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(54) **PACKAGE WITH MODULES**

MODULARE VERPACKUNG

EMBALLAGE AVEC MODULES

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Description

TECHNICAL FIELD

[0001] This invention relates generally to packages and, more specifically, to a package that includes a plurality of modules.

BACKGROUND

[0002] Certain types of articles are typically packaged, for example, in a corrugated carton that includes a deep tray, partitions to partition the articles, and a deep cover. Such packaging is relatively material intensive, is relatively expensive, doesn't allow for handling partitioned groups of partitioned articles individually, and doesn't display well in a store. Other types of packaging are not suitable for stacking for shipping or display. Also, certain packaging may become damaged or scuffed so as not to display well. Therefore, a heretofore unaddressed need exists to address the aforementioned deficiencies and inadequacies.

[0003] EP 1 649 774 discloses a multi-shape multiple container for cosmetic material and WO 2005/110874 discloses a modular package system.

SUMMARY

[0004] It is an object of the present invention to provide a package comprising a plurality of modules. This object can be achieved by the features defined in the independent claim. Further enhancements are characterized by the dependent claims. Various embodiments of the present invention may overcome the shortcomings of the prior art by providing a package having a group of modules that are releasably secured to one another in a manner that provides the package with improved strength characteristics, different arrangement possibilities, and improved display features. Thus, the package provides advancement over packages where modules are housed in a box or grouped with a rigid slip cover. Specifically, the package provides savings in material cost.

[0005] According to an exemplary embodiment, a package includes a first module group and a second module group and each module group includes one or more modules. The first module group and the second module group are connected to one another by connecting means such that the package is configured to be convertible from a first arrangement into a second arrangement. The package can be secured in one of the arrangements by securing means.

[0006] According to another exemplary embodiment, a package includes interconnected modules that include reinforced walls and corners. Wails and corners of the package include the reinforced walls and corners of the modules.

[0007] According to yet another exemplary embodiment, a carton for forming the modules includes a tubular structure and an end closure structure that closes an open end of the tubular structure. The end closure structure includes an underlying layer that includes a first end flap. A first severance line extends across the first end flap. The end closure structure also includes an overlapping layer including a second end flap that is secured to the outside surface of the underlying layer. A second severance line extends across the second end flap. The second severance line aligns with a segment of the first severance line and the first severance line is at least partially exposed. In certain embodiments, the first and second severance lines define a detachable portion that can be detached along the first and second severance lines by first breaking the portion of the first severance line that is at least partially exposed.

[0008] The foregoing has broadly outlined some of the aspects and features of the disclosure, which should be construed to be merely illustrative of various potential applications. Other beneficial results can be obtained by applying the disclosed information in a different manner or by combining various aspects of the disclosed embodiments. Accordingly, other aspects and a more comprehensive understanding of the invention may be obtained by referring to the detailed description of the exemplary embodiments taken in conjunction with the exemplary accompanying drawings, in addition to the scope defined by the claims.

DESCRIPTION OF EXEMPLARY DRAWINGS

[0009]

FIG. 1 is a perspective view of a package that includes a plurality of modules, according to a first embodiment of the disclosure.

FIG. 2 is a perspective view of an exemplary module of the package of FIG. 1.

FIG. 3 is a plan view of a blank for forming the module of FIG. 2.

FIG. 4 is a cross sectional view taken along the line 4-4 in FIG. 2.

FIGs. 5-6 are plan views that illustrate the formation of a wall of the module of FIG. 2.

FIGs. 7 and 8 are perspective views of modules that include dispensers.

FIG. 9 is a perspective view of the package of FIG. 1 in a first exemplary arrangement.

FIG. 10 is an exploded perspective view of the package of FIG. 1.

FIGs. 11-15 are perspective views of the package of FIG. 1 that illustrate steps of an exemplary method of alternatively arranging the package.

FIG. 16 is a perspective view of the package of FIG. 1 in a second exemplary arrangement that illustrates the removal of a detachable portion.

FIG. 17 is a perspective view of a package that includes a plurality of modules, according to a second exemplary embodiment of the disclosure.

FIG. 18 is an exploded perspective view of the package of FIG. 17.

FIG. 19 is a perspective view of an interior connecting panel of the package of FIG. 17.

FIGs. 20-22 are perspective views of the package of FIG. 17 that illustrate steps of an exemplary method of alternatively arranging the package.

FIG. 23 is a perspective view of a package that includes a plurality of modules, according to a third exemplary embodiment of the disclosure.

FIGs. 24 and 25 are perspective views of the package of FIG. 23 that illustrate steps of an exemplary method of alternatively arranging the package.

FIGs. 26 and 27 are perspective views of packages that include a plurality of modules, according to alternative embodiments of the disclosure.

FIG. 28 is a perspective view of a package that includes two modules.

FIGs. 29 and 30 are perspective views of the package of FIG. 28 that illustrate steps of an exemplary method of alternatively arranging the package.

FIG. 31 is a plan view of a package that includes a plurality of modules, according to a fourth exemplary embodiment of the disclosure.

FIGs. 32-34 are plan views of the package of FIG. 31 that illustrate exemplary methods of alternatively arranging the package.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0010] As required, detailed embodiments are disclosed herein. It must be understood that the disclosed embodiments are merely exemplary and may be embodied in various and alternative forms, and combinations thereof. As used herein, the word "exemplary" is used expansively to refer to embodiments that serve as illustrations, specimens, models, or patterns. The figures are not necessarily to scale and some features may be exaggerated or minimized to show details of particular components. In other instances, well- known components, systems, materials, or methods have not been described in detail in order to avoid obscuring the disclosure. Therefore, specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art.

[0011] Generally described, the drawings illustrate certain of the various aspects of exemplary embodiments of packages that include a plurality of modules. In the embodiments detailed herein, the term "module" refers, for the non-limiting purpose of illustrating the various features , to a box-type container for enclosing, carrying, and dispensing articles, such as candy, tissue paper, napkins, cigarettes or other items packaged in small boxes, nicotine patches or other items packaged in pouches, medicaments, combinations thereof, and the like. However, it is contemplated that the teachings can be applied using other types of cartons or containers to form a package as described herein.

[0012] Where elements are substantially the same, like references have been used. Each like reference includes a numeral and a suffix, such as a, b, c, or d, which serves to distinguish the like referenced elements from one another. In general, the description of one like referenced element is applicable to other like referenced elements. As such, it is not necessary to describe each of the like referenced elements in detail. Rather, the amount of description of like referenced elements is limited to what is useful for understanding the disclosure.

[0013] For simplicity, the numeral of a like reference may be used when referring to all or multiple like referenced elements in a general manner. For example, modules 110a, 110b, 110c, 110d may simply be referred to as modules 110.

[0014] As used herein, the term "fold line" refers to all manner of lines that define hinge features, facilitate folding portions or elements with respect to one another, or otherwise indicate optimal folding locations. A fold line is typically a scored line, an embossed line, or a debossed line.

[0015] As used herein, the term "severance line" refers to all manner of lines that facilitate separating portions or elements from one another or that indicate optimal separation locations. Severance lines may be frangible or otherwise weakened lines, cut lines, or slits.

[0016] It should be understood that severance lines and fold lines can each include like elements such as perforations, a line of perforations, a line of short slits, a line of half-cuts, a single half-cut, a cut line, an interrupted cut line, slits, scores, any combination thereof, and the like. These elements can be dimensioned and arranged to provide the desired functionality. For example, a line of perforations can be dimensioned or designed with degrees of weakness to define a fold line and/or a severance line. The line of perforations can be designed to facilitate folding and resist breaking, to facilitate folding and facilitate breaking with more effort, or to facilitate breaking with little effort.

[0017] According to a first exemplary embodiment, referring to FIGs. 1 and 2, a package 100 includes four substantially cuboid-shaped modules 110. In alternative embodiments, a package can include a different number of modules and/or modules that have a different structure or a different shape. Each module 110 can be formed from a blank 10, which is illustrated as a single sheet of suitable substrate in FIG. 3. It is to be understood that, as used herein, the term "suitable substrate" includes all manner of foldable sheet material such as paperboard, corrugated board, cardboard, plastic, combinations thereof, and the like. The modules 110 can be formed from relatively less material or from a relatively weaker material since the package 100 has relatively increased strength characteristics, as described in further detail below.

[0018] Referring to FIGs. 2 and 3, the blank 10 includes

a plurality of panels that provide vertical walls 112, 114, 116, 118 of the module 110 and a plurality of end flaps that form the top wall 120 and the bottom wall 122 of the module 110. As illustrated in FIG. 3, the blank 10 includes a front panel 12, a first side panel 14, a second side panel 16, a rear panel 18, and a reinforcing panel 22. The front panel 12 is hingedly connected to the first side panel 14 along a fold line 30 and to the second side panel 16 along a fold line 32. The first side panel 14 is hingedly connected to the reinforcing panel 22 along a fold line 34 and the second side panel 16 is hingedly connected to the rear panel 18 along a fold line 36.

[0019] A first reinforcing flap 40 is hingedly connected to an outer side edge of the reinforcing panel 22 along a fold line 42 and a second reinforcing flap 44 is hingedly connected to an outer side edge of the rear panel 18 along a fold line 46.

[0020] End flaps are hingedly connected to opposed outer end edges of each of the panels 12, 14, 16, 18. End flaps that are hingedly connected to the front panel 12 and to the rear panel 18 may be referred to herein as major end flaps. End flaps that are hingedly connected to the first side panel 14 and the second side panel 16 may be referred to herein as minor end flaps. Front end flaps 52a, 52b are hingedly connected to the front panel 12 along fold line 62a, 62b, first side end flaps 54a, 54b are hingedly connected to the first side panel 14 along fold lines 64a, 64b, second side end flaps 56a, 56b are hingedly connected to the second side panel 16 along fold lines 66a, 66b, and rear end flaps 58a, 58b are hingedly connected to the rear panel 18 along fold lines 68a, 68b.

[0021] Severance lines 70, 72 extend across the blank 10. Segments 70a, 70b of severance line 70 extend across the side end flaps 54a, 56a from the distal edges thereof to the fold lines 64a, 66a; segments 70c, 70d of severance line 70 extend across the side panels 14, 16 from the fold lines 64a, 66a to the fold lines 30, 32, respectively; and a segment 70e of severance line 70 extends across the front panel 12 between the fold lines 30, 32. The severance line 72 extends between side edges of the rear end flap 58a and along with a fold line 74 defines a tear initiation tab 80. A fold line 82 extends between points on the severance line segment 70 to allow the detachable portion defined by the severance lines 70, 72 to be partially detached as described in further detail below.

[0022] When the blank 10 is erected to form a module 110, the severance lines 70, 72 provide a substantially continuous severance line 70/72 that defines a detachable portion of the module 110. The detachable portion of the module 110 can be removed to provide an opening through which articles can be dispensed.

[0023] Erecting the module 110 from the blank 10 may be accomplished with the folding operations as described herein. The operations can be performed by automatic erecting machinery and/or manually. The method of performing the erecting process is not limited to the exemplary method described herein. Particularly, the order of the steps can be altered according to manufacturing requirements, steps may be added or omitted, and the means for securing components to one another may vary.

[0024] Referring to FIGs. 3 and 4, the blank 10 is first folded and secured to form a collapsed tubular structure. The second reinforcing flap 44 is folded along the fold line 46 into flat face contact with the inside surface of the rear panel 18 and adhesive is applied to outside surface of the second reinforcing flap 44. The blank 10 is then folded along the fold line 32 such that second reinforcing flap 44 is secured to the first side panel 14 with the fold line 46 being adjacent the fold line 34. Adhesive is applied to the inside surface of the first reinforcing flap 40 and the blank 10 is folded along the fold line 34 such that the reinforcing panel 22 overlaps the rear panel 18 and the first reinforcing flap 40 is secured to the second side panel 16.

[0025] The collapsed tubular structure can then be erected as illustrated in FIG. 4 such that the front panel 12 provides front wall 112, the first side panel 14 provides side wall 114, the rear panel 18 and reinforcing panel 22 overlap and provide rear wall 116, and the second side panel 16 provides side wall 118. Accordingly, the rear wall 116 is a two-ply, reinforced wall, the corners C at which the rear wall 116 and the side walls 114, 118 are connected are two-ply reinforced corners, and the side walls 114, 118 are partially reinforced. The reinforced walls and reinforced corners contribute to the structural integrity of a package formed from modules 110, as described in further detail below.

[0026] Turning now to FIGs. 5 and 6, the end flaps are folded and secured to one another to close the open ends of the erected tubular structure. The rear end flap 58a is folded inwardly. Adhesive is applied to the front end flap 52a and the front end flap 52a is folded inwardly to overlap the rear end flap 58a. The front end flap 52a is secured to the distal end of the rear end flap 58a that is detachable along the severance line 72. Adhesive is applied to the side end flaps 54a, 56a and the side end flaps 54a, 56a are folded inwardly to overlap and are thereby secured to the front end flap 52a and rear end flap 58a. The segments 70a, 70b of the severance line 70 that extend across the end flaps 54a, 56a substantially align with the severance line 72 to define a substantially continuous severance line 70/72 that provides a detachable portion 130.

[0027] The end flaps 52a, 54a, 56a, 58a are secured together and form the top wall 120. Similarly, the end flaps 52b, 54b, 56b, 58b (FIG. 3) are secured to one another and form the bottom wall 122.

[0028] By folding the end flaps 52a, 54a, 56a, 58a as described with the minor end flaps 54a, 56a secured to the outside surfaces of the major end flaps 52a, 58a, the severance line 70/72 that extends across the top wall 120 can be broken in a controlled manner. The manner of folding reduces the stress on the glue seam between

the major end flaps 52a, 58a and the overlapping minor end flaps 54a, 56a, as well as the glue seam between the major end flaps 52a, 58a, as the detachable portion 130 is removed along the severance line 70/72 beginning at the tear initiation tab 80. Referring momentarily to FIGs. 2, 6, and 16, to remove the detachable portion 130, the severance line 72 is broken near the tear initiation tab 80 and then the detachable portion 130 can be gripped and pulled to break the severance line 70/72.

[0029] Initiating the tear in the innermost layer of the top wall 120 facilitates the controlled breaking of the severance line 70/72. As the front end flap 52a and portion of the rear end flap 58a are pulled against, rather than away from, the side end flaps 54a, 56a, force applied to the detachable portion 130 breaks the severance line 70/72 rather than separating the front end flap 52a from the side end flaps 54a, 56a.

[0030] Referring to FIGs. 7 and 8, modules 110 can include alternative dispenser features that are configured to dispense items. The detachable portions and severance lines that provide the dispenser can be formed in the walls of the modules 110 that are not exposed when the modules 110 are arranged as a package such that the dispenser features are protected and/or inoperable while the package 100 is configured in the closed arrangement. The dispenser D of FIG. 7 is configured to dispense pouches and the dispenser D of FIG. 8 is configured to dispense boxes. Each of these dispensers D includes an opening that extends along a front wall 112 of the respective module 110 to provide visibility of and provide access to the items therein. The dispenser D of FIG. 7 includes a hingedly connected top that can rotate along a fold line to provide an opening for accessing pouches. The dispenser D of FIG. 8 includes an opening at the bottom of a side wall of the module 110 such that once a lowermost box is removed, the remaining boxes drop down with a lowermost box being positioned to be removed through the opening.

[0031] Referring to FIGs. 1, 9, and 10, the package 100 is formed as the modules 110 are secured to one another according to an exemplary method, as described herein. The method can be performed by automatic machinery and/or manually. The method is not limited to the steps described herein. Particularly, the order of the steps can be altered according to manufacturing requirements, steps may be added or omitted, and means for securing the modules to one another may vary.

[0032] The term "hidden" is used to indicate that wall of a module is not readily visible in a certain arrangement and the term "exposed" is used to indicate that a side wall is substantially visible in a certain arrangement. Further, the term "parallel" is used to indicate that a wall of a module is substantially parallel to a first plane and the term "transverse" is used to indicate that a wall of a module is substantially perpendicular to the first plane. For example, the first plane is be defined as a notional plane that substantially bisects the package 100 such that a first group of modules 110a, 110b are on one side of the first pane and a second group of modules 110c, 110d are on the other side of the first plane.

[0033] According to an exemplary method, each group of modules 110 is arranged such that side walls 114, 118 of adjacent modules in the group are in a face contacting arrangement, such that front walls 112 are substantially coplanar, and such that rear walls 116 are substantially coplanar. Further, the front walls 112 of the first group of modules 110a, 110b and the front walls 112 of the second group of modules 110c, 110d are arranged in flat face contact. Accordingly, the reinforced rear walls 116 of the modules provide reinforced outer walls of the package 100, the reinforced corners C of the modules 110 provide reinforced corners of the package 100, and the partially reinforced side walls 114, 118 of the modules provide partially reinforced outer walls of the package 100. Also, the hidden walls of the modules 110 provide the package 100 with a reinforced internal structure. For example, the sixteen corners of the modules 110 of the first embodiment provide more support than would four corners of a typical package.

[0034] In the illustrated embodiment, the front walls 112b, 112c of modules 110b, 110c are in a substantially face contacting arrangement with one another, the front walls 112a, 112d of modules 110a, 110d are in a substantially face contacting arrangement with one another, the side walls 114b, 118a of the first group of modules 110a, 110b are in a substantially face contacting arrangement with one another and the side walls 114d, 118c of the second group of modules 110c, 110d are in a substantially face contacting arrangement with one another. Thereby, the modules 110 are substantially arranged in a first a arrangement which is beneficial for storage, shipping, and transit.

[0035] The package 100 includes means for releasably securing the modules 110 in the first arrangement. The means for releasably securing is partially selectively removable or releasable such that the modules can be arranged in a second arrangement, as described in further detail below.

[0036] In the first exemplary embodiment, to secure the modules 110 in the first arrangement, a first outer adhesive strip 170, such as a sticker or tape, holds the side walls 114a, 118d together, a second outer adhesive strip 172 holds the rear walls 116a, 116b together, and a third outer adhesive strip 174 (shown in FIG. 12) holds the side walls 118b, 114c together, and a fourth outer adhesive strip 176 (shown in FIGs. 12 and 14) holds the rear walls 116c, 116d together.

[0037] Alternatively, the modules 110 can be secured (connected) to one another by any suitable means for securing including tape, staples, clips, interlocking folds, hook and loop fasteners, adhesives, shrink wrap, stretch wrap, plastic wrap, paper wrap, plastic film, combinations thereof, and the like.

[0038] Thereafter, continuing with FIGs. 1 , 9, and 10, the modules 110 are secured together to form the package 100. A first side wall 150 of the package 100 is pro-

vided by the rear walls 116a, 116b; a second side wall 152 of the package 100 is provided by side walls 118b, 114c; a third side wall 154 of the package 100 is provided by the rear walls 116c, 116d; and a fourth side wall 156 of the package 100 is defined by the side walls 114a, 118d. The top walls 120a, 120b, 120c, 120d of the modules 110 provide a top wall 158 of the package 100 and the bottom walls 122a, 122b, 122c, 122d of the modules 110 provide a bottom wall 160 of the package 100. Each of the illustrated walls 150, 152, 154, 156, 158, 160 is substantially planar and substantially continuous.

[0039] The combination of modules 110 provides a package 100 with increased strength as compared with the side walls of a conventional package. Specifically, the hidden walls of the modules provide the package with additional interior structural integrity. In addition, the reinforced side walls 150, 154 and the partially reinforced side walls 152, 156, as well as the corners C along which the side walls 150, 152, 154, 156 connect provide exterior structural integrity. The structural integrity helps to bear a load, for example, when packages 100 are stacked on top of one another for transportation as a unitized load or palette.

[0040] In the first exemplary embodiment, referring to FIGs. 11-14, to reconfigure the package 100 in a second arrangement (an open or display arrangement) the adhesive strip 170 is broken or removed. Thereafter, the third adhesive strip 174 provides a hinged connection such that the first group of modules 110a, 110b and the second group of modules 110c, 110d can rotate from one another about a fold line F1. As such, the front walls 112 are revealed.

[0041] As shown in FIGs. 13-16, the first group of modules 110a, 110b can be rotated from the second group of modules 110c, 110d until the front walls 112 are substantially coplanar and the modules 110 are substantially aligned. In certain embodiments, graphics are printed on the front walls 112. In such embodiments, the graphics are protected when the package 100 is arranged in the first arrangement, for example during storage and transit, and are displayed when the package 100 is arranged in the second arrangement. The detachable portions 130 can then be removed from the modules, as described above and as shown in FIG. 16. The detachable portions 130 can be fully detached from the modules 110 along the severance lines 70/72. Alternatively, the detachable portions 130 can be partially detached along the severance lines 70/72 and folded along the fold line 82.

[0042] Alternatively, the adhesive strip 172 can be removed or broken, the module 110a can be rotated about a hinged connection provided by the adhesive strip 170 such that side wall 114a is in a face contacting arrangement with side wall 118d, and the module 110b can be rotated about a hinged connection provided by adhesive strip 174 such that the side wall 118b in a face contacting arrangement with side wall 114c. Thereby, the front walls 112 of modules 110 are aligned.

[0043] Referring briefly to FIGs. 28-30, a two-module package 100 is described. The two-module package 100 is substantially similar to the package 100 of the first embodiment and like references have been used. In this embodiment, package 100 includes modules 110a, 110b. Referring to FIG. 28, modules 110a, 110b are secured in a first arrangement. The modules 110a, 110b are secured with adhesive strips 170, 172 such that front walls 112a, 112b contact one another. Referring to FIGs. 29 and 30, the modules are configured to move into a second arrangement as the first adhesive strip 170 is broken and the second adhesive strip 172 hingedly connects the modules 110a, 110b.

[0044] Additional alternative embodiments are now described. Where elements of the alternative embodiments are substantially similar to those of the first exemplary embodiment, like references have been used and such elements are described in detail unless such a description is useful for understanding.

[0045] According to a second exemplary embodiment, referring to FIGs. 17-19, a package 200 includes an interior connecting panel 230. The interior connecting panel 230 includes a first portion 232 and a second portion 234 that are hingedly connected to one another along a fold line F2. End edges 238, 240 of the interior connecting panel 230 are numbered for descriptive purposes. The inside surface of the interior connecting panel 230 is provided by the surfaces of the first portion 232 and the second portion 234 that are substantially in a face contacting arrangement when the interior connecting panel 230 is folded along the fold line F2. The outside surface of the interior connecting panel 230 that which is opposite the inside surface. The interior connecting panel 230 is dimensioned such that the modules 110 can be secured to the outside surface thereof, as described in further detail below. A graphic can be printed on the inside surface of the interior connecting panel 230 so as to be displayed when the package 200 is arranged in a second arrangement, as described in further detail below.

[0046] According to an exemplary method, referring to FIGs. 18 and 19, the interior connecting panel 230 is folded along the fold line F2 such that the inside surfaces of the first portion 232 and second portion 234 are in a substantially face contacting arrangement with one another and such that the end edges 238, 240 are adjacent one another. Thereafter, the interior connecting panel 230 provides a platform or structure to which the modules 110 can be secured.

[0047] Continuing with the exemplary method, each module 110 is arranged such that the front wall 112 faces a respective one of the outside surfaces of the first portion 232 and the second portion 234. To secure the modules 110 to the outside surfaces of the first portion 232 and the second portion 234, glue G is applied to the outside surfaces of the first portion 232 and the second portion 234 and/or to the front walls 112 of the modules 110. Alternatively, the modules 110 can be secured to the interior connecting panel 230 by any suitable means for securing including tape, staples, clips, interlocking folds,

hook and loop fastners, shrink wrap, stretch wrap, plastic wrap, plastic film, paper wrap, adhesives, combinations thereof, and the like.

[0048] The front walls 112a, 112b of a first group of modules 110a, 110b are secured in contact with the outside surface of the first portion 232 and the front walls 112c, 112d of a second group of modules 110c, 110d are secured to the outside surface of the second portion 234. The side walls 118a, 114b of the first group of modules 110a, 110b are in a substantially face contacting arrangement with one another and the side walls 118c, 114d of the second group of modules 110c, 11Od are in a substantially face contacting arrangement with one another.

[0049] For the second exemplary embodiment, the closed or first arrangement can be the configuration in which the end edges 238, 240 of the interior connector panel are adjacent to one another and the inside surfaces of the first portion 232 and the second portion 234 are in a substantially face contacting arrangement with one another.

[0050] In the second exemplary embodiment, to secure the modules 110 in the first arrangement, a first outer adhesive strip 170, such as a sticker or tape, holds the side walls 114a, 118d together to prevent the end edges 238, 240 from separating from one another.

[0051] Optionally, in alternative embodiments, a second outer adhesive strip 172 (not shown) holds the rear walls 116a, 116b together and a third outer adhesive strip 174 (not shown) holds the rear walls 116c, 116d together. For example, the outer adhesive strips 172, 174 are applied in instances where the interior connecting panel 230 is not sufficiently rigid to hold the inside surfaces of the first portion 232 and second portion 234 in a face contacting arrangement. Further described, the second adhesive strip 172 prevents the first group of modules 110a, 110b from rotating away from one another along - notional fold line F3 and the third adhesive strip 174 would prevent the second group of modules from rotating away from one another along notional fold line F4.

[0052] It should be noted that a fourth outer adhesive strip is omitted from the package 200.

[0053] Referring to FIGs. 20-22, to reconfigure the package 200 in an open or second arrangement, the adhesive strip 170 is cut or removed. The first group of modules 110a, 110b and the second group of modules 110c, 110d can then be rotated from one another about the fold line F2 such that the inside surface of the interior connecting panel 230 is revealed. As shown in FIG. 22, the first group of modules 110a, 110b can be rotated from the second group of modules 110c, 110d until the first portion 232 and the second portion 234 are substantially coplanar and the modules 110 are substantially aligned. This arrangement is advantageous, for example, to display a graphic printed on the inside surface of the interior connecting panel 230. For such an application, the graphic is protected while the package 100 is configured in the closed arrangement, for example, during storage and transit. The interior connecting panel 230 can have detachable portions that are detachable along with the detachable portions of the modules 110.

[0054] A third exemplary embodiment is illustrated in FIGs. 23-25. A package 300 of the third exemplary embodiment is somewhat similar to the package 200 of the second exemplary embodiment with the exception that inner adhesive strips 370, 372, 374 are substituted for the interior connecting panel 230. A first inner adhesive strip 370 connects the front walls 112b, 112c thereby hingedly connecting the first group of modules 110a, 110b and the second group of modules 110c, 110d; a second inner adhesive strip 372 connects the front walls 112a, 112b thereby connecting the first group of modules 110a, 110b to one another; and a third inner adhesive strip 374 connects the front walls 112c, 112d thereby connecting the second group of modules 110c, 110d to one another. The package 300 is further releasably secured in a first arrangement as the first outer adhesive strip 170 connects the side walls 118a, 118d to one another. Referring to FIGs. 24 and 25, the package 300 can be arranged in a second arrangement by breaking first outer adhesive strip 170.

[0055] Modules 110 can have alternative shapes or structures and packages can have different numbers of modules. In alternative embodiments, means for releasably securing the package in the first arrangement can include a band or strap S around the side walls of a package 100 (as shown in FIG. 27), straps S around the side walls, bottom wall, and top wall of package 100 (as shown in FIG. 26), adhesive that releasably secures the inside surfaces of the interior connector panels to one another, releasably securing the end edges 238, 240 to one another along a tear strip of severance line, a panel that includes a tear strip or severance line and is attached to the side wall 156, combinations thereof, and the like.

[0056] Referring now to FIGs. 31-34, a package 400 includes a 4X3 arrangement of modules 110 where there are four groups R1 , R2, R3, R4 of modules 110 and each group R1 , R2, R3, R4 includes three modules 110. In this embodiment, modules 110 within a group R1, R2, R3, R4 are connected with adhesive strips 470 and modules 110 in different groups R1 , R2, R3, R4 are connected with adhesive strips 472, 474, 476. The groups R1 , R2, R3, R4 are connected at alternating ends of the groups R1 , R2, R3, R4 by the adhesive strips 472, 474, 476. As such, adhesive strips 472, 476 are applied at one end of the package 100 and adhesive strip 474 is applied at the opposite end of the package 100. The groups R1 , R2, R3, R4 are hingedly connected one to the next by the adhesive strips 472, 474, 476 such that the modules 110 can be alternatively arranged.

[0057] In the illustrated embodiment, the front wall 112 of each module 110 is protected when the package 400 is arranged in a shipping arrangement as shown in FIG. 31. The package 400 includes shrink wrap 478 that maintains the modules 110 in this arrangement. Once the shrink wrap 478 is removed, the groups R1 , R2, R3, R4

can separate from one another except along the hinged connections provided by the adhesive strips 472, 474, 476 as shown in FIG. 32. The modules 110 can then be arranged, for example, as shown in FIGs. 33 and 34. The arrangements provide that the front walls 112 of the modules 110 face toward a user such that the user can operate a dispenser and access contents. Additionally, the front walls 112 are protected and hidden in the shipping arrangement to limit the damage to and dirtying of the front walls 112 that face the user when in the display arrangements. FIG. 33 illustrates a display arrangement where front walls 112 face outwardly on opposite sides of the arrangement. Such an arrangement may be used where modules 110 are placed at an end of a shelf between isles. FIG. 34 illustrates a display arrangement where front walls 112 face outwardly on one side of the arrangement. Such an arrangement may be used where modules 110 are placed on a shelf in an isle.

[0058] In general, a package can have two, four, or more groups and each group can have one or more modules. The number of groups can be an even number to permit front walls to be protected in the shipping arrangement where it is desired that only protected walls face outwardly in a display arrangement. Typically, the number of modules in each group is the same such that the shipping arrangement of the package is substantially cuboid.

[0059] As such, the package can have modules arranged in two or more columns and one or more rows and one of the number of rows and columns is typically an even number. Groups can be either rows or columns of modules where the number of rows or columns is an even number.

[0060] The present invention has been illustrated in relation to a particular embodiment which is intended in all respects to be illustrative rather than restrictive. Those skilled in the art will recognize that the present invention is capable of many modifications and variations without departing from the scope of the invention. For example, as used herein, directional references such as "top", "base", "bottom", "end", "side", "inner", "outer", "upper", "middle", "lower", "front" and "rear" do not limit the respective walls of the package or modules to such orientation, but merely serve to distinguish these walls from one another.

[0061] The above-described embodiments are merely exemplary illustrations of implementations set forth for a clear understanding of the principles of the disclosure. Variations, modifications, and combinations may be made to the above-described embodiments without departing from the scope of the claims. All such variations, modifications, and combinations are included herein by the scope of the following claims.

[0062] The following embodiments not forming part of the invention are also disclosed:

A first embodiment of a package, comprising:

at least two interconnected modules, at least one of the at least two interconnected modules comprising at least one reinforced wall, an outer wall of the package comprising the reinforced wall.

[0063] A second embodiment of the package of the first embodiment, wherein the reinforced wall comprises overlapping panels.

[0064] A third embodiment of the package of the first embodiment, wherein the outer wall of the package is a vertical wall.

[0065] A fourth embodiment of the package of the first embodiment, wherein each of the interconnected modules comprises at least one reinforced wall.

[0066] A fifth embodiment of the package of the first embodiment, wherein opposed outer walls of the package are at least partially reinforced.

[0067] A sixth embodiment of the package of the first embodiment, wherein each of vertical outer walls of the package is at least partially reinforced.

[0068] An embodiment of a carton to form a module, comprising:

a tubular structure;
an end closure structure closing an open end of the tubular structure, the end closure structure comprising:

an underlying layer comprising a first end flap, a first severance line extending across the first end flap;
an overlapping layer comprising a second end flap that is secured to the outside surface of the underlying layer, a second severance line extending across the second end flap, the second severance line aligning with a segment of the first severance line;
wherein the first severance line is at least partially exposed.

[0069] A second embodiment of the carton of the previous embodiment, wherein the end closure structure is configured such that breaking the second severance line is achieved by first breaking the first severance line.

Claims

1. A package (100), comprising:

at least a first module group (110) and a second module group (110), each module group comprising at least one module (120) that includes a front wall (112) and a reinforced wall (116) opposite to the front wall;
connecting means (170,172,174,176,472,474, 476) for hingedly connecting the first module

group and the second module group to one another such that the package is configured to be convertible from a first arrangement into a second arrangement; and wherein in the first arrangement,

the front wall (112) of the at least one module in the first module group and the front wall (112) of the at least one module in the second module group are configured to be in a face contacting relationship with one another, and the reinforced wall (116) of the at least one module in the first module group and the reinforced wall (116) of the at least one module in the second module group face outward forming exterior surface of the packages, and wherein in the second arrangement,
the reinforced wall (116) of the at least one module in the first module group and the reinforced wall (116) of the at least one module in the second module group are configured to be in a face contacting relationship with one another, and the front wall (112) of the at least one module in the first module group and the front wall (112) of the at least one module in the second module group face outward forming outer walls of the packages.

2. The package of claim 1, wherein the package is in the first arrangement during shipping, handling, or storage, and the package is in the second arrangement during display.

3. The package of any preceding claims, wherein the reinforced wall (116) comprises reinforcing panel (22).

4. The package of any preceding claims, wherein at least one module comprises a reinforced corner (C).

5. The package of any preceding claims, wherein the front wall (112) of the at least one module includes a printed graphic that is configured to be at least partially hidden when the package is in the first arrangement.

6. The package of any preceding claims, wherein the connecting means includes an interior connecting panel (230) comprising a first portion (232) and a second portion (234), the first and second portions being hingedly connected to one another and configured to be in a face contacting arrangement with one another when the package is in the first arrangement.

7. The package of claim 6, wherein at least one of the first portion (232) and the second portion (234) include display graphic that is at least partially hidden when the package is in the first arrangement.

8. The package of any preceding claims, wherein the connecting means includes a member selected from the group consisting of strip, sticker, tape, panel, and combinations thereof.

9. The package of any preceding claims, further comprising securing means (S) for releasably securing the package in the first arrangement.

10. The package of claim 9, wherein the securing means includes a member selected from the group consisting of strap, sticker, tape, severance line, tear strip, hook and loop fastener, stretch wrap, shrink wrap, paper wrap, plastic wrap, plastic film, band, and combinations thereof.

11. The package of any preceding claims, wherein at least one module (110) comprises a dispensing feature (D).

12. The package of claim 11, wherein the dispensing feature (D) is configured to be at least partially hidden when the package is in the first arrangement.

13. The package of any one of the preceding claims, wherein each module (110) comprises:

a tubular structure including an opening end;
an end closure structure closing the opening end of the tubular structure, the end closure structure comprising:

(a) an underlying layer comprising a first end flap (58a) and a first severance line (72) extending across the first end flap;
(b) an overlapping layer comprising a second end flap (54a, 56a) that is secured to surface of the underlying layer and a second severance line (70) extending across the second end flap, the second severance line aligning with a segment of the first severance line; wherein the first severance line is at least partially exposed.

14. The package of claim 13, wherein the end closure structure is configured such that breaking the second severance line is achieved by first breaking the first severance line.

Patentansprüche

1. Eine Verpackung (100), die Folgendes beinhaltet:

mindestens eine erste Modulgruppe (110) und eine zweite Modulgruppe (110), wobei jede Modulgruppe mindestens ein Modul (120), das eine Vorderwand (112) und eine verstärkte Wand

(116) gegenüber der Vorderwand umfasst, beinhaltet; ein Verbindemittel (170, 172, 174, 176, 472, 474, 476) zum gelenkigen Verbinden der ersten Modulgruppe und der zweiten Modulgruppe miteinander, so dass die Verpackung konfiguriert ist, um von einer ersten Anordnung in eine zweite Anordnung konvertierbar zu sein; und wobei in der ersten Anordnung die Vorderwand (112) des mindestens einen Moduls in der ersten Modulgruppe und die Vorderwand (112) des mindestens einen Moduls in der zweiten Modulgruppe konfiguriert sind, um sich in einer Flächenkontaktbeziehung miteinander zu befinden, und die verstärkte Wand (116) des mindestens einen Moduls in der ersten Modulgruppe und die verstärkte Wand (116) des mindestens einen Moduls in der zweiten Modulgruppe auswärts gerichtet sind, um eine äußere Oberfläche der Verpackungen zu bilden, und wobei in der zweiten Anordnung die verstärkte Wand (116) des mindestens einen Moduls in der ersten Modulgruppe und die verstärkte Wand (116) des mindestens einen Moduls in der zweiten Modulgruppe konfiguriert sind, um sich in einer Flächenkontaktbeziehung miteinander zu befinden, und die Vorderwand (112) des mindestens einen Moduls in der ersten Modulgruppe und die Vorderwand (112) des mindestens einen Moduls in der zweiten Modulgruppe auswärts gerichtet sind, um Außenwände der Verpackungen zu bilden.

2. Verpackung gemäß Anspruch 1, wobei sich die Verpackung während Transport, Handhabung oder Lagerung in der ersten Anordnung befindet und sich die Verpackung während der Auslage in der zweiten Anordnung befindet.

3. Verpackung gemäß einem der vorhergehenden Ansprüche, wobei die verstärkte Wand (116) eine Verstärkungsplatte (22) beinhaltet.

4. Verpackung gemäß einem der vorhergehenden Ansprüche, wobei mindestens ein Modul eine verstärkte Ekke (C) beinhaltet.

5. Verpackung gemäß einem der vorhergehenden Ansprüche, wobei die Vorderwand (112) des mindestens einen Moduls eine gedruckte Grafik umfasst, die konfiguriert ist, um mindestens teilweise verdeckt zu sein, wenn sich die Verpackung in der ersten Anordnung befindet.

6. Verpackung gemäß einem der vorhergehenden Ansprüche, wobei das Verbindemittel eine innere Verbindeplatte (230) umfasst, die einen ersten Abschnitt (232) und einen zweiten Abschnitt (234) beinhaltet, wobei der erste und der zweite Abschnitt gelenkig miteinander verbunden und konfiguriert sind, um sich in einer Flächenkontaktanordnung miteinander zu befinden, wenn sich die Verpackung in der ersten Anordnung befindet.

7. Verpackung gemäß Anspruch 6, wobei mindestens einer von dem ersten Abschnitt (232) und dem zweiten Abschnitt (234) eine Auslagegrafik umfasst, die mindestens teilweise verdeckt ist, wenn sich die Verpackung in der ersten Anordnung befindet.

8. Verpackung gemäß einem der vorhergehenden Ansprüche, wobei das Verbindemittel ein Element umfasst, das aus der Gruppe, bestehend aus Streifen, Aufkleber, Band, Platte und Kombinationen davon besteht, ausgewählt ist.

9. Verpackung gemäß einem der vorhergehenden Ansprüche, die ferner ein Sicherungsmittel (S) zum lösbaren Sichern der Verpackung in der ersten Anordnung beinhaltet.

10. Verpackung gemäß Anspruch 9, wobei das Sicherungsmittel ein Element umfasst, das aus der Gruppe, bestehend aus Riemen, Aufkleber, Band, Trennungslinie, Aufreißstreifen, Klettverschluss, Stretchumhüllung, Schrumpfumhüllung, Papierumhüllung, Kunststoffumhüllung, Kunststofffolie, Bund und Kombinationen davon, ausgewählt ist.

11. Verpackung gemäß einem der vorhergehenden Ansprüche, wobei mindestens ein Modul (110) eine Ausgabeeinrichtung (D) beinhaltet.

12. Verpackung gemäß Anspruch 11, wobei die Ausgabeeinrichtung (D) konfiguriert ist, um mindestens teilweise verdeckt zu sein, wenn sich die Verpakkung in der ersten Anordnung befindet.

13. Verpackung gemäß einem der vorhergehenden Ansprüche, wobei jedes Modul (110) Folgendes beinhaltet:

eine röhrenförmige Struktur, die ein Öffnungsende umfasst;
eine Endverschlussstruktur, die das Öffnungsende der röhrenförmigen Struktur verschließt, wobei die Endverschlussstruktur Folgendes beinhaltet:

(a) eine unterliegende Schicht, die eine erste Endlasche (58a) und eine erste Trennungslinie (72), die sich über die erste Endlasche erstreckt, beinhaltet;
(b) eine überdeckende Schicht, die eine zweite Endlasche (54a, 56a), die an der Oberfläche der unterliegenden Schicht gesichert wird, und eine zweite Trennungslinie

(70), die sich über die zweite Endlasche erstreckt, beinhaltet, wobei die zweite Trennungslinie nach einem Segment der ersten Trennungslinie ausgerichtet ist; wobei die erste Trennungslinie mindestens teilweise freiliegt.

14. Verpackung gemäß Anspruch 13, wobei die Endverschlussstruktur so konfiguriert ist, dass ein Brechen der zweiten Trennungslinie erreicht wird, indem zuerst die erste Trennungslinie gebrochen wird.

Revendications

1. Un conditionnement (100) comprenant :

au moins un premier groupe de modules (110) et un deuxième groupe de modules (110), chaque groupe de modules comprenant au moins un module (120) qui comporte une paroi avant (112) et une paroi renforcée (116) opposée à la paroi avant ;
un moyen de raccord (170, 172, 174, 176, 472, 474, 476) pour raccorder par charnière le premier groupe de modules et le deuxième groupe de modules l'un à l'autre de telle sorte que le conditionnement soit configuré de façon à pouvoir être converti d'un premier agencement à un deuxième agencement ; et dans lequel dans le premier agencement,
la paroi avant (112) de l'au moins un module dans le premier groupe de modules et
la paroi avant (112) de l'au moins un module dans le deuxième groupe de modules sont configurées de façon à être dans une relation de contact de faces l'une avec l'autre, et la paroi renforcée (116) de l'au moins un module dans le premier groupe de modules et la paroi renforcée (116) de l'au moins un module dans le deuxième groupe de modules font face vers l'extérieur formant une surface extérieure des conditionnements, et dans lequel dans le deuxième agencement,
la paroi renforcée (116) de l'au moins un module dans le premier groupe de modules et la paroi renforcée (116) de l'au moins un module dans le deuxième groupe de modules sont configurées de façon à être dans une relation de contact de faces l'une avec l'autre, et la paroi avant (112) de l'au moins un module dans le premier groupe de modules et la paroi avant (112) de l'au moins un module dans le deuxième groupe de modules font face vers l'extérieur formant des parois externes des conditionnements.

2. Le conditionnement de la revendication 1, dans lequel le conditionnement est dans le premier agencement durant l'expédition, la manipulation, ou le stockage, et le conditionnement est dans le deuxième agencement durant la présentation.

3. Le conditionnement de n'importe quelles revendications précédentes, dans lequel la paroi renforcée (116) comprend un panneau de renforcement (22).

4. Le conditionnement de n'importe quelles revendications précédentes, dans lequel au moins un module comprend un coin renforcé (C).

5. Le conditionnement de n'importe quelles revendications précédentes, dans lequel la paroi avant (112) de l'au moins un module comporte un graphique imprimé qui est configuré de façon à être au moins partiellement caché lorsque le conditionnement est dans le premier agencement.

6. Le conditionnement de n'importe quelles revendications précédentes, dans lequel le moyen de raccord comporte un panneau de raccord intérieur (230) comprenant une première partie (232) et une deuxième partie (234), les première et deuxième parties étant raccordées par charnière l'une à l'autre et configurées de façon à être dans un agencement de contact de faces l'une avec l'autre lorsque le conditionnement est dans le premier agencement.

7. Le conditionnement de la revendication 6, dans lequel au moins une partie d'entre la première partie (232) et la deuxième partie (234) comporte un graphique de présentation qui est au moins partiellement caché lorsque le conditionnement est dans le premier agencement.

8. Le conditionnement de n'importe quelles revendications précédentes, dans lequel le moyen de raccord comporte un élément sélectionné dans le groupe consistant en bandelette, autocollant, ruban, panneau, et combinaisons de ceux-ci.

9. Le conditionnement de n'importe quelles revendications précédentes, comprenant en outre un moyen d'assujettissement (S) pour assujettir le conditionnement de façon libérable dans le premier agencement.

10. Le conditionnement de la revendication 9, dans lequel le moyen d'assujettissement comporte un élément sélectionné dans le groupe consistant en sangle, autocollant, ruban, ligne de disjonction, bandelette déchirable, attache par crochets et boucles, pellicule étirable, pellicule rétractable, emballage en papier, emballage en plastique, film en plastique, bande, et combinaisons de ceux-ci.

11. Le conditionnement de n'importe quelles revendica-

tions précédentes, dans lequel au moins un module (110) comprend une caractéristique de distribution (D).

12. Le conditionnement de la revendication 11, dans lequel la caractéristique de distribution (D) est configurée de façon à être au moins partiellement cachée lorsque le conditionnement est dans le premier agencement.

13. Le conditionnement de n'importe laquelle des revendications précédentes, dans lequel chaque module (110) comprend :

une structure tubulaire comportant une extrémité ouvrante ;
une structure de fermeture d'extrémité fermant l'extrémité ouvrante de la structure tubulaire,
la structure de fermeture d'extrémité comprenant :

(a) une couche sous-jacente comprenant un premier rabat d'extrémité (58a) et une première ligne de disjonction (72) s'étendant sur tout le premier rabat d'extrémité ;
(b) une couche de chevauchement comprenant un deuxième rabat d'extrémité (54a, 56a) qui est assujetti à la surface de la couche sous-jacente et une deuxième ligne de disjonction (70) s'étendant sur tout le deuxième rabat d'extrémité, la deuxième ligne de disjonction s'alignant avec un segment de la première ligne de disjonction ; la première ligne de disjonction étant au moins partiellement exposée.

14. Le conditionnement de la revendication 13, dans lequel la structure de fermeture d'extrémité est configurée de telle sorte que la rupture de la deuxième ligne de disjonction soit réalisée en rompant d'abord la première ligne de disjonction.

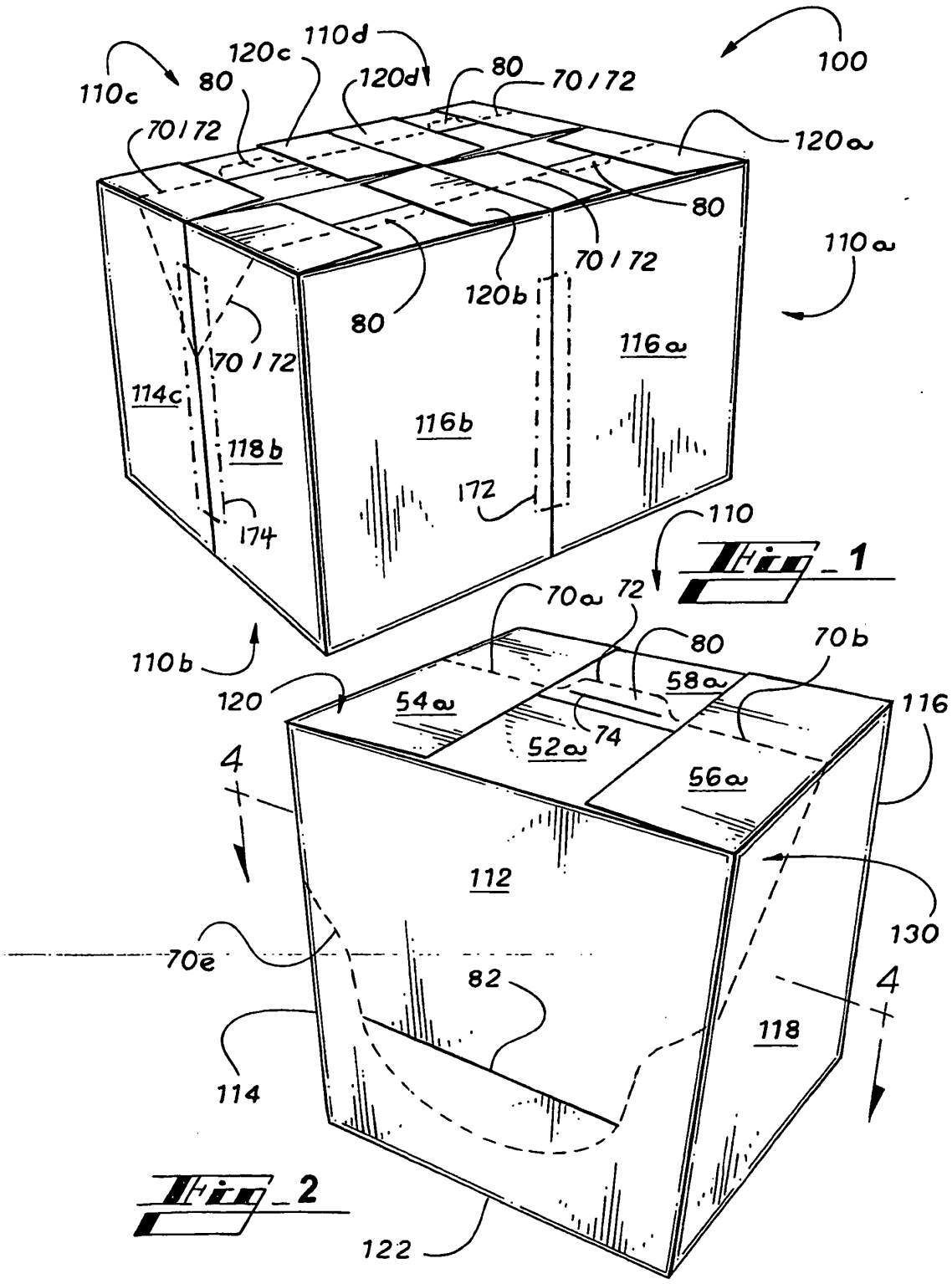

100
110c
120c
110d
120d
80
70/72
120a
110a
120b
116a
114c
116b
118b
174
172
110
110b
120
70a
72
54a
58a
70b
116
52a
74
56a
4
112
130
70e
82
114
118
122

Fig. 1

Fig. 2

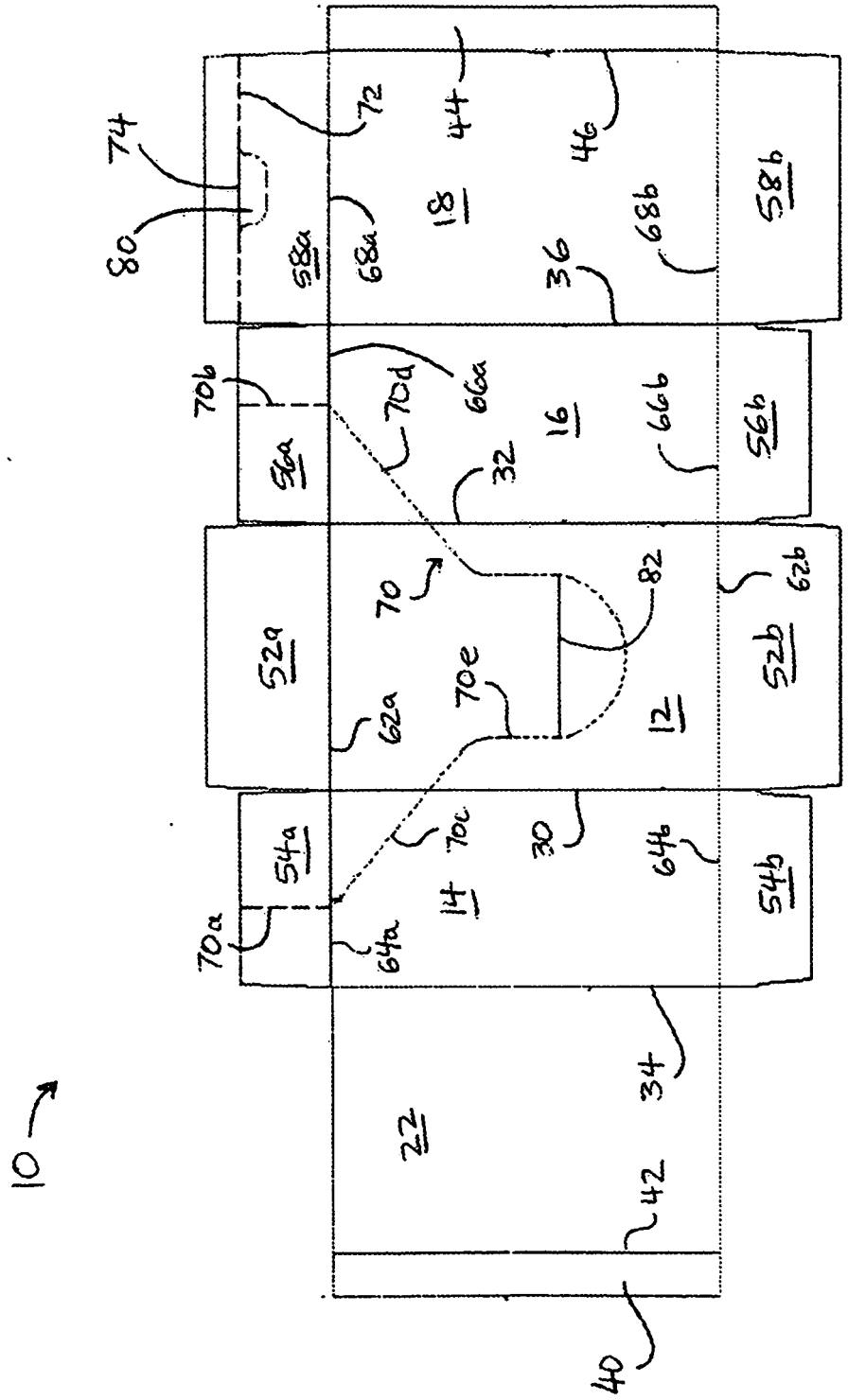

10
74
80
72
44
46
58a
68a
18
36
68b
58b
70b
70d
66a
16
66b
56b
56a
32
70
82
62b
52a
52b
62a
70e
12
54a
70c
30
64b
54b
70a
64a
14
34
22
42
40

FIG. 3

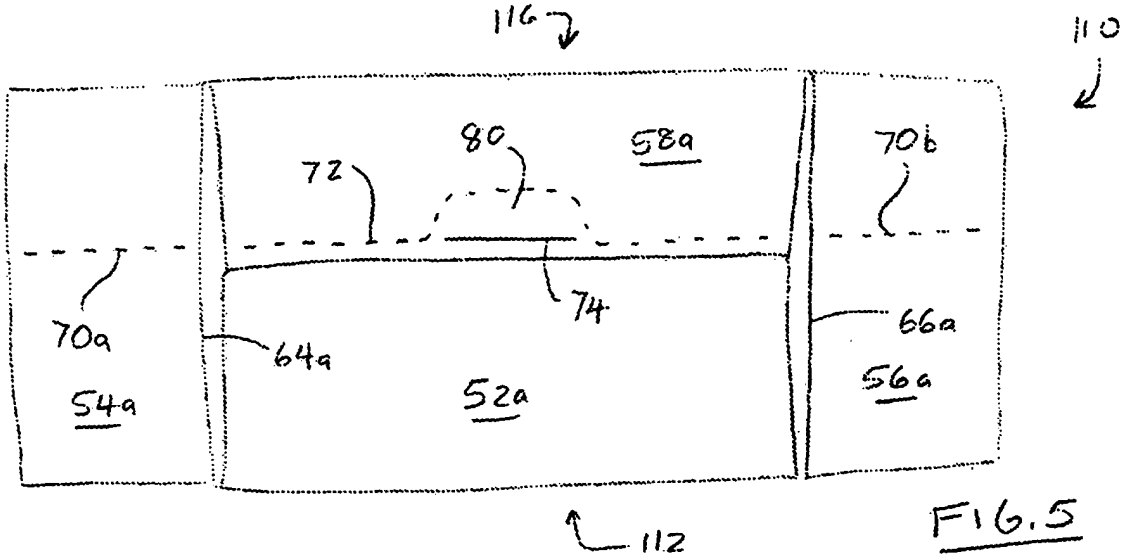


FIG. 5

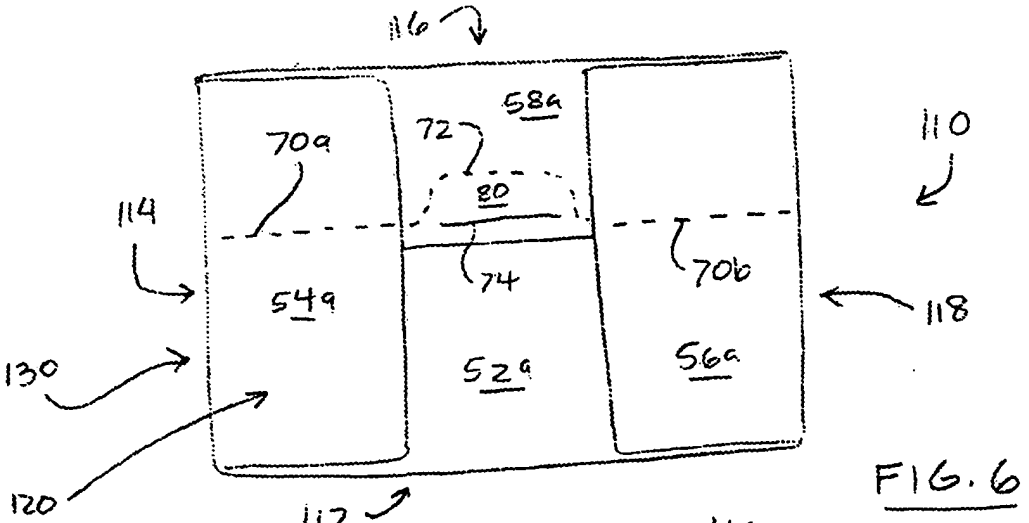


FIG. 6

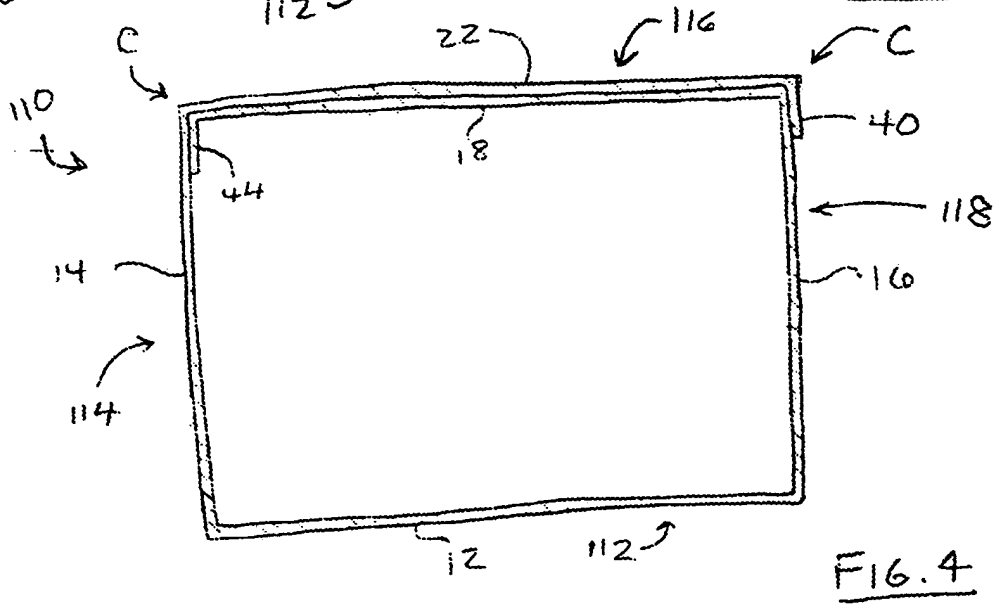


FIG. 4

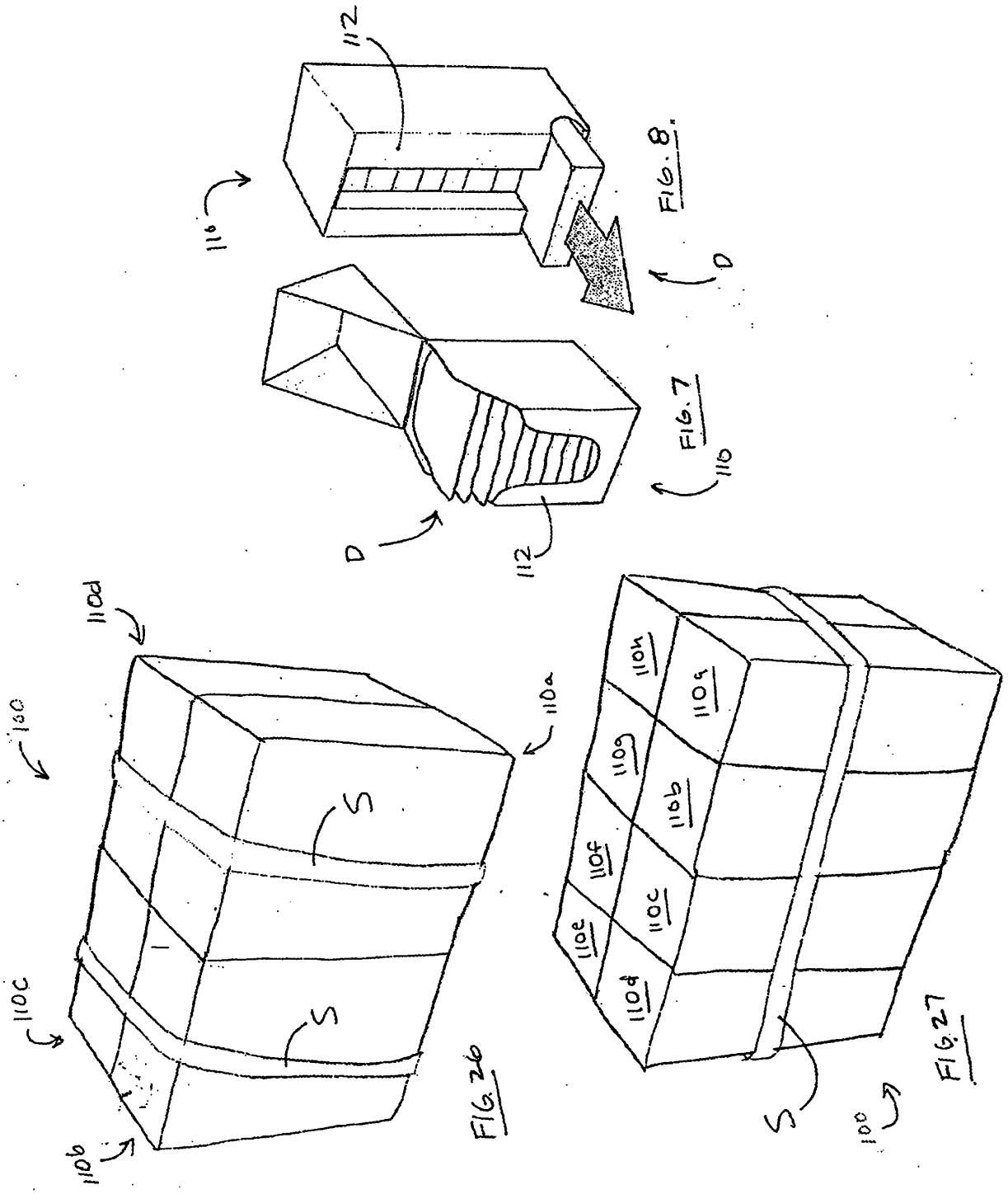
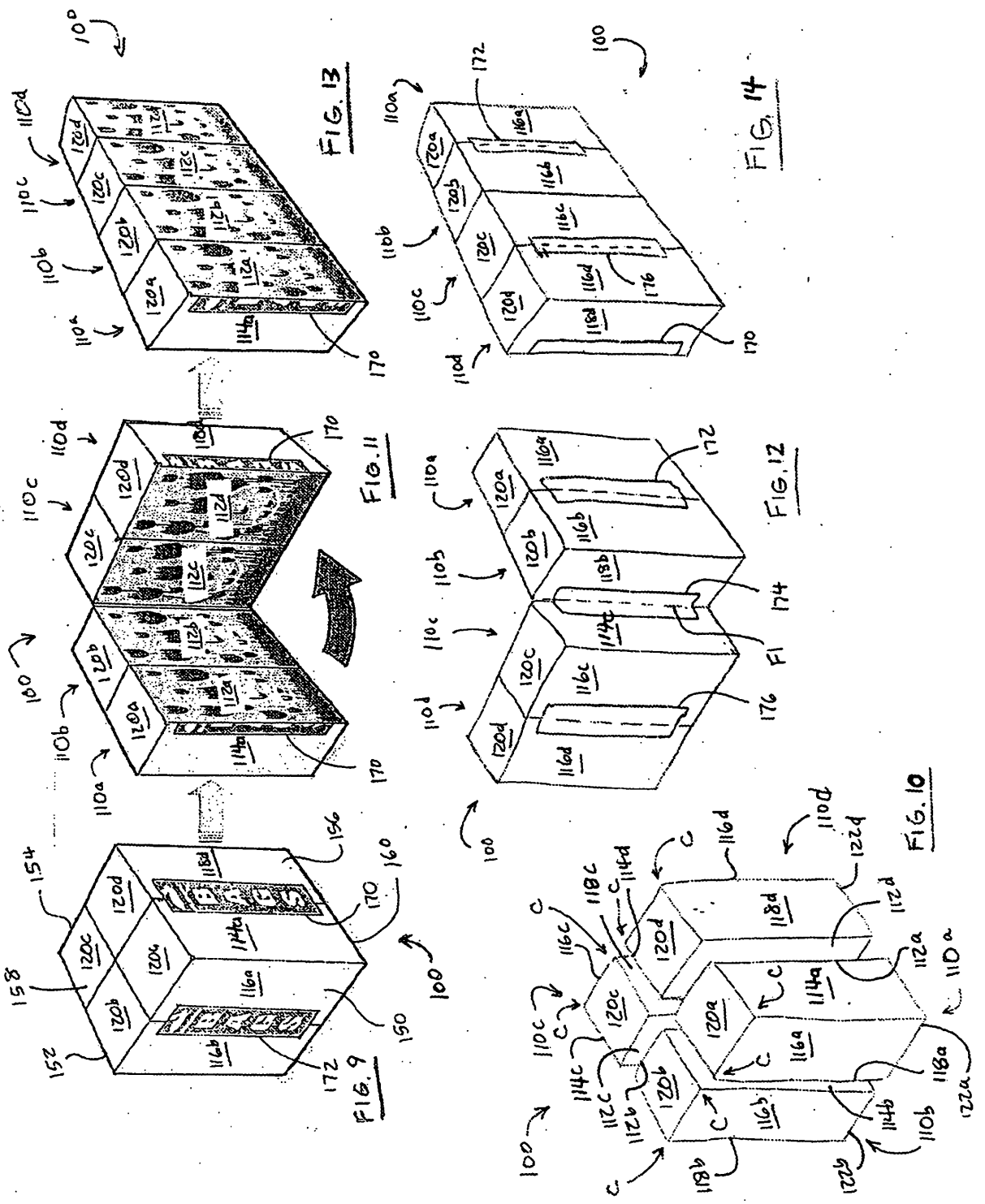


FIG. 8.

FIG. 7

FIG. 26

FIG. 27



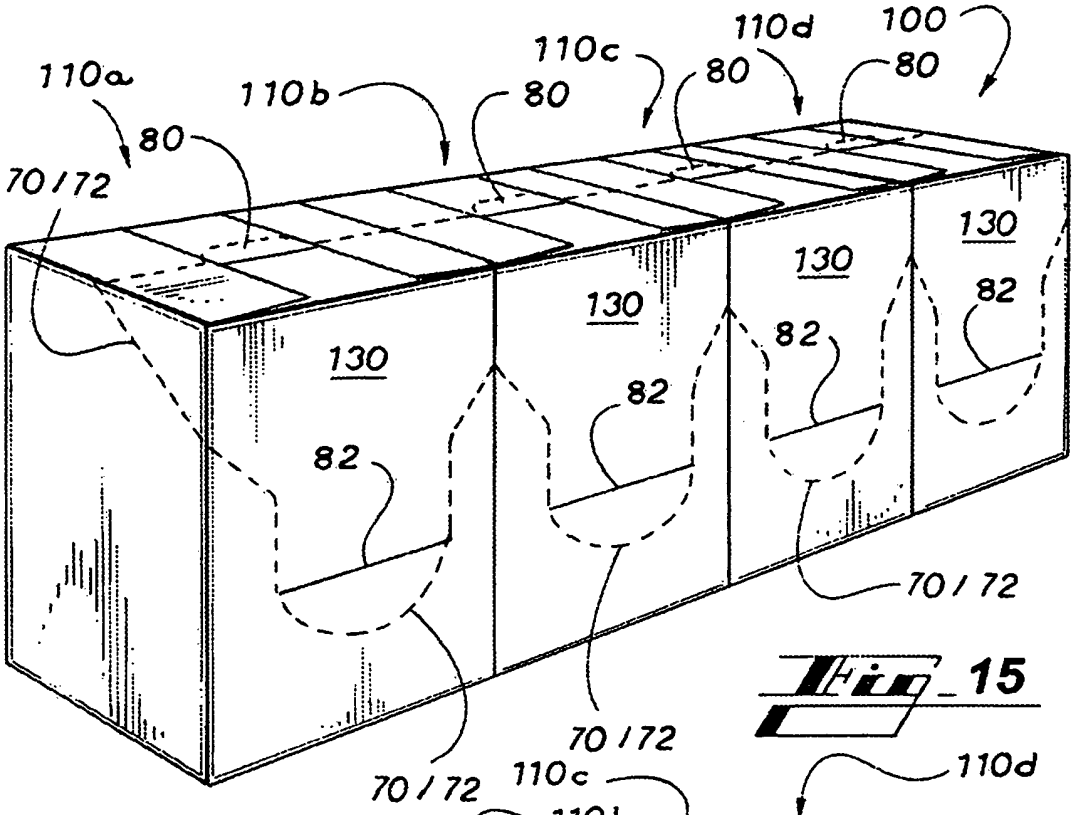

110a
110b
110c
110d
100
80
70/72
130
82

Fig_15

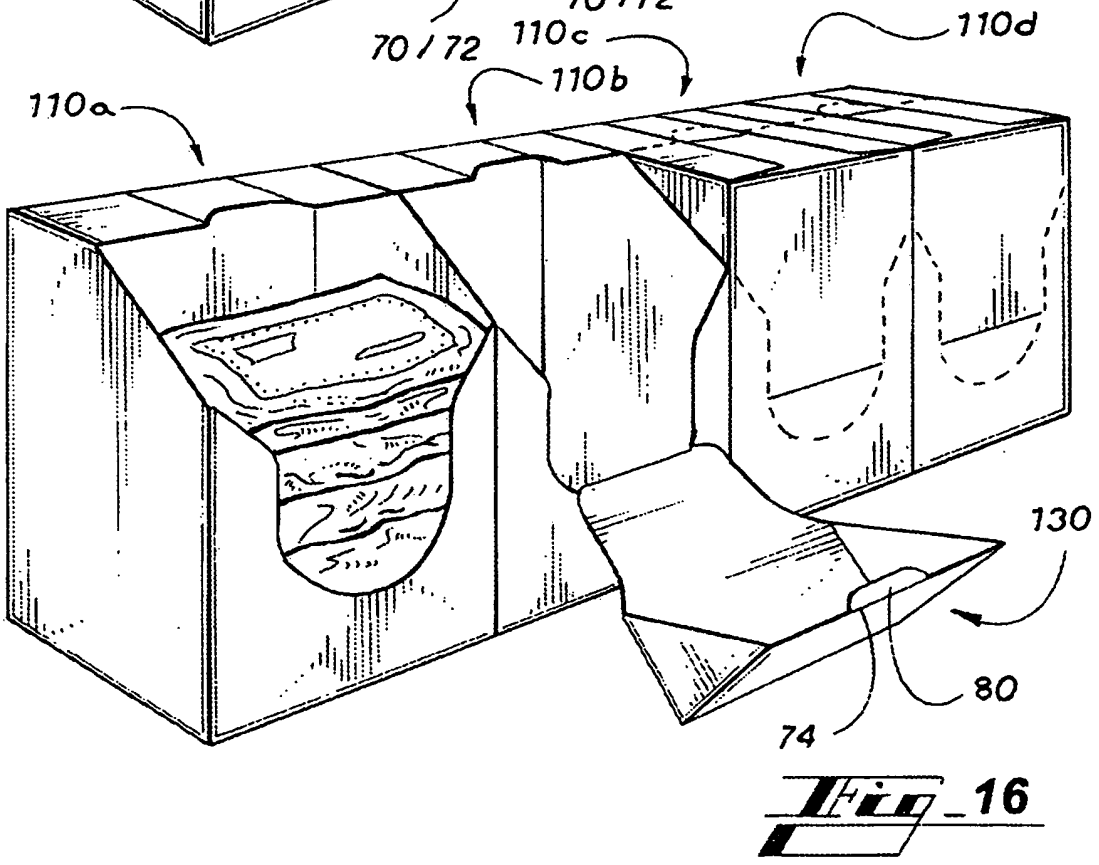
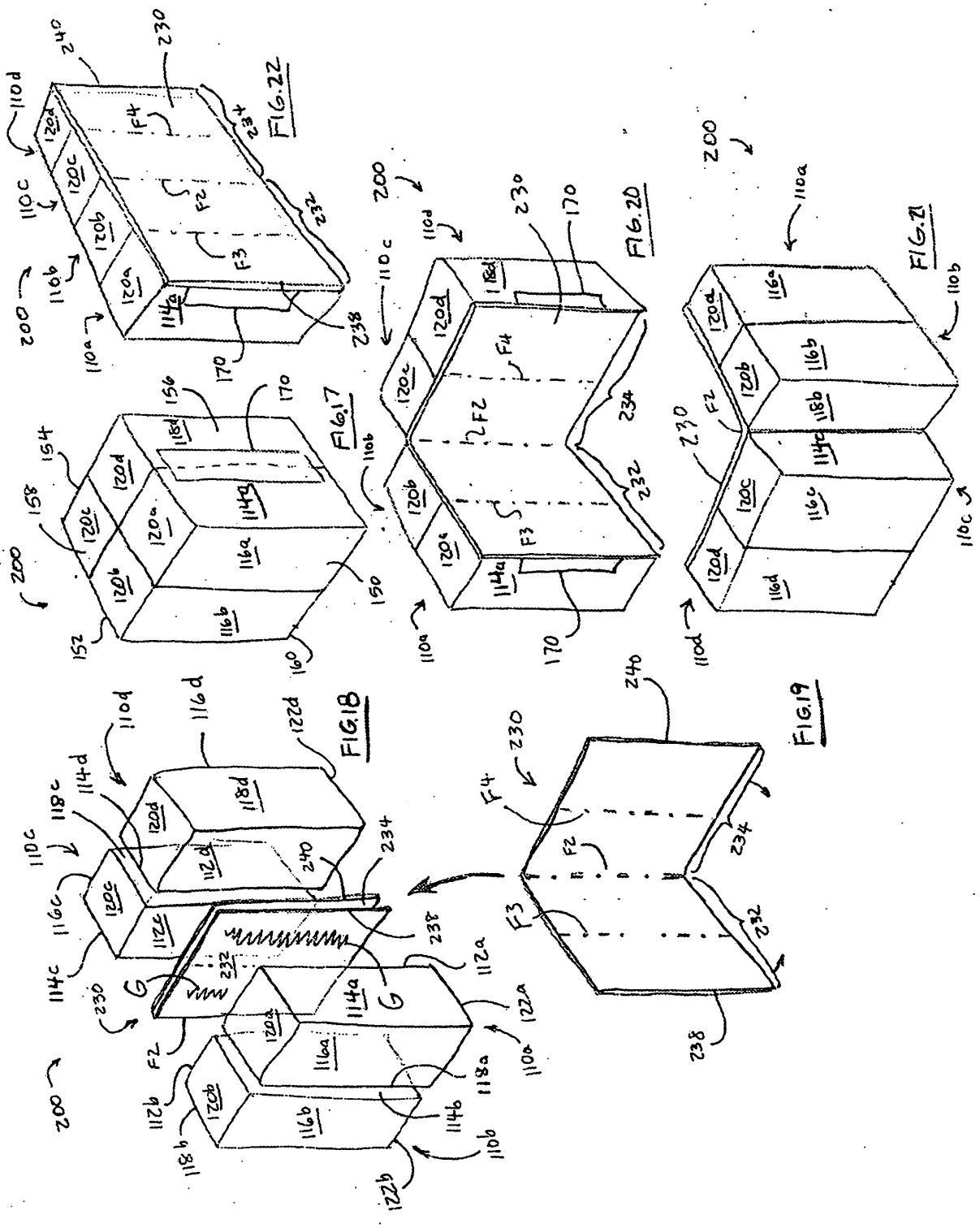

110a
110b
110c
110d
130
80
74
70/72

Fig_16



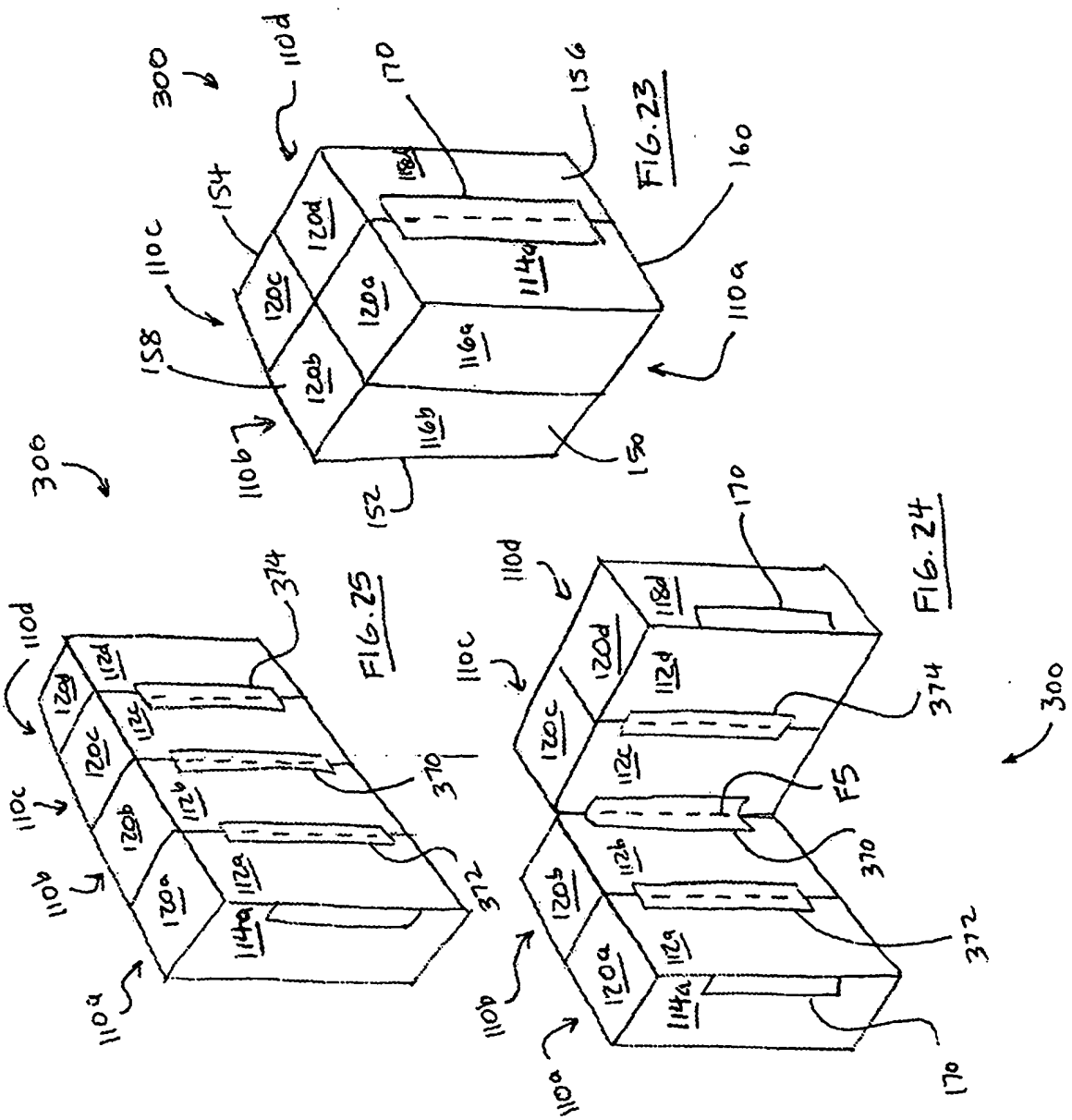


FIG. 23

FIG. 24

FIG. 25

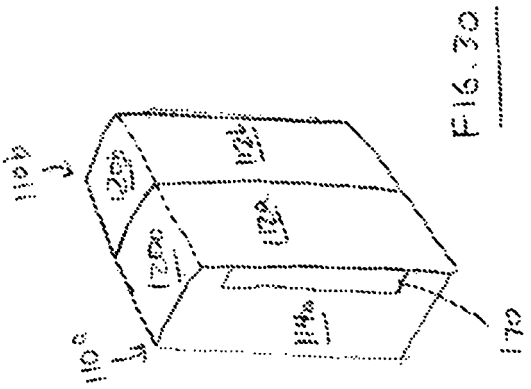


FIG. 2C

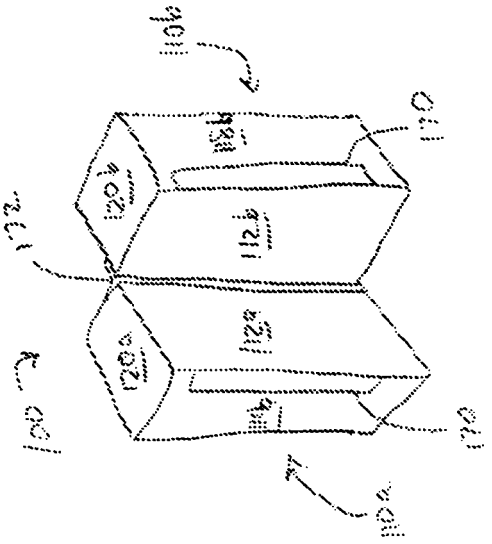


FIG. 2B

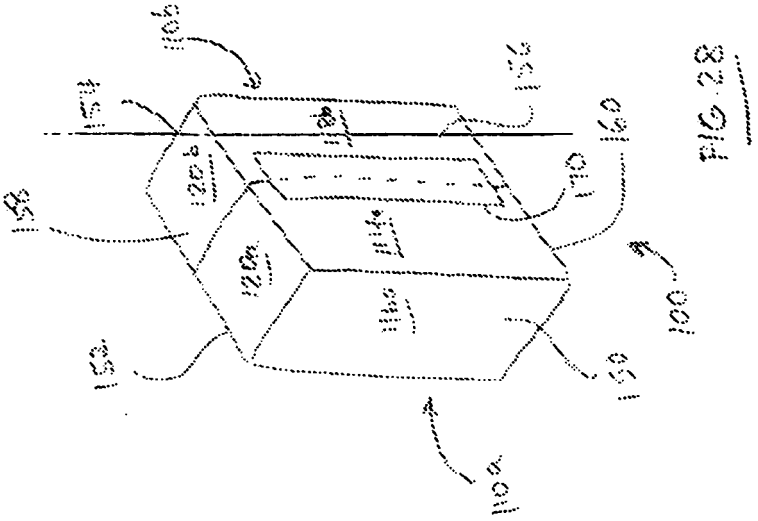


FIG. 2A

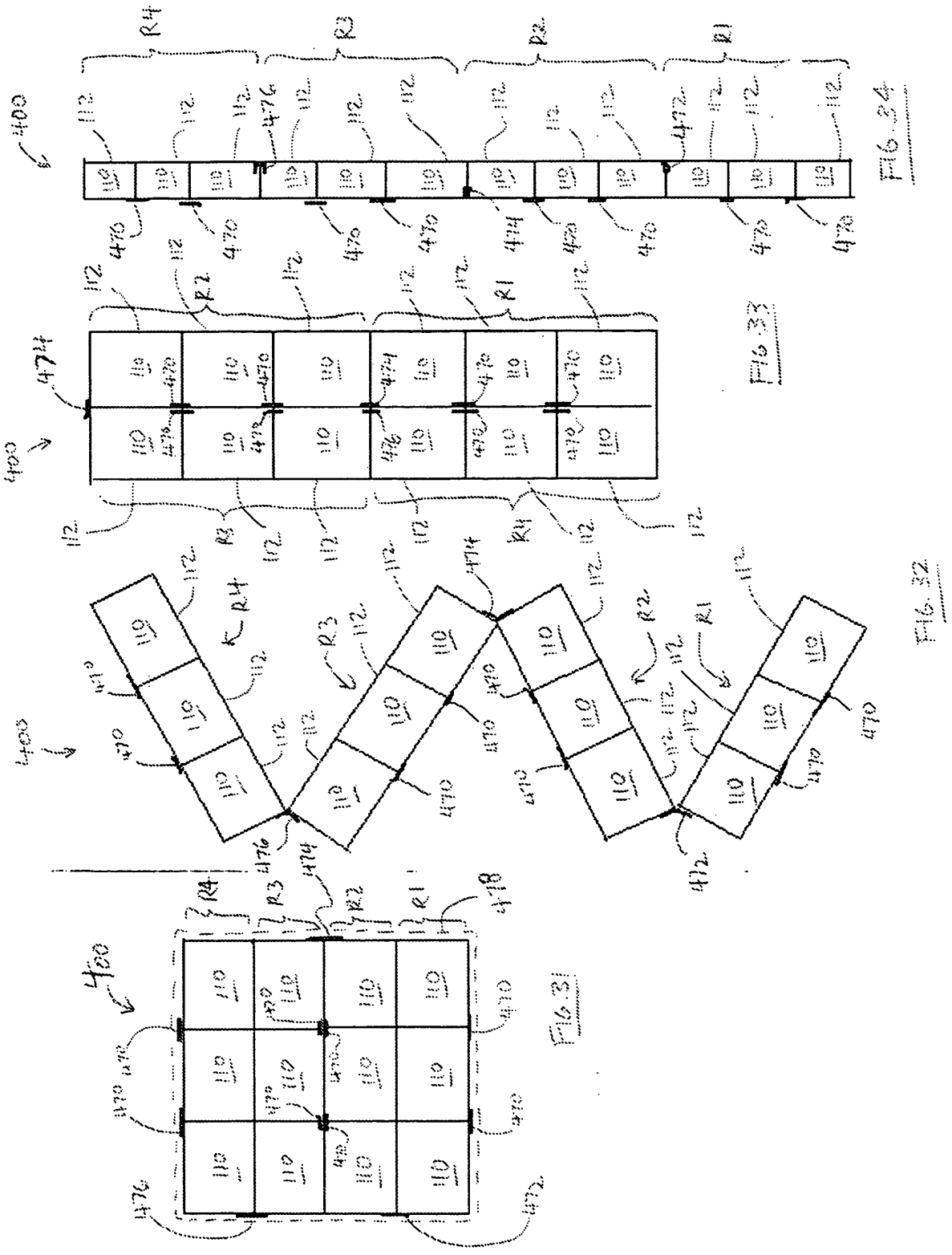


FIG. 3A

FIG. 3B

FIG. 3C

FIG. 3D

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1649774 A **[0003]**
- WO 2005110874 A **[0003]**