105**, whose function will be described below.

[0024] As shown in FIG. 1, the tray **100** has two rows **110**, **112** formed therein for receiving and products **20** for display. It will be understood that the number of rows can be varied as desired. Each row is defined by a cavity which extends between the side walls **103a**, **103b**, an upstanding ledge **106** disposed between the rows, and in the two-row configuration of FIG. 1, the front wall **102** or the rear wall (not shown), for the first **110** and second **112** rows respectively. In embodiments with more than two rows, the middle rows will be defined by the side walls and ledges that separate adjacent rows.

[0025] In a preferred embodiment, each row is sized and configured to receive articles of various sizes and shapes (e.g., cylindrical, rectangular, triangular, etc.). The second or upper row **112** can be elevated with respect to the first row **110**, such that a product positioned in the second row is visible over a product in a corresponding position in the first row **110**. For embodiments comprising more than two rows, the rows are preferably arranged in an ascending fashion, such that the first, front-most row is the lowest row and the last, back-most row is the highest row. The heights of the rows can be varied as desired.

[0026] According to an embodiment, recesses **113** for receiving articles are disposed within each row and define at least first and second article receiving portions within the row. The first and second article receiving portions are a shelf portion **107** and a sunken base portion **108**. In the embodiment illustrated in FIG. 1, there are four generally circular recesses disposed in each row, which are sized to receive the footprint of products having various arcuate configurations, e.g., circular, elliptical, oval, and the like. It will be understood that the number of recesses can be varied as desired.

[0027] The recesses **113** are sized such that they extend between the upstanding ledge portion **106** and the boundary wall, i.e., the rear wall **101** or the front wall **102**, depending on which row the recess is located in. In embodiments with more than two rows, recesses disposed within the middle rows will extend between adjacent upstanding ledge portions. The radius of curvature of each recess **113** is impressed upon or blended into the upstanding ledge portion **106** and the boundary wall, to facilitate receipt and retention of arcuate products by conforming to their general arcuate shape and contour. For example, when an arcuate product is inserted in the first row **110**, the footprint of the product engages the base portion **108**, the front of the product can engage a curved interior surface **102a** of the front wall, and the back of the product can engage a curved surface **106a** of the upstanding ledge portion.

[0028] In a further embodiment, the shelf portion **107** has a non-arcuate shape to accommodate products of non-arcuate shape. In the example shown in FIG. 1, the shelf portion **107** has a generally rectangular shape, such that products having a generally rectangular shape, which will not be received by recesses **113**, can be placed on the shelf portion **107**. The base of the product sits on and engage the shelf portions **107**. As such, the tray accommodates various arcuately and non-arcuately shaped products.

[0029] The tray can further comprise a support device, such as a die cut insert **200** shown in FIGS. 1-2. The support device is placed on and/or attached to the tray to aid in supporting and securing the products placed on the tray. The support device has openings that correspond to the rows and/or recesses of the tray so that products can be inserted through the openings and placed into the recesses. The openings substantially conform to the shape of the uppermost part of the rows over which they are placed. A support device is formed of any suitable material, including plastic, rubber, and paper, that provides sufficient rigidity.

[0030] As shown in FIG. 2, the support device in the form of a die cut insert has horizontal frame portions **210**, **212**, **214** that extend along the width of the tray **100** and correspond to the rows **110**, **112** defined in the tray. A pair of opposed side border portions **218a**, **218b** extend at the ends of the horizontal frame portions **210**, **212**, **214** and along the side walls **103a**, **103b**. The die cut insert further comprises a transversely extending portion **216** at a midpoint of the rows to define four cutouts or product receiving areas **240**, **250**, **260**, **270**. As such, the die cut insert surrounds the product receiving cavities of the tray. The die cut insert can include additional transversely extending portions as desired, depending on the size of the tray and the configuration of its product receiving cavities.

[0031] The die cut insert can further include one or more grooves or notches **224**, **225** along its side borders **218a**, **218b**. The grooves or notches **224**, **225** are disposed to engage the protrusions **104**, **105** of the tray side walls **103a**, **103b** to lock the die cut insert into position on the tray. Additionally, an adhesive can be applied between the die cut insert and the tray to further secure the die cut insert on the tray and to prevent its displacement during the insertion or removal of products from the tray.

[0032] In a preferred embodiment, the die cut insert is formed such that it includes arcuate portions **220** in the horizontal frame portions proximate the recesses, such that the curvature of the arcuate portions **220** coincides with the curvature of the underlying recesses **113** as illustrated in FIGS. 1-2. The curvature of the arcuate portions **220** can further coincide with the blended or impressed radius portions of upstanding ledge **106a** and walls **101a**, **102a**. Thus, for example, when an arcuate product is inserted through the die cut insert and into a recess **113** in the first row, the outer contour of the product will engage the upstanding ledge **106a** and the front wall **101a** of the tray and the arcuate portion **220** of the die cut insert.

[0033] In a further embodiment, the support device comprises one or more gripping portions, such as tab members, disposed around an opening of the device. The gripping portion can be provided in the form of a tab or as any suitable protruding member. The gripping portion can be formed on the support device in any desired manner, for example, integrally with the device or as a separate piece to be attached to the device. When the gripping portion is provided as a separate piece, any suitable means of attachment, such as adhesives, pins, and clips, can be used to attach the gripping portion to the support device. Preferably, the gripping portion is formed as part of the support device and does not require separate attachment. In such embodiments, the material forming the support device and gripping portion should be sufficiently rigid while allowing for a certain degree of flexibility and deformation.

[0034] When the support device is placed on the tray, the gripping portion extends from the opening of the support device proximate the corresponding recess of the tray, and engages the product inserted into the opening to hold the product in place. The gripping portion should have sufficient rigidity to support the product but should also be sufficiently flexible such that it can be deformed when pushed by the inserted product. The gripping portion can be provided in any desired pattern or configuration. For example, a plurality of gripping portions can be provided to achieve a certain holding pattern or to provide a certain support strength, or in a manner that visually optimizes product display, e.g., by avoiding interference with or obstruction of advertising labels or product descriptions on products.

[0035] In a preferred example, gripping portions are provided as tabs 226 disposed proximate either edge of the arcuate portion 220 of the insert frame, and extend inwardly, towards the opening. Depending on the size and shape of the product that is inserted into the tray, the tabs remain in their undeformed state or are deformed when the product is inserted. For example, when the product has a size and shape sufficient to contact the tabs without exerting deforming force, the tabs remain in their initial, undeformed state, but can grasp and/or abut surfaces of the product to provide stable alignment and retention of the product. When the product has a size or shape sufficient to push the tabs downward when being inserted into the tray, the tabs slope downward and abut the product in a deformed configuration, thereby further securing the product in place. For example, a rectangular product having a size and shape that correspond to the opening of the insert will push the tabs downward when being inserted into the tray. Tabs therefore provide a primary retaining force to hold and secure inserted products within the tray.

[0036] In another example, one or more tabs 227 are disposed between arcuate portions 220 of the insert frame to maintain products in place and prevent them from falling into an adjacent receiving cavity. The tabs abut adjacent products and prevent shifting of products during transport. In the embodiment shown in FIG. 1-2, tabs 226, 227 are provided between arcuate portions 220 of the insert frame as well as at the edges proximate the arcuate portions. If desired, tabs can be provided on other portions of the insert openings, such as on the arcuate portions 220, side border portions 218a, 218b, and/or transversely extending portion 216.

[0037] According to an embodiment, the display 10 comprising the tray 100 and the die cut insert 200 is incorporated into a merchandizing display case 30 as shown in FIG. 3. In the embodiment shown in FIG. 3, the merchandizing display case 30 comprises two display areas 32, 34 for receiving two trays. The number and size of display areas for holding displays or trays can be varied as desired.

[0038] The merchandizing display case 30 is typically formed from plastic and has a vertical rear wall (not shown), a front wall 302, and two vertical side walls 303a, 303b extending therebetween in an undulating fashion. The front wall 302 can have a generally arcuate shape. The vertical rear wall 301 extends to a predetermined height greater than the front wall. For example, the vertical rear wall 301 can extend to a height of approximately 1.5 times of the height of the front wall 302. The side walls 303a, 303b extend to a maximum height proximate the rear wall, and a minimum height proximate the front wall, wherein the minimum height is equal to or is substantially the same as the height of the front wall 102. A dividing portion, such as a raised divider portion

304, extends between the front and rear walls to define the two display areas 32, 34. In an example, the divider portion has an arcuate shape, such as a convex shape, such that the curvature of the divider portion blends into an arcuate front wall 302, as shown in FIG. 3. A lip portion 306 extends around the periphery of the display areas.

[0039] The merchandizing display case 30 can include markings, graphics or such other features, e.g., advertisements such as logos, slogans, and trademarks and product description, on any suitable surface, including the front wall, the divider portion, and the lip portion. Such features can be provided by any suitable means, for example, by directly printing on the display case, attachment, or etching. Further, the display case 30 can include a designated area or structure for receiving advertisements or other such materials. For example, a portion of the front wall can be configured for receiving or attaching advertising materials.

[0040] The size, dimensions, and configuration of the merchandizing display case can be adjusted as desired. For example, the display case can be designed and sized to fit on a typical shelf or countertop at a retail location, such as pharmacies and supermarkets. Further, the display case and its display areas can be customized as desired. For example, as shown in FIG. 3, the lowest row 310 of the tray placed in the display area 34 can be partially or entirely closed off from receiving products. Such closure of the row 310 can be achieved by, for example, extending the arcuate front wall of the tray and/or the display case over the row 310 or by providing a separate cover structure over the row 310. Any of the rows in the display areas can be modified by covering the row partially or entirely with a separate structural insert or attachment or by extension of a portion of a proximate wall of the display case, depending on the desired effect.

[0041] According to another embodiment of the invention, an alternative adjustable tray is provided that allows for increased flexibility in the configurations of products held therein as well as in the sizing and arrangement of the tray. As illustrated in FIG. 4, the adjustable tray 400 comprises a base 402 and a divider 404, which has a mounting portion 405 for engaging and securing the divider to the base 402 and one or more gripping portions 406.

[0042] The base 402 includes a plurality of mounting elements configured to receive the mounting portion of the divider. The mounting elements selective positioning of the divider onto the base for selectively configuring the tray. The tray can be selectively configured by positioning the divider at a desired mounting location by engaging the mounting portion of the divider with the mounting element of the base. The mounting elements can have any desired configuration that is capable of receiving and engaging the mounting portion of the divider. For example, the mounting element can extend a partial or the entire width of the base, and can be continuous along the width of the base or can be divided into separate sections. Further, the mounting elements can be spaced in any desired manner, e.g., equidistant from one another, at predetermined intervals, or randomly.

[0043] The variable divider positioning enabled by the use of the mounting elements allows various tray configurations and accommodates various product sizes and shapes. Because each divider can be positioned at any one of the mounting locations, the configuration of the tray can be easily altered by arranging the dividers to conform to a particular product size and shape or to achieve a desired display effect. In FIG. 4, for example, product receiving areas of three dif-

ferent sizes are defined by four dividers **404**. The dividers **404** are positioned at intervals to accommodate products of different sizes, such that tray holds both small and large products simultaneously. Thus, the variability and flexibility of the tray provides enhanced customization of product positioning and display. Further, the base can receive, in addition to dividers, any other structure that is configured to engage the base, e.g., a longitudinal element that is configured to engage with multiple mounting elements along a length of the base.

[0044] In an embodiment, the mounting elements of the base are openings into which the mounting portion of the divider can be inserted. The openings can have any size and shape, as long as they are configured to receive and engage the mounting portion. In an embodiment, the openings are slots along a width of the base. For example, as shown in FIG. 5A, the openings can be elongated slots **411** that extend substantially the width of the base. Slots can continuously run the width of the base or can be broken into separate sections. In the embodiment shown in FIG. 5, slots **411** are divided into sections by longitudinal attachment features **421**. The slots can have substantially the same size and/or width as shown in FIG. 5A, or can have different sizes or widths.

[0045] In an alternative embodiment, the mounting elements are indentations configured to receive and secure the mounting portion. For example, the mounting elements can be a series of longitudinal grooves or channels **412** that extend along the width of the base and are sized to receive the divider **404** as shown in FIG. 4. While individual mounting elements in the base can have different configurations, the mounting elements preferably have a uniform configuration. The indentations can extend along a partial or the entire width of the base, and can be continuous or broken into separate sections. For example, while continuous channels **412** are shown in FIG. 4, the channels need not be continuous and can be broken up into several separate sections. Also, while linear channels **412** are shown an example in FIG. 4, the mounting elements can have any of a variety of shapes as desired, including arched, circular, and angled shapes.

[0046] Indentations can additionally include holes **413** which are configured to receive and lockingly engage corresponding protrusions or ledges extending from the mounting portion of the divider. The holes **413** can have any desired or suitable configuration, as long as they are capable of receiving and engaging protrusions of the mounting portion.

[0047] The base **402** can further include one or more supporting members **428** that are attached at one or more locations on the bottom of the base to provide structure.

[0048] One or both lateral edges **415**, **417** of the base **402** are preferably configured to engage a side wall, so that a side wall **430**, such as the one shown in FIGS. 5A and 5B can be attached to the base **402**. In the embodiment shown, the base **402** includes left and right wings **419**, **421** positioned at a distance away from the left and right lateral edges **415**, **417**. The wings **419**, **421** extend in substantially parallel to the lateral edges **415**, **417**. The distance between the respective lateral edge and the wing can be the same or different, and is configured for engagement of the side wall **430**. The side wall **430** includes an engaging member **432** for engaging the side wall **430** to the base **402**. The engaging member **432** has a width substantially corresponding to the distance between a lateral edge and the corresponding wing, such that the engaging member **432** extends over the bottom portions of the lateral edge and the wing upon attachment to the base. To attach the base **402** to the side wall **430**, the base is laterally

inserted into a portion **436** of the side wall configured to engage the base, such that the wing **421** intimately contacts the side wall. The engaging member **432** is pivoted towards the bottom of the base, such that it extends over the bottom portions of the wing **421** and the lateral edge **419**. The engaging member **432** preferably further includes a securing structure, such as tabs or clips **434**, that can be secured, such as by clipping, onto the lateral edge **419**.

[0049] In a preferred embodiment, the base additionally includes at the bottom, at a distance spaced apart from a lateral edge of the base, attachment features **423** that are configured for engaging a side wall. Such attachment features allow attachment of a side wall to the base upon removal of a lateral portion of the base.

[0050] Shown in FIG. 5A is an embodiment of a base **402** that can be laterally cut along the width. The base **402** includes at the bottom a plurality of slots **411** for receiving the mounting portion of a divider and a plurality of attachment features **423** located at a distance apart from the lateral edges **415**, **417**. The attachment features **423** include one or more protrusions **425**, **427**, each extending toward a lateral edge of the base **402**. Preferably, the attachment features **423** include protrusions facing both lateral edges of the base. The protrusions **425**, **427** have substantially the same width as the engaging member **432** of the side wall **430**, and can have any general shape and length that are suitable for engaging the engaging member **432**. For example, the protrusions **425**, **427** can have a U-shape configuration as shown in FIG. 5A. To adjust the width of the base **402**, the base is cut proximate one of the attachment features **423**, along a latitudinal line **429**, such that the projections **425** form a new lateral edge of the base. To attach the side wall **430**, the base **402** is inserted into a portion of the side wall **430** such that the lateral edges of the protrusions **425** abut the side wall **430**. The engaging member **432** is pivoted towards the base to engage the attachment feature **423**, and the securing structures **434** of the engaging member **432** can be secured onto the attachment feature **423**. This way, a lateral portion of the base **402** can be removed to cut down the width of the base, and the base can still be easily attached to a side wall.

[0051] The divider can be provided in any desired shape, but has a mounting portion preferably extending generally upright from the base and a gripping portion extending at an angle from the mounting portion longitudinally. The mounting portion should preferably have a bottom portion that substantially conforms to the configuration of the mounting elements of the base. The divider can have substantially the same or shorter width than the base. When the divider has a shorter width than the base, multiple dividers can be placed on the base, continuously or at an interval. The divider preferably has a uniform thickness, but can be formed with varying thickness and/or height. Further, the divider can include one or more longitudinal weakened portions such that the divider can be laterally separated along the weakened portions. In an embodiment, the divider has weakened portions at intervals substantially corresponding to the intervals of attachment features on the base, such that a corresponding width of the divider can be removed when the base is laterally cut.

[0052] The divider can be secured to the base by operably engaging the mounting portion with the mounting element of the base, or by any other suitable means of attachment that allows removal and reattachment of the divider.

[0053] In an example, the mounting portion of the divider includes one or more protrusions or ledges extending at the

bottom part of the mounting portion, to engage the mounting element of the base. For example, the protrusions can be inserted into openings in the mounting element to securely affix the divider to the base. The tip of the protrusion can be tapered to facilitate its insertion into the opening, and the top side of the protrusion can be angled to resist pulling and disassembly. A stiffening rib can be provided proximate the top part of the protrusion to provide support and structure. When the protrusion is inserted into the opening, the rib makes a tight fit with the base to securely engage the divider with the base.

[0054] The divider includes a gripping portion extending at an angle from the mounting portion longitudinally to overlay an area of the base. The gripping portion extends preferably within about 45 degrees from the surface of the base, more preferably within about 20 degrees from the surface of the base, and most preferably substantially in parallel with the surface of the base. The gripping portion is configured for deflecting or flexing towards the mounting portion by amounts that are variable along a lateral direction of the gripping portion, so that the gripping portion can conform to variously sized and shaped articles for holding the articles with respect to the base. When a product is inserted between adjacent gripping portions, it exerts a downward force on the gripping portions such that the gripping portions deflect downward and the top surface of the deflected gripping portion abuts the product with sufficient resistance to hold the product in place. In a further embodiment, the gripping portion comprises one or more flexible members that are substantially independently flexible from one another and are disposed along the lateral direction for flexing by different amounts according to a curvature of the product held thereby.

[0055] The divider can include a gripping portion on one longitudinal side or on opposing longitudinal sides. When the divider has a gripping portion extending from one side, the divider is substantially L-shaped. When the divider has gripping portions extending from both sides, the divider is substantially T-shaped. The gripping portion can be provided at any desired height along the divider **404**, preferably proximate the top of the divider **404**. If desired, multiple layers of gripping portions can be provided at various heights of the divider. In a preferred example, the gripping portion aids in gripping and retaining the product in place with respect to the base without substantially interfering with or obstructing any indicia on the product, such as advertisements and product descriptions.

[0056] The gripping portion can be provided in any desired form and configuration, such as a tab, a comb-like structure, a protrusion, and a strip having a toothed or sawed edge, as long as the gripping portion provides sufficient flexibility and resistance. The material and configuration of the gripping portion preferably provide inherent resistance to push against the product inserted between adjacent gripping portions, so that the product can be held in place. Multiple gripping portion configurations can be provided on one divider. For example, one part of the divider can include a gripping portion of a continuous strip configuration while another part includes a plurality of individual flexible members, e.g., in a comb-like structure.

[0057] Non-limiting examples of gripping portion configurations are shown in FIGS. 6A-6G. Also shown in FIGS. 6D and 6F are ribbed portions **442** of the preferred divider **404** that provide additional stiffening and support and protrusions

444 extending from the bottom of the mounting portion **405**. The protrusions **444** are tapered at the bottom to facilitate their insertion into the base.

[0058] FIG. 6A shows a gripping portion having a continuous, generally rectangular strip configuration **450** with a straight outer edge. Such gripping portion **450** is preferably made of a relatively soft and flexible materials, preferably an elastomeric material such as foam or rubber. In other embodiments, the outer edge can be non-linear, e.g., curved or indented. For example, the outer edge can have a rounded, wavy, or saw-toothed shape. Those skilled in the art will appreciate that any shaped gripping portion can be used so long as the gripping portion is sized and configured to provide enough force or friction against a product to hold the product in place (e.g., upright) while allowing the user to easily insert and remove a product between the adjacent gripping portions.

[0059] FIG. 6B shows a continuous, generally rectangular gripping portion **452** having a straight outer edge. The gripping portion **452** has a series of weakened portions **454**. A portion of the gripping portion **452** can be separated or detached along a weakened portion **454**, such that the length of the gripping portion **452** can be reduced. The weakened portions **454** can have substantially the same or different contours as the outer edge of the gripping portion **452**, so that the shape of the gripping portion can be modified by detachment along a weakened portion. For example, the gripping portion **452** shown in FIG. 6B has weakened portions **454** having curved shape, such that, when a part of the gripping portion is detached along one of the weakened portions **454**, the remaining gripping portion would have a curved outer edge.

[0060] FIG. 6C shows a gripping portion **456** having a comb-like configuration with individual flexible members such as tabs or fingers **458**. In the embodiment shown, the individual fingers are tapered to provide flexibility. In another embodiment, the width of the fingers are substantially the same through the entire length of the tabs or fingers. The tips of the fingers can be rounded, straight, or pointed. The tips can be curved upward, downward, or inward. An example of a downwardly curving tip **460** is shown in FIG. 6D. Further, individual flexible members can have varying thicknesses for varying rigidity. For example, as shown in FIG. 6D, the tip portion can have a thickness greater than the other portions of the finger for stiffness.

[0061] One or more protrusions **460**, **462**, **464** can extend from the tip of the finger **458**, for increased surface area and/or greater resistance and gripping power. FIG. 6D shows a substantially T-shaped divider **404**, having gripping portions **406** extending from opposing sides of the mounting portion **405**. The gripping portions include a series of fingers. Some of the fingers include two upwardly extending protrusions **462**, **464** at the tip, while the other fingers include a downwardly extending tip **460**.

[0062] Flexible members of a gripping portion can have substantially the same configuration throughout as shown in FIG. 6C, or can have varying configurations as shown in FIG. 6D. It will be appreciated that individual members of a comb-like gripping portion configuration can have any desired shape or combinations of shapes.

[0063] FIG. 6E shows a comb-like gripping portion having individual flexible members, e.g., fingers, wherein the gripping portion further comprises pieces of material **466**, **468**, **470** attached to some of the flexible members. A piece of material can be attached to one flexible member, or can be

attached over or around a number of flexible members. Two or more pieces of material can be attached to one or more flexible members, e.g., over the top and bottom surfaces of the flexible members, such that flexible members are partially or completely wrapped with or enclosed by the pieces of material. The attached pieces of material can completely enclose one or more flexible members or partially cover the flexible members such that certain portions of the flexible members (e.g., the tip or the base portion proximate the mounting portion) are exposed. The pieces of material can have any desired size, shape, rigidity, and flexibility as desired. In a preferred example, the pieces of material provides enhanced gripping or stiffening characteristics or impart additional strength to the flexible members.

[0064] In an embodiment shown in FIGS. 6F and 6G, a gripping portion has a plurality of flexible members 472, which are separated by spaces 474 having a certain configuration. Preferably the spaces 474 extend longitudinally between the adjacent flexible members 474 and include several laterally extending branches 475 to provide hinge portions of the flexible members that have increased flexibility compared to other portions of the flexible members. In the embodiment shown, each space 474 has branches 475 extending on both sides. The flexible members 472 can additionally include one or more openings 476, 477, 478 disposed therein. An opening can be configured to include a relatively large center portion, a laterally extending branch that is narrower than the center portion, or a combination thereof. The openings provide desired thickness to various parts of the flexible members to help define the hinges. In this embodiment, the openings 476, 477 have a relatively large center portion, while the opening 478 is a narrow, laterally extending slot that is preferably arcuate and curved away from the mounting portion to facilitate conforming about a convexly shaped article.

[0065] Further, as shown in dotted lines, the flexible member comprises first and second flexible elements 492, 494 extending longitudinally and connectors 496 extending laterally to join adjacent flexible elements. The flexible member has hinges between the flexible elements and the connectors. Preferably, the hinges are living hinges, i.e., a hinge with no moving parts, to allow deflection and flexure thereabout. The living hinges the flexible members to deflect and curve around a curvature of the product held thereby. Because living hinges are also generally resistant to wearing, flexible members including living hinges can withstand repetitive bending and use.

[0066] In a further embodiment, the gripping portion can include a flexible gripping layer, such as a sheet of sufficiently flexible material, connecting the flexible members to provide a substantially continuous edge distal from the mounting portion. The flexible gripping layer can extend partially or substantially entirely over the flexible members, and can be provided on the top surfaces of the flexible members, on the bottom surfaces of the flexible members, or both. Preferably, the flexible gripping layer is more flexible than the flexible members. For example, the flexible gripping layer can be made of an elastomeric material, while the flexible members are made of a more rigid plastic material.

[0067] In an embodiment, the gripping portion is provided with enhanced gripping characteristics. Such characteristics can be provided by, for example, a certain structural configuration (e.g., a knurled surface), a separate structural addition or attachment (e.g., a sleeve or attachment placed on the

gripping portion), such as those shown in FIG. 6E, or coating with a frictional material (e.g., a coating that has a higher coefficient of friction than that of the gripping portion). In an example, a piece of material is placed around or over at least a portion of the gripping portion to provide increased friction and/or grip, as well as increased rigidity and support. Such material can be placed at an edge of the gripping portion or can substantially surround the gripping portion.

[0068] In another embodiment, the divider includes a stiffening member that allows the gripping portion to bend only to a certain extent, to prevent overflexing and weakening of the gripping portion. For example, a stiffening member can be provided on the divider such that it contacts the gripping portion that is bent down and prevents further bending of the gripping portion. In another example, a stiffening member is a piece of material attached to or placed over the gripping portion. Such stiffening member can be made of a material that provides both stiffening and enhanced gripping characteristics.

[0069] The divider can be formed by any suitable method, including injection molding, vacuum forming, extrusion, welding, die cutting, heat bending, cold forming, and machining. The mounting portion and the gripping portion of the divider can be made of the same or different types of materials. Any material that provides the desired rigidity and grip can be utilized. Examples include plastic, rubber, foam, metal, paper, wood, and composite and synthetic materials. Preferred materials include styrene, polyethylene, polypropylene, and polyvinyl chloride. While the mounting portion should preferably be sufficiently rigid to provide structure, the gripping portion can be more flexible and/or softer. The gripping portion material should be capable of being deformed upon insertion of a product into the display system.

[0070] In an embodiment, the divider is formed by molding, such as over-molding or dual molding. In over-molding, two different plastic materials are molded together to produce the divider. For example, a first, relatively rigid material (e.g., rigid plastic) is used to mold the a substrate, and a second, relatively softer material (e.g., rubber-like elastomer) is molded over the substrate. Preferably, the substrate formed from with the first material is the mounting portion, and the gripping portion is molded from the second material. In dual molding, also known as dual-shot molding, different materials (e.g., hard and soft plastic materials) are molded simultaneously. Preferably, the divider is made by dual molding.

[0071] The mounting portion and the gripping portion can be integral, e.g., one molded piece, or separate pieces that can be attached to each other. Any suitable means of attachment can be used to attach separate pieces, for example, adhesives, welding, pins, clips, or snaps. In one embodiment, the mounting portion and the gripping portion are two separate pieces that are attached together by a plurality of snaps having a staggered configuration. In this embodiment, a section of the gripping portion can be positioned between the staggered snaps located on the mounting portion. In another embodiment, the mounting portion 405 is provided with a groove 498 having a plurality of holes 496 as shown in FIG. 7. The gripping portion 406 is positioned against the groove 498 and held therein with, for example, a securing member 494 such as a pin that engages the holes. The securing member 494 puncture the gripping portion 406 and engage the holes 496 in the groove 498, thereby attaching the gripping portion to the divider.

[0072] The divider can be provided in any desired dimension. Referring to FIG. 6A, the divider has a width 491, a length 492, and a height 493. For use with cosmetic, hygienic, pharmaceutical, and such other consumer products such as lotions, lipsticks, cleaners, and pharmaceutical tablet bottles and boxes, the divider, the divider preferably extends up to about 5 inches from the base, more preferably up to about 3 inches from the base, and most preferably up to about 2 inches from the base. For use with such products, the gripping portion extends from the mounting portion preferably at least about 0.2 inches and at most about 3 inches. In a preferred example, the gripping portion extends about 0.4 to 1 inch from the mounting portion.

[0073] The tray having a base and dividers can be incorporated into a merchandizing display case or employed as an independent display stand to be positioned on a counter or shelf at a retail establishment. In the embodiment where the product retention tray is incorporated into a merchandizing display case 30, such as the one shown in FIG. 3, the retention tray is sized to correspond to the display areas 32, 34, and can be fixedly attached to the case with an adhesive.

[0074] The tray can be provided only as an exposed base portion as shown in FIG. 4, i.e., without any walls enclosing the base, or can be provided with one or more walls. For example, referring to the tray 600 shown in FIGS. 8A-8B, a first side 620 wall can be positioned on a first side of the base 602, a second side wall 622 can be positioned on the second side of the base 602, a front wall 624 can be positioned on a front side of the base 602, and a rear wall 626 can be positioned on the rear side of the base 602. The base and the walls are sized and configured to be joined together. In an embodiment, the base and the walls include complementary mounting elements (e.g., slots and protrusions) such that the base and the walls can be affixed by engaging the complementary members. For example, the base and the wall can include complementary openings and extensions (e.g., L-shaped members and a series of blocks fitting therein) or snap features. The base and the walls are preferably configured such that each wall can be snap fit to the base.

[0075] Depending on the desired configuration, the front and/or rear walls can have a length that is the same as or different (shorter or longer) from the length of the base. When the length of the wall is greater than the length of the base, a plurality of bases can be positioned between the rear and front walls. In this way, multiple bases can be positioned in a side-by-side configuration. The height of the four walls can also be adjusted as desired. Preferably, the rear wall has a height greater than the front wall, and the side walls have a height that extends in an undulating fashion, increasing from a minimum height proximate the front wall to a maximum height proximate the rear wall. The front wall can have a generally curved or straight shape, and can be provided in any desired configuration.

[0076] A cover or a partial cover can also be attached to a wall or to the base, such that it can be positioned over preferably a portion of the base. For example, FIG. 8A shows a cover 628 that is attached to the front 624 and side walls 620, 622 in a slidable fashion, such that it can be slid along the side walls to close over the base 602. In an embodiment, the base and the cover are configured such that the cover can be snap fit to the base. The cover can further include one or more openings so that products can be inserted therethrough even when the cover is closed.

[0077] The tray can be dimensioned as desired. For displaying typical cosmetic, hygienic, or pharmaceutical products, such as lotions, drug bottles or boxes, and lipsticks, the tray can have a width of about 10 to 20 inches, a length of about 3 to 18 inches, and a height of about 2 to 15 feet. In a further example, the tray has a width of about 13 to 15 inches, a length of about 4 to 10 inches, and a height of about 3 to 7 inches.

[0078] Further, the adjustable tray can be mounted on a back and/or side support, as shown in FIGS. 9A-9C, to form a display system. The display system can be free-standing or can be configured to be hooked onto a support structure, e.g., wire structure. The display can be a "power wing" display. A power wing display is a type of display that has dimensions typical in displays used at the end of an aisle in a pharmacy or supermarket.

[0079] Referring to FIG. 9A, the tray is attached to a back support 701 that includes attaching means (e.g., holes), which engage complementary attaching means of the tray. A side support 703 can be attached to the back support or to a side of the tray.

[0080] In another embodiment, a product display tray is laterally engaged with a pair of rails to form a modular display system. For example, the rails provide "power wings" around the tray.

[0081] As shown in FIG. 9B, the modular display system 700 comprises a display tray 600 and a pair of rails 702, 704, to which the tray is attached. The tray 600 is attached to the rails 702, 704 at the back wall 626 and/or side walls 620, 622 and/or along the edge where the back wall 626 and the side walls 620, 622 intersect. The tray is attached to the rails by any suitable means of attachment. For example, the tray and the rails can include retention elements that are complementary in shape such that the elements can be mated or snapped together.

[0082] In the embodiment shown in FIGS. 9A-9B, retention elements are provided on a surface of each rail 702, 704 in the form of a series of teeth 712, 714 extending through a length of the rail. The teeth preferably extend continuously along a length of the rail, but can be provided in fragments, i.e., on certain portions along the rail, separated by non-teeth portions. In a further preferred example, the teeth continuously extend substantially the entire length of the rail. The teeth can have any desired dimension. In an example, a set of indented and non-indented portion can have a height of about $\frac{1}{2}$ to 1 to inches, preferably about $\frac{3}{4}$ inches.

[0083] The tray 600 has openings 630, 632 that correspond to the shape of the teeth 712, 714. Thus, the tray can be attached to the rails by moving the rails laterally onto the tray and engaging the teeth 712, 714 with the openings 630, 632. The tray can be attached to the rails at any desired height of the rails that include teeth portions, and multiple trays can be attached at various heights along the rails as shown in FIGS. 9B-9C, thus providing a modular system.

[0084] In the embodiment shown in FIG. 9C, the modular system further includes a back wall 730 having substantially the same height as the rails and substantially the same width as the tray. The back wall 730 is placed between the back wall 626 of the tray 600 and the rails 702, 704. For example, the back wall 730 is placed behind the back wall 626 of the tray 600, and when the rails 702, 704 are moved laterally to engage the tray 600, the back wall 730 is secured between the tray and the rails. In addition to providing structure to the system, the back wall 730 can keep the rails from moving apart sideways.

[0085] The rails and/or the back wall can include additional features. For example, the rail **702**, **704** and/or the back wall **730** can define a receiving member **710** into which a hanger or a clip (e.g., a peg board hanger) can be inserted, e.g., by being slid in sideways, so that the system can be hung on a peg board or a wire structure. Alternatively or additionally, the rail and/or the back wall can include hangers, clips, or hooks **801**, or other such structures integrally formed with or adhesively attached to the rail and/or back wall. It will be appreciated that various other peripheral features can be formed on or attached to the rail, back wall, or a surface of the tray. Also, while the modular display system is illustrated in combination with an adjustable tray, it will be understood that any tray or shelf structure having suitable retention elements can be used.

[0086] The display system can have any desired dimension. In an embodiment, the display has a width and a length that substantially correspond to those of the tray. For example, the display can have a width of about 10 to 20 inches, a length of about 3 to 18 inches, and a height of about 1 to 3 feet. In a further example, the display has a width of about 13 to 15 inches, a length of about 4 to 10 inches, and a height of about 1.5 to 2.5 feet.

[0087] In another embodiment, a shipping carton adapted to contain a merchandising display case and products is provided. The shipping carton is configured to maintain the products in place and to prevent the products from being damaged during shipping. The shipping carton also does not require manual removal and transfer of individual products after shipping, since the products are transported as placed in a merchandising display case.

[0088] In an embodiment illustrated in FIG. 10, the shipping carton is configured from a blank **500**, which is typically formed from cardboard. The shipping carton is adapted to receive and surround a merchandising display case having products positioned therein. The shipping carton **500** comprises a base portion **502** having two upstanding flap members **503**, **504** that engage the base of the merchandizing tray. One flap member **504** extends to a height greater than that of the other flap member **503** so as to tilt the merchandizing display case **30** as illustrated in FIGS. 11-12, such that the front wall **302** of the merchandising display case **30** is elevated while the rear wall **301** of the merchandising display case abuts the base portion of the carton **502**.

[0089] This tilting of the merchandising display case within the shipping carton is advantageous, especially when the tray placed on the merchandising display case has a stepped-row configuration. The tilting offsets the difference in height of the products created by the stepped-row configuration and allows the products to remain at a substantially uniform height, such that a flat or planar cover can be used instead of a tiered-cover used in conventional products.

[0090] The shipping carton **500** also includes side panels **505**, **506** and front **507** and rear **508** panels, which are folded upwards to engage the merchandizing display case **30**. The side panels **505**, **506** are sized to extend upwardly and fold over the merchandizing display case **30**, without covering the products positioned therein. The front and rear panels **507**, **508** are sized to extend upwardly and fold over to define a recessed portion **509** that engages the merchandizing display case **30** without covering the products **20**, as well as an extended portion **510** that covers the products. Disposed within the recessed portion **509** are handles or cut out sections to enable a user to grip and handle the shipping carton **500**.

[0091] The extended portion **510** of front and rear panels **507**, **508** has a planar top surface **511** covering the products, and a downwardly extending wall **512** that is disposed between rows of products. In the embodiment illustrated in FIGS. 11-14, the downwardly extending walls **512** from both the front and rear panels serve to segregate the products to prevent displacement during transport. The terminal ends of the downwardly extending walls **512** lockingly engage corresponding slots within the folded side panels **505**, **506** to close and lock the shipping carton, as illustrated in FIG. 14.

[0092] Slots **513** are disposed in the extended portion **510** of the front and rear panels **507**, **508** and are sized to receive positioning blades **514** as illustrated in FIG. 13. The positioning blades **514** are inserted between products to maintain their alignment and prevent shifting during transport. Preferably, the blades **514** extend through the front and rear panels **507**, **508** of the shipping carton to facilitate the insertion or removal of the blades by the user. The blades **514** further provide enhanced structural rigidity to the shipping carton.

[0093] In an embodiment, cut-outs or windows **515** are provided in the planar extended portion **510** of front and rear panels that cover the products as shown in FIGS. 13-14. Such windows **515** allow a user to view the products during transport to check that the products remain in place.

[0094] While illustrative embodiments of the invention are disclosed herein, it will be appreciated that numerous modifications and other embodiments may be devised by those skilled in the art. For example, the features for the various embodiments can be used in other embodiments. Therefore, it will be understood that the appended claims are intended to cover all such modifications and embodiments that come within the spirit and scope of the present invention.

What is claimed is:

1. An display tray for holding an article comprising: a base for supporting an article thereon; and a divider having:

a mounting portion that is securable to the base in a position protruding therefrom by a mounting portion height, and

a gripping portion extending at an angle from the mounting portion longitudinally to overlay an area of the base, the gripping portion configured for flexing towards the mounting portion by amounts that are variable along a lateral direction of the gripping portion for conforming to variously sized and shaped articles for holding the articles with respect to the base.

2. The tray of claim 1, wherein the mounting portion is securable to the base at a mounted location, and the gripping portion extends over the base remotely from the mounting element.

3. The tray of claim 2, wherein the base comprises a plurality of mounting elements to which the mounting portion is selectively securable for selectively configuring the tray by positioning the divider at a desired mounting element.

4. The tray of claim 1, wherein the gripping portion comprises flexible members that are flexible substantially independently from each other and are disposed along the lateral direction for flexing by different amounts according to a curvature of an article held thereby.

5. The tray of claim 4, wherein the flexible members comprise a plurality of spaced projections that are independently bendable towards the base by varying amounts.

6. The tray of claim 5, wherein the gripping portion comprises a flexible gripping layer connecting the flexible members to provide a substantially continuous edge distal from the mounting portion.

7. The tray of claim 6, wherein the flexible gripping layer is made of an elastomeric material, and the flexible members are made of a plastic material.

8. The tray of claim 4, wherein the flexible members comprise a hinge that is spaced longitudinally from the mounting portion.

9. The tray of claim 8, wherein the hinge comprises a plurality of hinges.

10. The tray of claim 4, wherein the flexible members comprise first and second flexible element extending longitudinally and connectors extending laterally to join adjacent flexible elements.

11. The tray of claim 10, wherein the flexible elements have hinges between the connectors.

12. The tray of claim 11, wherein the hinges comprise living hinges.

13. The tray of claim 11, wherein the gripping portion comprises a flexible gripping layer connecting the flexible members to provide a substantially continuous edge distal from the mounting portion.

14. The tray of claim 1, wherein the gripping portion comprises a gripping portion extending laterally on opposing sides of the mounting portion.

15. The tray of claim 1, wherein the divider is substantially L or T-shaped.

16. The tray of claim 1, further comprising a plurality of the dividers for holding articles between the dividers.

17. The tray of claim 1, wherein the divider has weakened zones disposed and configured for facilitating splitting off a lateral portion of the divider.

18. The tray of claim 17, further comprising a lateral sidewall configured to engage to a lateral side of the base, wherein the base comprises a plurality of attachment features configured for engaging the sidewall upon removal of a lateral portion of the base.

19. The tray of claim 1, further comprising at least one of a side wall, a front wall, and a rear wall, and a partial cover that are affixed with the base around the divider.

20. A modular display system, comprising:
the tray of claim 1; and

a pair of rails, the tray and the rails comprising complementary retention elements for supportively mounting the tray to the rails at a selectable height.

21. The modular display system of claim 20, further comprising at least one of a back wall secured with respect to the rails and disposed behind the tray and a hanging device supporting the rails, wherein the display system is a power wing display.

22. A tray for holding an article comprising:

at least one recess defining an article receiving cavity, the recess comprising a first article receiving portion and a second article receiving portion; and

a support device placed on the base, the support device surrounding at least a portion of the recess and comprising a tab member extending inwardly towards the recess, wherein the first and second article receiving portions have different general configurations.

23. The tray of claim 22, wherein the first and second article receiving portions are provided at different heights within the tray.

24. The tray of claim 22, wherein the first and second article receiving portions respectively comprise a generally arcuate configuration and a generally rectangular configuration.

25. The tray of claim 22, wherein the tab member has sufficient flexibility to bend around an article inserted in the recess.

26. The tray of claim 22, further comprising a front wall, a rear wall, and side walls, wherein the rear wall has a height greater than the front wall and the side walls in an undulating fashion from a minimum height proximate the front wall to a maximum height proximate the rear wall.

27. A combination of an article display case and a shipping carton comprising:

an article display case including:

a support member for receiving one of a plurality of articles of the same or different sizes and shapes;

an article engaging member which surrounds at least a portion of one or more of the articles and which further includes a plurality of tab members that extend toward the article(s);

wherein, the article engaging member accommodates articles of different size or shape and is in sufficient contact with the article(s) to assist in retaining the articles on the support member, and wherein the tab members have sufficient flexibility to bend to accommodate placement of the article(s) on the tray member; and
a shipping container that surrounds the display case and retains the article(s) therein.

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