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(54) CARTON AND CARTON BLANK

KARTON UND KARTONZUSCHNITT

CARTON ET FLAN EN CARTON

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(73) Proprietor: **WestRock Packaging Systems, LLC**
Norcross, GA 30071 (US)

(72) Inventor: **BLIN, Patrick**
F-36000 Chateauroux (FR)

(74) Representative: **Coulson, Elizabeth Eve et al**
Coulson & Rule
13 Whitehall Road
Rugby, Warwickshire CV21 3AE (GB)

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EP 2 852 533 B1

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Description

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of UK Patent Application No. 1209038.7 filed May 22.

FIELD OF THE INVENTION

[0002] The present invention relates to a carton and blank for forming the same, more specifically, but not exclusively a carton comprising reinforced handle structure.

BACKGROUND OF THE INVENTION

[0003] In the field of packaging it is often required to provide consumers with a package comprising multiple primary product containers, such multi-packs are desirable for shipping and distribution and for display of promotional information. For cost and environmental considerations, such cartons or carriers need to be formed from as little material as possible and cause as little wastage in the materials from which they are formed as possible. Another consideration is the strength of the packaging and its suitability for holding and transporting large weights of articles.

[0004] In order to ensure that multipacks can be carried securely be a user, it is desirable to provide reinforced handle structures to reduce the risk of tearing when in use.

[0005] Document WO-A-2010014862 discloses a carton for articles includes top and bottom walls interconnected by opposed side walls and end walls for closing the opposed ends of the carton. The carton further includes a handle structure that has a grip panel and a pair of handle flaps. The grip panel is secured to a strap member. The strap member is secured at either end thereof to the handle flaps that are connected to the carton. The grip panel is detachably connected at its opposite end to the handle flaps respectively so that the grip panel and the handle flaps extend continuously across an exterior surface of the top wall.

SUMMARY OF INVENTION

[0006] The present invention seeks to overcome or at least mitigate the problems of the prior art.

[0007] A first aspect of the invention provides a carton for packaging one or more articles comprising a base panel, first side panel, second side panel, first top panel and second top panel, forming a tubular structure, the first and second top panels being disposed in face contacting relationship with each other, the carton comprising a first set of end closure panels for at least partially closing a first end of the tubular structure, the first set of end closure panels including a first top end closure panel hinged to one of the first and second top panels, and wherein a first reinforcing panel is struck at least in part from the one of the first and second top panels, the first reinforcing panel being folded about a first hinged connection so as to be in face contacting relationship with the first top end closure panel, and the first top end closure panel comprises a first handle structure including a first aperture, and wherein the first reinforcing panel comprises a second handle structure including a second aperture, the first and second apertures being in registry with one another such that the first and second apertures together provide a first single handle opening.

[0008] Preferably, the first set of end closure panels further includes a second top end closure panel hinged to the other of the first and second top panels the second top end closure panel is disposed in face contacting relationship with one of the first top end closure panel and the first reinforcing panel.

[0009] Alternatively, the second top end closure panel comprises a third handle structure including a third aperture disposed in registry with the first and second apertures such that the first, second and third apertures together provide the single handle opening.

[0010] Preferably, the first top end closure panel is hinged to one of opposed end edges of the one of the first and second top panels, the second top end closure panel is hinged to one of opposed end edges of the other of the first and second top panels, and wherein the carton further comprises a second set of end closure panels for at least partially closing a second end of the tubular structure opposing the first end, the second set of end closure panels including a third top end closure panel hinged to the other end edge of the one of the first and second top panels and a fourth top end closure panel hinged to the other end edge of the other of the first and second top panels.

[0011] Preferably, a second reinforcing panel is struck at least in part from the one of the first and second top panels and folded about a second hinged connection to be in face contacting relationship with one of the third and fourth top end closure panels.

[0012] Preferably, the first reinforcing panel is defined at least in part by an elongate aperture struck from the one of the first and second top panels.

[0013] Alternatively, the elongate aperture defines an edge of the first reinforcing panel opposing the first hinged connection.

[0014] Preferably, the first reinforcing panel is struck entirely from the one of the first and second top panels.

[0015] Preferably, the first hinged connection comprises a first fold line coincident with a second fold line connecting between the first top end closure panel and the one of the first and second top panels.

[0016] Preferably, the first hinged connection comprises a first fold line spaced apart from and parallel to a second fold line connecting between the first top end closure panel and the one of the first and second top panels.

[0017] Preferably, the first reinforcing panel comprises a further fold line which is arranged to be in registry with

the second fold line.

[0018] Preferably, the first reinforcing panel is struck in part from the one of the first and second top panels and in part from the first top end closure panel.

[0019] Preferably, the first reinforcing panel is hinged to the first top end closure panel.

[0020] A second aspect of the invention provides for forming a carton, the blank comprising a base panel, a first side panel, a second side panel and a first top panel for forming a tubular structure, the blank further comprising a first set of end closure panels for at least partially closing one of opposed ends of the tubular structure, the first set of end closure panels including a first top end closure panel hinged to the first top panel, the first top end closure panel comprising a first handle structure including a first aperture, and wherein a first reinforcing panel is struck at least in part from the first top panel, the first reinforcing panel comprising a second handle structure including a second aperture, the first reinforcing panel being foldable about a first hinged connection so as to be in face contacting relationship with the first top end closure panel such that the first and second apertures are in registry with one another.

[0021] Preferably, the first reinforcing panel is struck entirely from the first top panel.

[0022] Preferably, the first hinged connection comprises a first fold line which is coincident with a second fold line connecting between the first top end closure panel and the first top panel.

[0023] Preferably, the first hinged connection comprises a first fold line spaced apart from and parallel to a second fold line connecting between the first top end closure panel and the first top panel.

[0024] Preferably, first reinforcing panel is struck in part from the first top panel and in part from the first top end closure panel.

[0025] Within the scope of this application it is envisaged that the various aspects, embodiments, examples, features and alternatives set out in the preceding paragraphs, in the claims and/or in the following description and drawings may be taken independently or in any combination thereof. For example, features described in connection with one embodiment are applicable to all embodiments unless there is incompatibility of features.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] Exemplary embodiments of the invention will now be described with reference to the accompanying drawings, in which:

FIGURE 1. is a plan view from above of a blank for forming a carton according to a first embodiment of the invention;

FIGURE 2. is a perspective view from above of a carton formed from the blank of Figure 1;

FIGURE 3. is a perspective view from below of an internal portion of the carton formed from the blank of Figure in a partially assembled state;

FIGURE 4. is a plan view from above of a blank for forming a carton according to a second embodiment of the invention; and

FIGURE 5. is a plan view from above of a blank for forming a carton according to a third embodiment of the invention.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS OF THE PRESENT INVENTION

[0027] Detailed descriptions of specific embodiments of the package, blanks and cartons are disclosed herein. It will be understood that the disclosed embodiments are merely examples of the way in which certain aspects of the invention can be implemented and do not represent an exhaustive list of all of the ways the invention may be embodied. As used herein, the word "exemplary" is used expansively to refer to embodiments that serve as illustrations, specimens, models, or patterns. Indeed, it will be understood that the packages, blanks and cartons described herein may be embodied in various and alternative forms. The figures are not necessarily to scale and some features may be exaggerated or minimised to show details of particular components. Well-known components, materials or methods are not necessarily described in great detail in order to avoid obscuring the present disclosure. Any 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 to variously employ the invention.

[0028] Referring to FIGURE 1 there is shown a plan view of a blank 10 capable of forming a carton for packaging one or more primary products, such as, but not limited to, bottles or cans, hereinafter referred to as articles.

[0029] In the embodiments detailed herein, the terms carton and carrier refer, for the non-limiting purpose of illustrating the various features of the invention, to a container for engaging, carrying, and/or dispensing articles, such as bottles. However, it is contemplated that the teachings of the invention can be applied to various containers, which may or may not be tapered and/or cylindrical. Other exemplary articles include bottles (for example metallic, glass or plastics bottles), cans (for example aluminium cans), tins, pouches, packets and the like.

[0030] The blank is formed from a sheet of suitable substrate. 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. It should be recognized that one or other numbers of blanks may be employed, for example, to provide the carrier

structure described in more detail below.

[0031] In the exemplary embodiment, the blank is configured to form a carton or carrier for packaging an exemplary arrangement of exemplary articles. For example, the arrangement is a matrix including rows and columns such as a 2X3 arrangement of articles. The blank can be alternatively configured to form a carrier for packaging other articles and/or different arrangements of articles.

[0032] Blank 10 comprises a series of main panels hinged one to the next in a linear series. The main panels comprise a first top panel 12, hinged to a first side wall panel 14A/14B along fold line 13. First side wall panel 14A/14B is hinged to a base panel 16 along fold line 17; base panel 16 is hinged to a second side wall 18A/18B along a fold line 19. Second side wall 18A/18B is hinged to a second top panel 20 along a fold line 23. Optionally, first side wall panel 14A/14B comprises an upper portion 14A and a lower portion 14B hinged to one another by a fold line 15. Optionally, second side wall panel 18A/18B comprises an upper portion 18A and a lower portion 18B hinged to one another by a fold line 21. In the illustrated embodiment the first and second top panels 12,20 are smaller in dimension than the base panel 16; the first and second side panels 14A/14B, 18A/18B are arranged so as to taper inwardly towards the top panels 12, 20. In alternative embodiments the first and second side panels 14A/14B, 18A/18B and top panels 12, 20 may be arranged to form a tubular structure having a square or rectangular cross section.

[0033] First top panel 12 comprises a first top end closure panel 22A hinged to a first end along a fold line 25A and a second top end closure panel 22B hinged to a second end, opposing the first end, by a fold line 25B. First side wall panel 14A/14B comprises a first side end closure structure 24A hinged to a first end along fold line 27A, 29A. First side wall panel 14A/14B comprises a second side end closure structure 24B hinged to a first end along fold line 27B, 29B. Second side wall panel 18A/18B comprises a third side end closure structure 28A hinged to a first end along fold line 33A, 35A. Second side wall panel 18A/18B comprises a fourth side end closure structure 28B hinged to a first end along fold line 33B, 35B.

[0034] First, second third and fourth side closure structures 24A, 24B, 28A, 28B are substantially similar in construction and will be describe in further detail by reference to the second side end closure structure 24B. Second side end closure structure 24B comprises a first side end panel 52B hinged to upper portion 14A of first side end closure panel 14A/14B and a second side end panel 56B hinged to lower portion 14B of first side end closure panel 14A/14B along fold line 29B. First side end panel 52B is coupled to second side end panel 56B by web panel 54B, web panel 54B is coupled to second side end panel 56B by a fold line and to first side end panel via an aperture which is preferably substantially triangular in shape and extends substantially between the fold 27B and a free edge of first side end panel 52B opposing fold line 27B.

[0035] First side end panel 52B is coupled to second top end closure panel 22B by a gusset panel 50B, preferably an aperture separates first side end closure panel 52B from second top end closure panel 22B.

[0036] Second side end closure panel 56B is coupled to a second bottom end closure panel 26B by a second gusset panel 58B.

[0037] Second bottom end closure panel 26B is coupled to base panel 16 along an end edge thereof by a fold line 31B. A first bottom end closure panel 26A is coupled to the base panel 16 along an opposing edge by a fold line 31A.

[0038] A third top end closure panel 30A is hinged to a first edge of second top panel 20 along a fold line 37A.

[0039] A fourth top end closure panel 30B is hinged to a second edge, opposing the first edge, of second top panel 20 along a fold line 37B.

[0040] First, second, third and fourth top end closure panels 22A, 22B, 30A, 30B each comprise a handle structure 32 comprising an elongate aperture and a handle flap, preferably three handle flaps, hinged to the respective one of first, second, third and fourth top end closure panels 22A, 22B, 30A, 30B; the handle flap provides a cushioning device when the carton is being carried.

[0041] Second top panel 20 comprises a pair of reinforcing panels 34A, 34B; reinforcing panels 34A, 34B are struck from or defined within the second top panel 20. First reinforcing panel 34A is defined in part by an elongate aperture 38A, in part by a pair of cut lines or weakened lines of severance and in part by a fold line 40A. Fold line 40A is coincident with the fold line 37A hinging the third top end closure panel 30A to the second top panel 20.

[0042] Second reinforcing panel 34B is defined in part by an elongate aperture 38b, in part by a pair of cut lines or weakened lines of severance and in part by a fold line 40B. Fold line 40B is coincident with the fold line 37B hinging the third top end closure panel 30B to the second top panel 20.

[0043] First and second reinforcing panels 34A, 34B each comprise reinforcing handle structure 36, which reinforcing handle structures 36 comprise an elongate aperture and a handle flap disposed at an upper edge of the aperture and hinged to the respective reinforcing panel 34A, 34B. The reinforcing handle structures 36 are arranged such that they are in registry with the handle structures 32 in the respective third or fourth top end closure panels 30A, 30B when the reinforcing panels 34A, 34B are folded about the respective fold lines 40A, 40B to be in face contacting relationship with the respective top end closure panels 30A, 30B.

[0044] Turning to the construction of a carton 90 as illustrated in Figures 2 and 3 it is envisaged that the carton 90 can be formed by a series of sequential folding operations in a straight line machine so that the carton is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and may be altered according to particular

manufacturing requirements.

[0045] The carton 90 can be formed by folding the second top panel 20 about fold line 23 to be in overlapping relationship with the second side wall panel 18A/18B. The first top panel 12 and first side wall panel 14A/14B are then folded about fold line 17 to bring the first top panel into face contacting relationship with the second top panel 20. The first and second top panels 12, 20 are secured to one another, preferably by adhesive.

[0046] The first and second reinforcing panels 34A, 34B are folded about fold lines 40A, 40B respectively to be brought in to face contacting relationship with the respective one of the third or fourth top end closure panel 30A, 30B. The first and second reinforcing panels 34A, 34B are secured, preferably by adhesive, to the respective one of the third or fourth top end closure panel 30A, 30B.

[0047] In alternative embodiments, the blank 10 may be formed in to a partially assembled carton by folding the upper portion 18A of second side wall panel 18A/18B and second top panel 20 about fold line 21 to bring the upper portion 18A in overlapping relationship with the lower portion 18B of second side wall panel 18A/18B. The first top panel 12 and the upper portion 14A of the first side wall panel 14A/14B are then fold about the fold line 15 and the first top panel 12 is secured to the second top panel 20.

[0048] In alternative embodiments, the reinforcing panels 34A, 34B may be folded and secured to the third and fourth top end closure panel 30A, 30B prior to securing the first and second top panels 12, 20 together.

[0049] The blank 10 is formed into a tubular structure from a flat collapsed form by separating the base panel 16 from the first and second top panels 12, 20. The tubular structure is loaded with one or more articles and the ends of the tubular structure are closed by folding the first and second side end closure structures about the fold lines 27A/29A, 27B/29B, 33A/35A, 33B/35B. The top end closure panels 22A, 22B, 30A, 30B and bottom end closure panels 26A, 26B are folded automatically about their respective fold lines 25A, 25B, 37A, 37B, 31A, 31B. The bottom end closure panels 26A, 26B are secure to the respective one of the first or second top end closure panels 22A, 22B, preferably by adhesive.

[0050] As shown in Figure 3 the first and second reinforcing panels 34A, 34B are disposed innermost and first and second top end closure panels 22A, 22B are disposed outermost. The third and fourth top end closure panels 30A, 30B are disposed between the first and second reinforcing panels 34A, 34B and the first and second top end closure panels 22A, 22B. The first top panel 12 is disposed outwardly of the second top panel 20.

[0051] It is envisaged that in alternative embodiments that the first reinforcing panel 34A may be disposed between the first and third top end closure panels 22A, 30A and that the second reinforcing panel 34B may be disposed between the second and fourth top end closure panels 22B, 30B.

[0052] In yet further embodiments the second top panel 20 may be disposed externally of the first top panel 12 and the third and fourth top end closure panels 30A, 30B may be disposed outwardly of the first and second top end closure panels 22A, 22B; in such embodiments the first and second reinforcing panels 34A, 34B may be disposed outermost, on an external face of the third and fourth top end closure panels 34A, 34B.

[0053] Referring now to Figures 4 and 4, there is shown alternative embodiments of the present invention. In the second and third illustrated embodiment, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "100" or "200" and so on to indicate that these features belong to the second embodiment. The alternative embodiments share many common features with the first embodiment and therefore only the differences from the embodiment illustrated in Figures 1 to 3 will be described in any greater detail.

[0054] Blank 110, as shown in Figure 4, comprises a series of main panels hinged one to the next in a linear series. The main panels comprise a first top panel 112, hinged to a first side wall panel 114A/114B along fold line 113. First side wall panel 114A/114B is hinged to a base panel 116 along fold line 117, base panel 116 is hinged to a second side wall 118A/118B along a fold line 119. Second side wall 118A/118B is hinged to a second top panel 120 along a fold line 123. Optionally, first side wall panel 114A/114B comprises an upper portion 114A and a lower portion 114B hinged to one another by a fold line 115. Optionally, second side wall panel 118A/118B comprises an upper portion 118A and a lower portion 118B hinged to one another by a fold line 121. In the illustrated embodiment the first and second top panels 112, 120 are smaller in dimension than the base panel 116; the first and second side panels 114A/114B, 118A/118B are arranged so as to taper inwardly towards the top panels 112, 120. In alternative embodiments the first and second side panels 114A/114B, 118A/118B and top panels 112, 120 may be arranged to form a tubular structure having a square or rectangular cross section.

[0055] First top panel 112 comprises a first top end closure panel 122A hinged to a first end along a fold line 125A and a second top end closure panel 122B hinged to a second end, opposing the first end, by a fold line 125B. First side wall panel 114A/114B comprises a first side end closure structure 124A hinged to a first end along fold line 127A, 129A. First side wall panel 114A/114B comprises a second side end closure structure 124B hinged to a first end along fold line 127B, 129B. Second side wall panel 118A/118B comprises a third side end closure structure 128A hinged to a first end along fold line 133A, 135A. Second side wall panel 118A/118B comprises a fourth side end closure structure 128B hinged to a first end along fold line 133B, 135B.

[0056] Second top panel 120 comprises a pair of reinforcing panels 134A, 134B; reinforcing panels 134A, 134B are struck from or defined within the second top panel 120. First reinforcing panel 134A is defined in part

by an elongate aperture 138A, in part by a pair of cut lines or weakened lines of severance and in part by a fold line 140A. Fold line 140A is spaced part from and parallel to the fold line 137A hinging the third top end closure panel 130A to the second top panel 120.

[0057] A further fold line 145A is defined in the first reinforcing panel 134A; further fold line 145A is spaced apart from and parallel to fold line 140A. Further fold line 145A is arranged to be in registry with the fold line 137A when the first reinforcing panel 134A is folded about fold line 140A to be in face contacting relationship with the third top end closure panel 130A.

[0058] Second reinforcing panel 134B is defined in part by an elongate aperture 138b, in part by a pair of cut lines or weakened lines of severance and in part by a fold line 140B. Fold line 140B is spaced part from and parallel to the fold line 137B hinging the third top end closure panel 130B to the second top panel 20.

[0059] A further fold line 145B is defined in the second reinforcing panel 134B; further fold line 145B is spaced apart from and parallel to fold line 140B. Further fold line 145B is arranged to be in registry with the fold line 137B when the second reinforcing panel 134B is folded about fold line 140B to be in face contacting relationship with the fourth top end closure panel 130B.

[0060] First and second reinforcing panels 134A, 134B each comprise handle structure 136, which handle structure 136 comprises an elongate aperture and a handle flap disposed at an upper edge of the aperture and hinged to the respective reinforcing panel 134A, 134B. The handle structures 136 are arranged such that they are in registry with the handle structures 132 in the respective third or fourth top end closure panels 130A, 130B when the reinforcing panels 134A, 134B are folded about the respective fold lines 140A, 140B to be in face contacting relationship with the respective top end closure panels 130A, 130B.

[0061] Blank 210, as shown in Figure 5, comprises a series of main panels hinged one to the next in a linear series. The main panels comprise a first top panel 212, hinged to a first side wall panel 214A/214B along fold line 213. First side wall panel 214A/214B is hinged to a base panel 216 along fold line 217, base panel 216 is hinged to a second side wall 218A/218B along a fold line 219. Second side wall 218A/218B is hinged to a second top panel 220 along a fold line 223. Optionally, first side wall panel 214A/214B comprises an upper portion 214A and a lower portion 214B hinged to one another by a fold line 215. Optionally, second side wall panel 218A/218B comprises an upper portion 218A and a lower portion 218B hinged to one another by a fold line 221. In the illustrated embodiment the first and second top panels 212, 220 are smaller in dimension than the base panel 216; the first and second side panels 214A/214B, 218A/218B are arranged so as to taper inwardly towards the top panels 212, 220. In alternative embodiments the first and second side panels 214A/214B, 218A/218B and top panels 212, 220 may be arranged to form a tubular structure having a square or rectangular cross section.

[0062] First top panel 212 comprises a first top end closure panel 222A hinged to a first end along a fold line 225A and a second top end closure panel 222B hinged to a second end, opposing the first end, by a fold line 225B. First side wall panel 214A/214B comprises a first side end closure structure 224A hinged to a first end along fold line 227A, 229A. First side wall panel 214A/214B comprises a second side end closure structure 224B hinged to a first end along fold line 227B, 229B. Second side wall panel 218A/218B comprises a third side end closure structure 228A hinged to a first end along fold line 233A, 235A.

[0063] Second side wall panel 218A/218B comprises a fourth side end closure structure 228B hinged to a first end along fold line 233B, 235B.

[0064] Second top panel 220 comprises a pair of reinforcing panels 234A, 234B; reinforcing panels 234A, 234B are struck in part from, or partially defined within, the second top panel 220 and are struck in part from, or partially defined within, a respective one of the third or fourth top end closure panels 230A, 230B .

[0065] First reinforcing panel 234A is defined in part by a U shaped cut line or weakened line of severance and in part by a fold line 240A. Fold line 240A is spaced part from and parallel to the fold line 237A hinging the third top end closure panel 230A to the second top panel 220. Fold line 240A is disposed within the third top end closure panel 230A.

[0066] Second reinforcing panel 234B is defined in part by a U shaped cut line or weakened line of severance and in part by a fold line 240B. Fold line 240B is spaced part from and parallel to the fold line 237B hinging the third top end closure panel 230B to the second top panel 220. Fold line 240B is disposed within the fourth top end closure panel 230B.

[0067] It can be appreciated that various changes may be made within the scope of the present invention, for example, the size and shape of the panels and apertures may be adjusted to accommodate articles of differing size or shape. In other embodiments of the invention it is envisaged that the carton may comprise only one top panel and that the reinforcing panels may be deployed by a user or retailer at a point of sale. It is also envisaged that the first and second or third and fourth top end closure panels may be omitted so as to provide a two ply handle structure rather than the three ply structure shown in the illustrated embodiments.

[0068] It will be recognised that as used herein, directional references such as "top", "bottom", "front", "back", "end", "side", "inner", "outer", "upper" and "lower" do not limit the respective panels to such orientation, but merely serve to distinguish these panels from one another.

[0069] As used herein, the terms "hinged connection" and "fold line" refers to all manner of lines that define hinge features of the blank, facilitate folding portions of the blank with respect to one another, or otherwise indicate optimal panel folding locations for the blank. A fold

line is typically a scored line, an embossed line, or a debossed line. Any reference to hinged connection or fold line should not be construed as necessarily referring to a single fold line only; indeed it is envisaged that hinged connection can be formed from any one or more of the following, a short slit, a frangible line or a fold line without departing from the scope of the invention.

[0070] As used herein, the term "severance line" refers to all manner of lines that facilitate separating portions of the substrate from one another or that indicate optimal separation locations. Severance lines may be frangible or otherwise weakened lines, tear lines, cut lines, or slits.

[0071] It should be understood that hinged connection, severance lines and fold lines can each include elements that are formed in the substrate of the blank including 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. The 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.

Claims

1. A carton for packaging one or more articles comprising a base panel (16; 116; 216), first side panel (14A/14B; 114A/114B; 214A/214B), second side panel (18A/18B; 118A/118B; 218A/218B), first top panel (12; 112; 212) and second top panel (20; 120; 220), forming a tubular structure, the first and second top panels being disposed in face contacting relationship with each other, the carton comprising a first set of end closure panels for at least partially closing a first end of the tubular structure, the first set of end closure panels including a first top end closure panel (22A, 30A; 122A, 130A; 222A, 230A) hinged to one of the first and second top panels (12; 112; 212, 20; 120; 220), and wherein a first reinforcing panel (34A; 134A; 234A) is struck at least in part from the one of the first and second top panels, the first reinforcing panel being folded about a first hinged connection (40A; 140A; 240A so as to be in face contacting relationship with the first top end closure panel, and the first top end closure panel comprises a first handle structure (32; 132; 232) including a first aperture, and wherein the first reinforcing panel comprises a second handle structure (36; 136; 236) including a second aperture, the first and second apertures being in registry with one another such that the first and second apertures together provide a first single handle opening.

2. A carton according to claim 1 wherein the first set of end closure panels further includes a second top end closure panel (22A, 30A; 122A, 130A; 222A, 230A) hinged to the other of the first and second top panels (12; 112; 212, 20; 120; 220) the second top end closure panel is disposed in face contacting relationship with one of the first top end closure panel and the first reinforcing panel.

3. A carton according to claim 2 wherein the second top end closure panel comprises a third handle structure (32) including a third aperture disposed in registry with the first and second apertures such that the first, second and third apertures together provide the single handle opening.

4. A carton according to claim 2 wherein the first top end closure panel is hinged to one of opposed end edges of the one of the first and second top panels, the second top end closure panel is hinged to one of opposed end edges of the other of the first and second top panels, and wherein the carton further comprises a second set of end closure panels for at least partially closing a second end of the tubular structure opposing the first end, the second set of end closure panels including a third top end closure panel (22B, 30B; 122B, 130B; 222B, 230B) hinged to the other end edge of the one of the first and second top panels and a fourth top end closure panel (22B, 30B; 122B, 130B; 222B, 230B) hinged to the other end edge of the other of the first and second top panels.

5. A carton according to claim 4 wherein a second reinforcing panel (34B; 134B; 234B) is struck at least in part from the one of the first and second top panels and folded about a second hinged connection (40B; 140B; 240B) to be in face contacting relationship with one of the third and fourth top end closure panels (22B, 30B; 122B, 130B; 222B, 230B).

6. A carton according to claim 1 wherein the first reinforcing panel is defined at least in part by an elongate aperture (38A; 138A) struck from the one of the first and second top panels.

7. A carton according to claim 6 wherein the elongate aperture defines an edge of the first reinforcing panel opposing the first hinged connection.

8. A carton according to claim 1 wherein the first reinforcing panel is struck entirely from the one of the first and second top panels.

9. A carton according to claim 8 wherein the first hinged connection comprises a first fold line (40A) coincident with a second fold line (37A) connecting between the first top end closure panel and the one of

the first and second top panels.

10. A carton according to claim 8 wherein the first hinged connection comprises a first fold line (140A; 240A) spaced apart from and parallel to a second fold line (137A; 237A) connecting between the first top end closure panel and the one of the first and second top panels.

11. A carton according to claim 10 wherein the first reinforcing panel comprises a further fold line (145A) which is arranged to be in registry with the second fold line.

12. A carton according to claim 1 wherein the first reinforcing panel (234A) is struck in part from the one of the first and second top panels (212, 230) and in part from the first top end closure panel (230A).

13. A carton according to claim 12 wherein the first reinforcing panel (234A) is hinged to the first top end closure panel (230A).

14. A blank (10; 110; 210) for forming a carton, the blank comprising a base panel (16; 116; 216), a first side panel (14A/14B; 114A/114B; 214A/214B) a second side panel (18A/18B; 118A/118B; 218A/218B) and a first top panel (12, 20; 112, 120; 212, 220) for forming a tubular structure, the blank further comprising a first set of end closure panels for at least partially closing one of opposed ends of the tubular structure, the first set of end closure panels including a first top end closure panel (22A, 30A; 122A, 130A; 222A, 230A) hinged to the first top panel, the first top end closure panel comprising a first handle structure (32; 132; 232) including a first aperture, and wherein a first reinforcing panel (34A; 134A; 234A) is struck at least in part from the first top panel, the first reinforcing panel comprising a second handle structure (36; 136; 236) including a second aperture, the first reinforcing panel being foldable about a first hinged connection (40A; 140A; 240A) so as to be in face contacting relationship with the first top end closure panel such that the first and second apertures are in registry with one another.

15. A blank according to claim 14 wherein the first reinforcing panel is struck entirely from the first top panel.

16. A blank according to claim 15 wherein the first hinged connection comprises a first fold line (40A) which is coincident with a second fold line (37A) connecting between the first top end closure panel and the first top panel.

17. A blank according to claim 15 wherein the first hinged connection comprises a first fold line (140A; 240A) spaced apart from and parallel to a second fold line (137A; 237A) connecting between the first top end closure panel and the first top panel.

18. A blank according to claim 17 wherein the first reinforcing panel (234) is struck in part from the first top panel (212, 220) and in part from the first top end closure panel (230A).

Patentansprüche

1. Schachtel zum Verpacken eines oder mehrerer Artikel, umfassend eine Bodenwandfläche (16; 116; 216), eine erste Seitenwandfläche (14A/14B; 114A/114B; 214A/214B), eine zweite Seitenwandfläche (18A/18B; 118A/118B; 218A/218B), eine erste Deckenwandfläche (12; 112; 212) und eine zweite Deckenwandfläche (20; 120; 220), die eine röhrenförmige Struktur ausbilden, wobei die ersten und zweiten Deckenwandflächen in flächenberührender Beziehung zueinander angeordnet sind, wobei die Schachtel einen ersten Satz von Endverschlusswandflächen umfasst, um wenigstens teilweise ein erstes Ende der röhrenförmigen Struktur zu schließen, wobei der erste Satz von Endverschlusswandflächen eine erste obere Endverschlusswandfläche (22A, 30A; 122A, 130A; 222A, 230A) aufweist, die an eine der ersten und zweiten Deckenwandflächen (12; 112; 212, 20; 120; 220) angelenkt ist, wobei eine erste Verstärkungswandfläche (34A; 134A; 234A) wenigstens teilweise aus der einen der ersten und zweiten Deckenwandflächen ausgestanzt ist und die erste Verstärkungswandfläche um eine erste Gelenkverbindung (40A; 140A; 240A) gefaltet ist, so dass sie in einer flächenberührenden Beziehung mit der ersten oberen Endverschlusswandfläche steht, wobei die erste obere Endverschlusswandfläche eine erste Griffstruktur (32; 132; 232) mit einer ersten Öffnung umfasst, und wobei die erste Verstärkungswandfläche eine zweite Griffstruktur (36; 136; 236) mit einer zweiten Öffnung umfasst, wobei die erste und zweite Öffnung miteinander fluchten, so dass die ersten und zweiten Öffnung zusammen eine erste Einhandgrifföffnung bereitstellen.

2. Schachtel nach Anspruch 1, wobei der erste Satz von Endverschlusswandflächen ferner eine zweite obere Endverschlusswandfläche (22A, 30A; 122A, 130A; 222A, 230A) umfasst, die an die anderen der ersten und zweiten Deckenwandflächen (12; 112; 212, 20; 120; 220) angelenkt ist, wobei die zweite obere Endverschlusswandfläche in flächenberührender Beziehung mit entweder der ersten oberen Endverschlusswandfläche oder der ersten Verstärkungswandfläche angeordnet ist.

3. Schachtel nach Anspruch 2, wobei die zweite obere Endverschlusswandfläche eine dritte Griffstruktur

(32) umfasst, die eine dritte Öffnung aufweist, die fluchtend mit der ersten und zweiten Öffnung angeordnet ist, so dass die erste, zweite und dritte Öffnung zusammen die Einhandgrifföffnung bereitstellen.

4. Schachtel nach Anspruch 2, wobei die erste obere Endverschlusswandfläche an eine der gegenüberliegenden Endkanten der ersten und der zweiten Deckenwandflächen angelenkt ist, die zweite obere Endverschlusswandfläche an die andere der gegenüberliegenden Endkanten der ersten und zweiten Deckenwandflächen angelenkt ist, und wobei die Schachtel ferner einen zweiten Satz von Endverschlusswandflächen umfasst, und zwar um wenigstens ein gegenüber dem ersten Ende der röhrenförmigen Struktur liegendes zweites Ende wenigstens teilweise zu verschließen, wobei der zweite Satz von Endverschlusswandflächen eine dritte obere Endverschlusswandfläche (22B, 30B; 122B, 130B; 222B, 230B) aufweist, die an einer Endkante der ersten oder zweiten Deckenwandfäche angelenkt ist und eine vierte obere Endverschlusswandfläche (22B, 30B; 122B, 130B; 222B, 230B), die an die andere Endkante der ersten oder zweiten Deckenwandfläche angelenkt ist.

5. Schachtel nach Anspruch 4, wobei eine zweite Verstärkungswandfläche (34B; 134B; 234B) wenigstens teilweise aus entweder der ersten oder der zweiten Deckenwandfläche ausgestanzt ist und über eine zweite Gelenkverbindung (40B; 140B; 240B) in eine flächenberührende Beziehung mit einer der dritten und vierten oberen Endverschlusswandflächen (22B, 30B; 122B, 130B; 222B, 230B) gefaltet ist.

6. Schachtel nach Anspruch 1, wobei die erste Verstärkungswandfläche wenigstens teilweise durch eine längliche Öffnung (38A; 138A) definiert ist, die entweder aus der ersten oder der zweiten Deckenwandfläche ausgestanzt ist.

7. Schachtel nach Anspruch 6, wobei die längliche Öffnung eine Kante der ersten Verstärkungswandfläche definiert, die gegenüber der ersten Gelenkverbindung angeordnet ist.

8. Schachtel nach Anspruch 1, wobei die erste Verstärkungswandfläche vollständig aus entweder der ersten oder der zweiten Deckenwandfläche ausgestanzt ist.

9. Schachtel nach Anspruch 8, wobei die erste Gelenkverbindung eine erste Faltlinie (40A) umfasst, die mit einer zweiten Faltlinie (37A) zusammenfällt, die eine Verbindung zwischen der ersten oberen Endverschlusswandfläche und der entsprechenden Wandfläche der ersten und zweiten Deckenwandflächen schafft.

10. Schachtel nach Anspruch 8, wobei die erste Gelenkverbindung eine erste Faltlinie (140A; 240A) umfasst, die von einer zweiten Faltlinie (137A; 237A), die eine Verbindung zwischen der ersten oberen Endverschlusswandfläche und der entsprechenden Wandfläche der ersten und zweiten Deckenwandflächen schafft, beabstandet und parallel zu dieser angeordnet ist.

11. Schachtel nach Anspruch 10, wobei die erste Verstärkungswandfläche eine weitere Faltlinie (145A) umfasst, die so angeordnet ist, dass sie mit der zweiten Faltlinie fluchtet.

12. Schachtel nach Anspruch 1, wobei die erste Verstärkungswandfläche (234A) teilweise aus den ersten und zweiten Deckenwandflächen (212, 230) und teilweise aus der ersten oberen Endverschlusswandfläche (230A) ausgestanzt ist.

13. Schachtel nach Anspruch 12, wobei die erste Verstärkungswandfläche (234A) an die erste obere Endverschlusswandfläche (230A) angelenkt ist.

14. Zuschnitt (10; 110; 210) zum Ausbilden einer Schachtel, wobei der Zuschnitt eine Bodenwandfläche (16; 116; 216), eine erste Seitenwandfläche (14A/14B; 114A/114B; 214A/214B), eine zweite Seitenwandfläche (18A/18B; 118A/118B; 218A/218B) und eine erste Deckenwandfläche (12, 20; 112, 120; 212, 220) zum Ausbilden einer röhrenförmigen Struktur umfasst, wobei der Zuschnitt ferner einen ersten Satz von Endverschlusswandflächen zum wenigstens teilweisen Schließen eines der gegenüberliegenden Enden der röhrenförmigen Struktur umfasst, wobei der erste Satz von Endverschlusswandflächen eine erste obere Endverschlusswandfläche (22A, 30A; 122A, 130A; 222A, 230A) aufweist, die an die erste Deckenwandfläche angelenkt ist, und die erste obere Endverschlusswandfläche eine erste Griffstruktur (32; 132; 232) mit einer ersten Öffnung umfasst, und wobei eine erste Verstärkungswandfläche (34A; 134A; 234A) wenigstens teilweise aus der ersten Deckenwandfläche ausgestanzt ist, und die erste Verstärkungswandfläche eine zweite Griffstruktur (36; 136; 236) mit einer zweiten Öffnung umfasst, wobei die erste Verstärkungswandfläche um eine erste Gelenkverbindung (40A; 140A; 240A) faltbar ist, so dass sie in einer flächenberührenden Beziehung mit der ersten oberen Endverschlusswandfläche steht, derart, dass die erste und zweite Öffnung miteinander fluchten.

15. Zuschnitt nach Anspruch 14, wobei die erste Verstärkungswandfläche vollständig aus der ersten De-

ckenwandfläche ausgestanzt ist.

16. Zuschnitt nach Anspruch 15, wobei die erste Gelenkverbindung eine erste Faltlinie (40A) umfasst, die mit einer zweiten Faltlinie (37A), die eine Verbindung zwischen der ersten oberen Endverschlusswandfläche und der ersten Deckenwandfläche schafft, zusammenfällt.

17. Zuschnitt nach Anspruch 15, wobei die erste Gelenkverbindung eine erste Faltlinie (140A; 240A) umfasst, die von einer zweiten Faltlinie (137A; 237A), die eine Verbindung zwischen der ersten oberen Endverschlusswandfläche und der ersten Deckenwandfläche schafft, beabstandet und parallel zu dieser angeordnet ist.

18. Zuschnitt nach Anspruch 17, wobei die erste Verstärkungswandfläche (234) teilweise aus der ersten Deckenwandfläche (212, 220) und teilweise aus der ersten oberen Endverschlusswandfläche (230A) ausgestanzt ist.

Revendications

1. Carton pour emballer un ou plusieurs articles comprenant un panneau de base (16; 116; 216), un premier panneau latéral (14A/14B; 114A/114B; 214A/214B), un second panneau latéral (18A/18B; 118A/118B; 218A/218B), un premier panneau supérieur (12; 112; 212) et un second panneau supérieur (20; 120; 220), formant une structure tubulaire, les premier et second panneaux supérieurs étant disposés en relation de contact facial, le carton comprenant une première série de panneaux de fermeture d'extrémité pour fermer au moins en partie une première extrémité de la structure tubulaire, la première série de panneaux de fermeture d'extrémité incluant un premier panneau de fermeture d'extrémité supérieur (22A, 30A; 122A, 130A; 222A, 230A) articulé sur l'un des premier et second panneaux supérieurs (12; 112; 212, 20; 120; 220), et dans lequel un premier panneau de renforcement (34A; 134A; 234A) est formé au moins en partie de l'un des premier et second panneaux supérieurs, le premier panneau de renforcement étant plié autour d'une première liaison articulée (40A; 140A; 240A) de façon à être en relation de contact facial avec le premier panneau de fermeture d'extrémité supérieur, et le premier panneau de fermeture d'extrémité supérieur comprend une première structure de poignée (32; 132; 232) incluant une première ouverture, et dans lequel le premier panneau de renforcement comprend une seconde structure de poignée (36; 136; 236) incluant une seconde ouverture, les première et seconde ouvertures étant en correspondance l'une avec l'autre de telle manière que les première et seconde ouverture forment ensemble une unique première ouverture de poignée.

2. Carton selon la revendication 1 dans lequel la première série de panneaux de fermeture d'extrémité inclut en outre un second panneau de fermeture d'extrémité supérieur (22A, 30A; 122A, 130A; 222A, 230A) articulé sur l'autre des premier et second panneaux supérieurs (12; 112; 212, 20; 120; 220) le second panneau de fermeture d'extrémité supérieur est disposé en relation de contact facial avec un du premier panneau de fermeture d'extrémité supérieur et du premier panneau de renforcement.

3. Carton selon la revendication 2 dans lequel le second panneau de fermeture d'extrémité supérieur comprend une troisième structure de poignée (32) incluant une troisième ouverture disposée en correspondance avec les première et seconde ouvertures de telle manière que les première, seconde et troisième ouvertures forment ensemble l'unique ouverture de poignée.

4. Carton selon la revendication 2 dans lequel le premier panneau de fermeture d'extrémité supérieur est articulé sur l'un des bords d'extrémité opposés de l'un des premier et second panneaux supérieurs, le second panneau de fermeture d'extrémité supérieur est articulé sur un des bords d'extrémité opposés de l'autre des premier et second panneaux supérieurs, et dans lequel le carton comprend en outre une seconde série de panneaux de fermeture d'extrémité pour fermer au moins en partie une seconde extrémité de la structure tubulaire opposée à la première extrémité, la seconde série de panneaux de fermeture d'extrémité incluant un troisième panneau de fermeture d'extrémité supérieur (22B, 30B; 122B, 130B; 222B, 230B) articulé sur l'autre bord d'extrémité de l'un des premier et second panneaux supérieurs et un quatrième panneau de fermeture d'extrémité supérieur (22B, 30B; 122B, 130B; 222B, 230B) articulé sur l'autre bord d'extrémité de l'autre des premier et second panneaux supérieurs.

5. Carton selon la revendication 4 dans lequel un second panneau de renforcement (34B; 134B; 234B) est formé au moins en partie à partir de l'un des premier et second panneaux supérieurs et plié autour d'une seconde liaison articulée (40B; 140B; 240B) pour être en relation de contact facial avec l'un des troisième et quatrième panneaux de fermeture d'extrémité supérieurs (22B, 30B; 122B, 130B; 222B, 230B).

6. Carton selon la revendication 1 dans lequel le premier panneau de renforcement est défini au moins en partie par une ouverture allongée (38A; 138A) formée depuis l'un des premier et second panneaux

supérieurs.

7. Carton selon la revendication 6 dans lequel l'ouverture allongée définit un bord du premier panneau de renforcement opposé à la première liaison articulée.

8. Carton selon la revendication 1 dans lequel le premier panneau de renforcement est formé entièrement à partir de l'un des premier et second panneaux supérieurs.

9. Carton selon la revendication 8 dans lequel la première liaison articulée comprend une première ligne de pliage (40A) coïncidant avec une seconde ligne de pliage (37A) reliant le premier panneau de fermeture d'extrémité supérieur et l'un des premier et second panneaux supérieurs.

10. Carton selon la revendication 8 dans lequel la première liaison articulée comprend une première ligne de pliage (140A; 240A) espacée de et parallèle à une seconde ligne de pliage (137A; 237A) reliant le premier panneau de fermeture d'extrémité supérieur et l'un des premier et second panneaux supérieurs.

11. Carton selon la revendication 10 dans lequel le premier panneau de renforcement comprend une autre ligne de pliage (145A) qui est agencée pour être en correspondance avec la seconde ligne de pliage.

12. Carton selon la revendication 1 dans lequel le premier panneau de renforcement (234A) est formé en partie à partir de l'un des premier et second panneaux supérieurs (212, 230) et en partie à partir du premier panneau de fermeture d'extrémité supérieur (230A).

13. Carton selon la revendication 12 dans lequel le panneau de renforcement (234A) est articulé sur le premier panneau de fermeture d'extrémité supérieur (230A).

14. Découpe (110; 110; 210) pour former un carton, la découpe comprenant un panneau de base (16; 116; 216), un premier panneau latéral (14A/14B; 114A/114B; 214A/214B) un second panneau latéral (18A/18B; 118A/118B; 218A/218B) et un premier panneau supérieur (12, 20; 112, 120; 212, 220), pour former une structure tubulaire, la découpe comprenant en outre une première série de panneaux de fermeture d'extrémité pour fermer au moins en partie une des extrémités opposées de la structure tubulaire, la première série de panneaux de fermeture d'extrémité incluant un premier panneau de fermeture d'extrémité supérieur (22A, 30A; 122A, 130A; 222A, 230A) articulé sur le premier panneau supérieur, le premier panneau de fermeture d'extrémité supérieur comprenant une première structure de poignée (32; 132; 232) incluant une première ouverture, et dans lequel un premier panneau de renforcement (34A; 134A; 234A) est formé au moins en partie à partir du premier panneau supérieur, le premier panneau de renforcement comprenant une seconde structure de poignée (36; 136; 236) incluant une seconde ouverture, le premier panneau de renforcement pouvant être plié autour d'une première liaison articulée (40A; 140A; 240A) de façon à être en relation de contact facial avec le premier panneau de fermeture d'extrémité supérieur de telle manière que les première et seconde ouvertures sont en correspondance l'une avec l'autre.

15. Découpe selon la revendication 14 dans laquelle le premier panneau de renforcement est formé entièrement à partir du premier panneau supérieur.

16. Découpe selon la revendication 15 dans laquelle la première liaison articulée comprend une première ligne de pliage (40A) coïncidant avec une seconde ligne de pliage (37A) reliant le premier panneau de fermeture d'extrémité supérieur et le premier panneau supérieur.

17. Découpe selon la revendication 15 dans laquelle la première liaison articulée comprend une première ligne de pliage (140A; 240A) espacée de et parallèle à une seconde ligne de pliage (137A; 237A) reliant le premier panneau de fermeture d'extrémité supérieur et le premier panneau supérieur.

18. Découpe selon la revendication 17 dans laquelle le premier panneau de renforcement (234) est formé en partie à partir du premier panneau supérieur (212, 220) et en partie à partir du premier panneau de fermeture d'extrémité supérieur (230A).

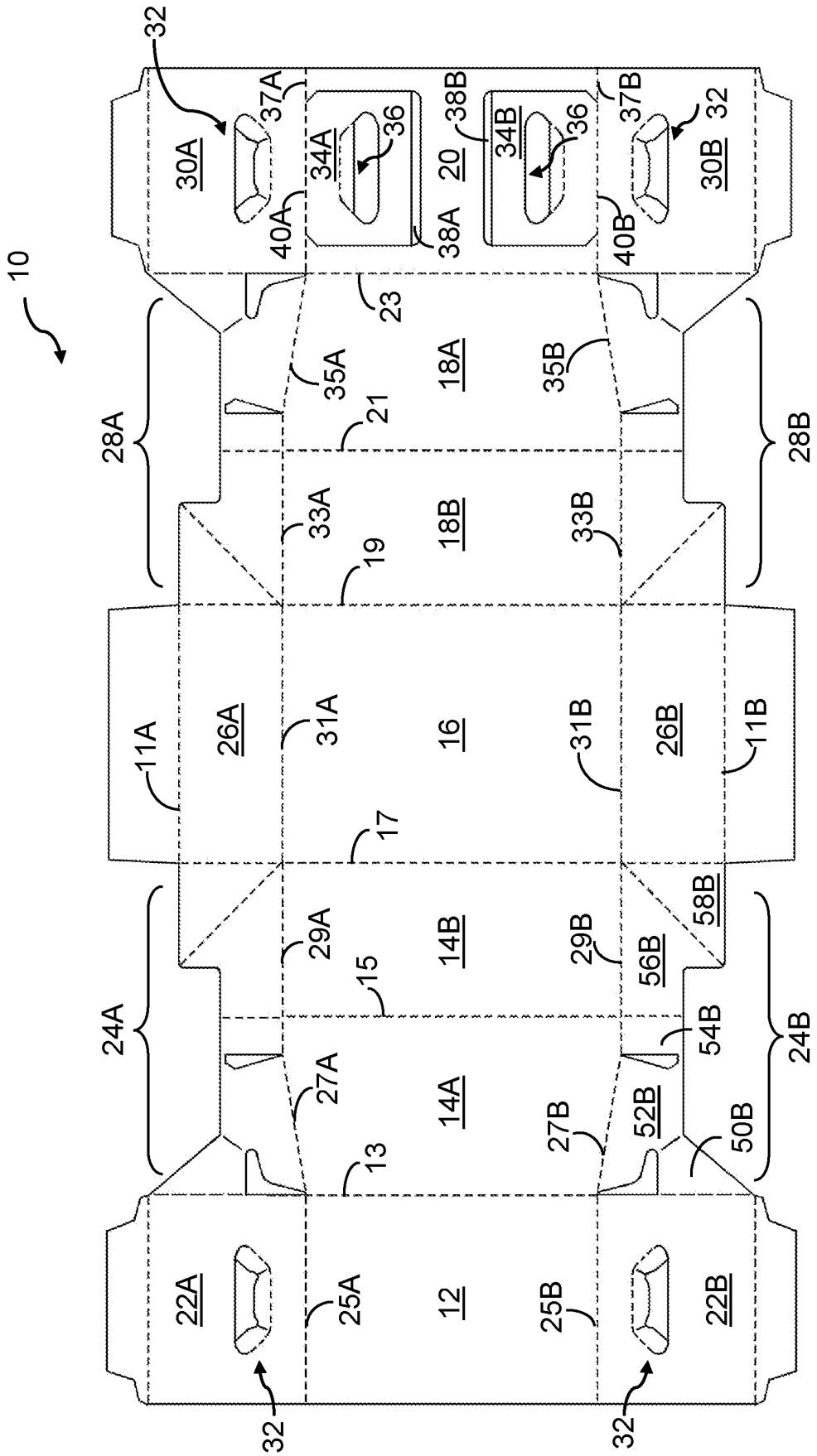

10
32
30A
37A
34A
36
38B
20
34B
36
37B
32
30B
40A
38A
40B
23
35A
18A
35B
21
28A
28B
33A
18B
33B
19
11A
26A
31A
16
31B
26B
11B
17
58B
29A
14B
29B
56B
15
24A
24B
54B
27A
14A
27B
52B
50B
13
22A
25A
12
25B
22B
32
32

FIGURE 1

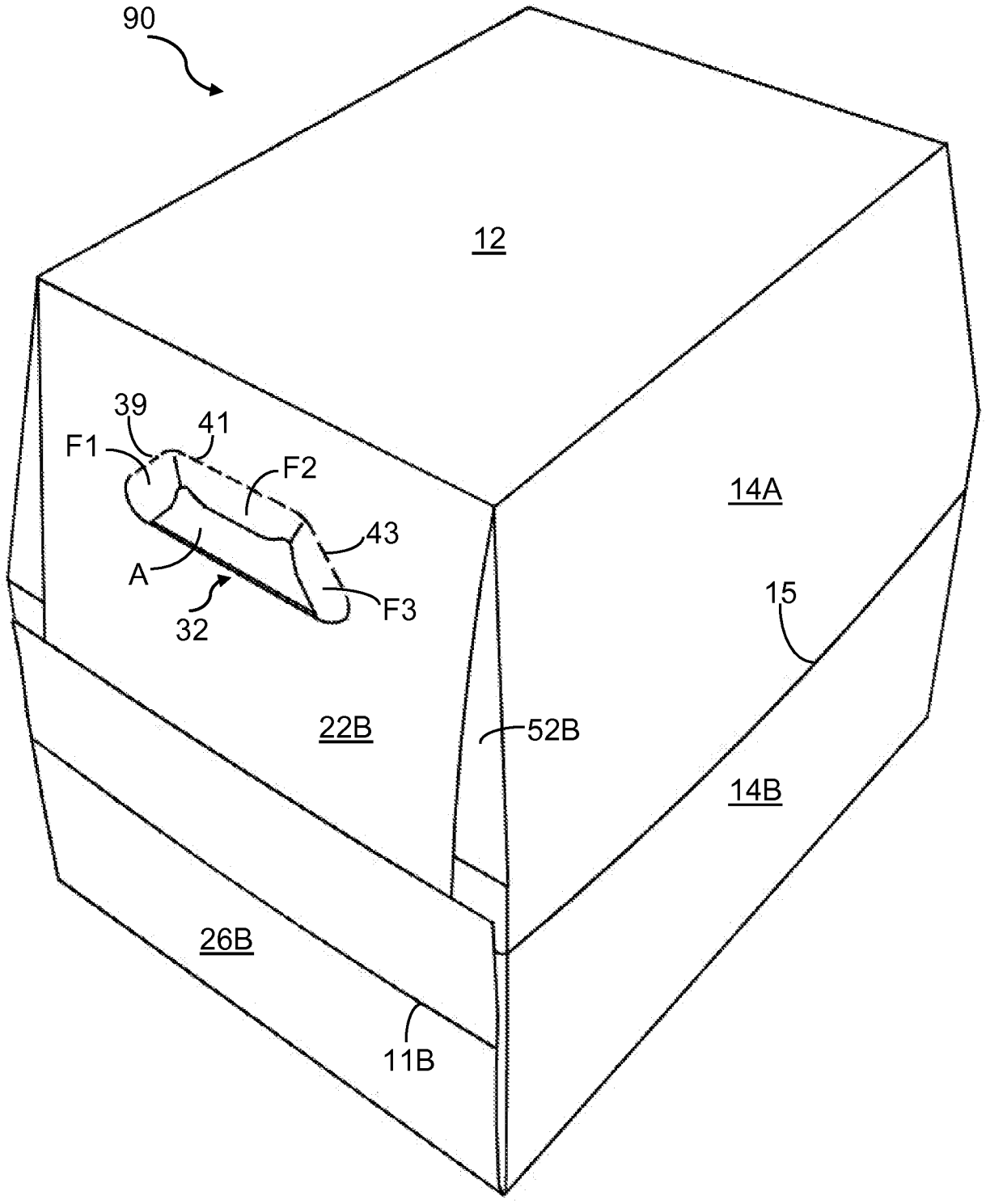


FIGURE 2

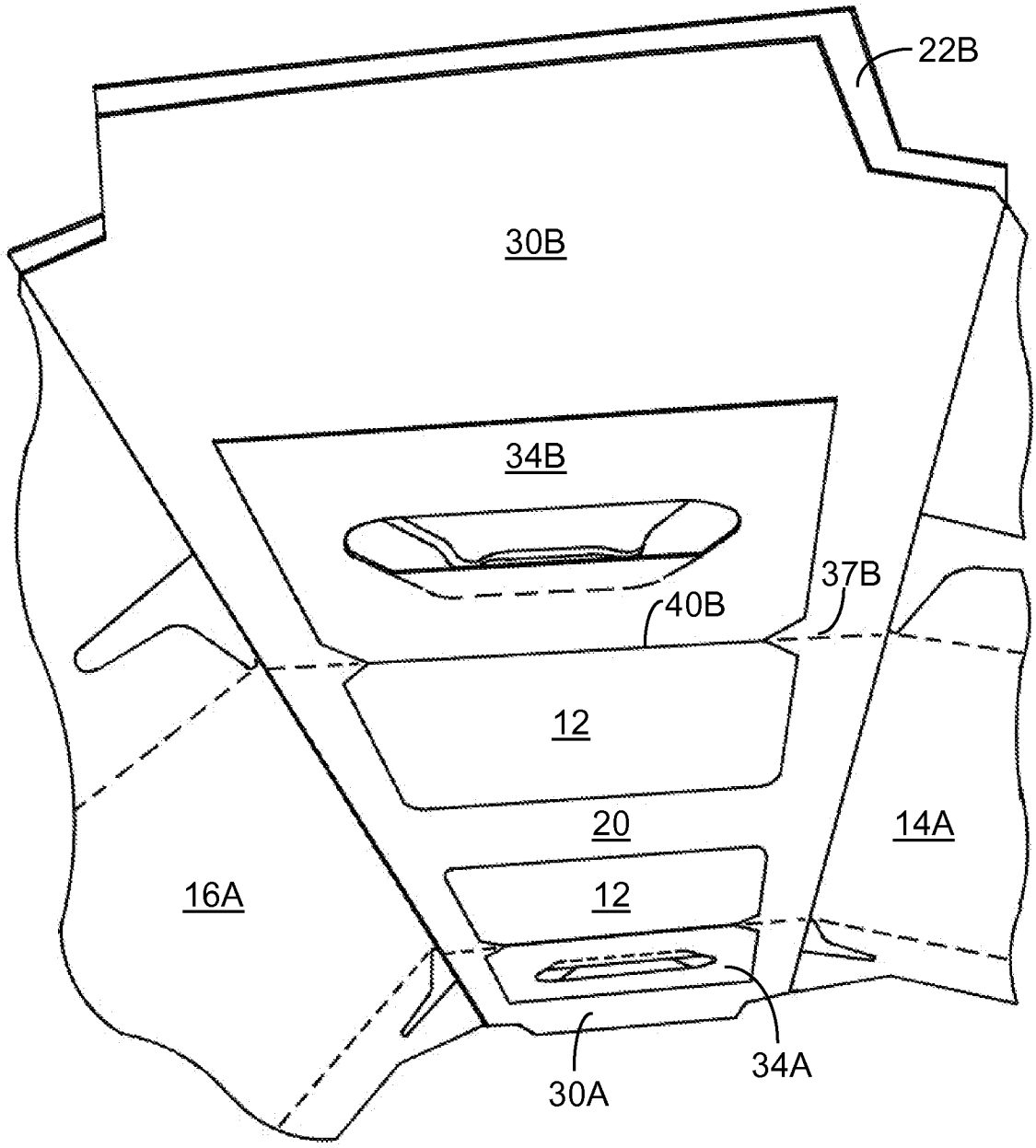


FIGURE 3

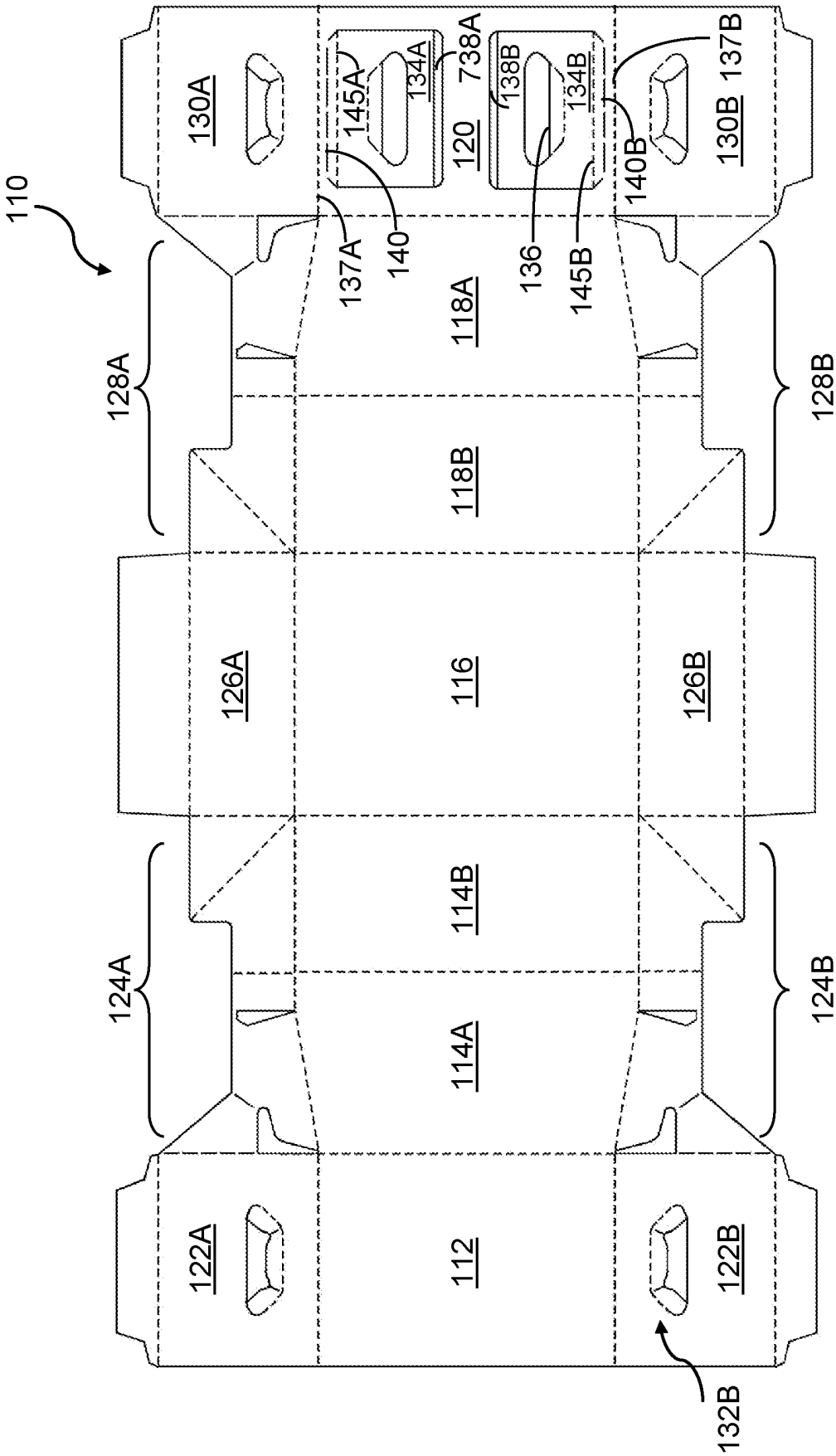

110
130A
145A
134A
738A
120
138B
134B
137B
130B
140B
137A
140
136
145B
118A
128A
128B
118B
126A
116
126B
114B
124A
124B
114A
122A
112
122B
132B

FIGURE 4

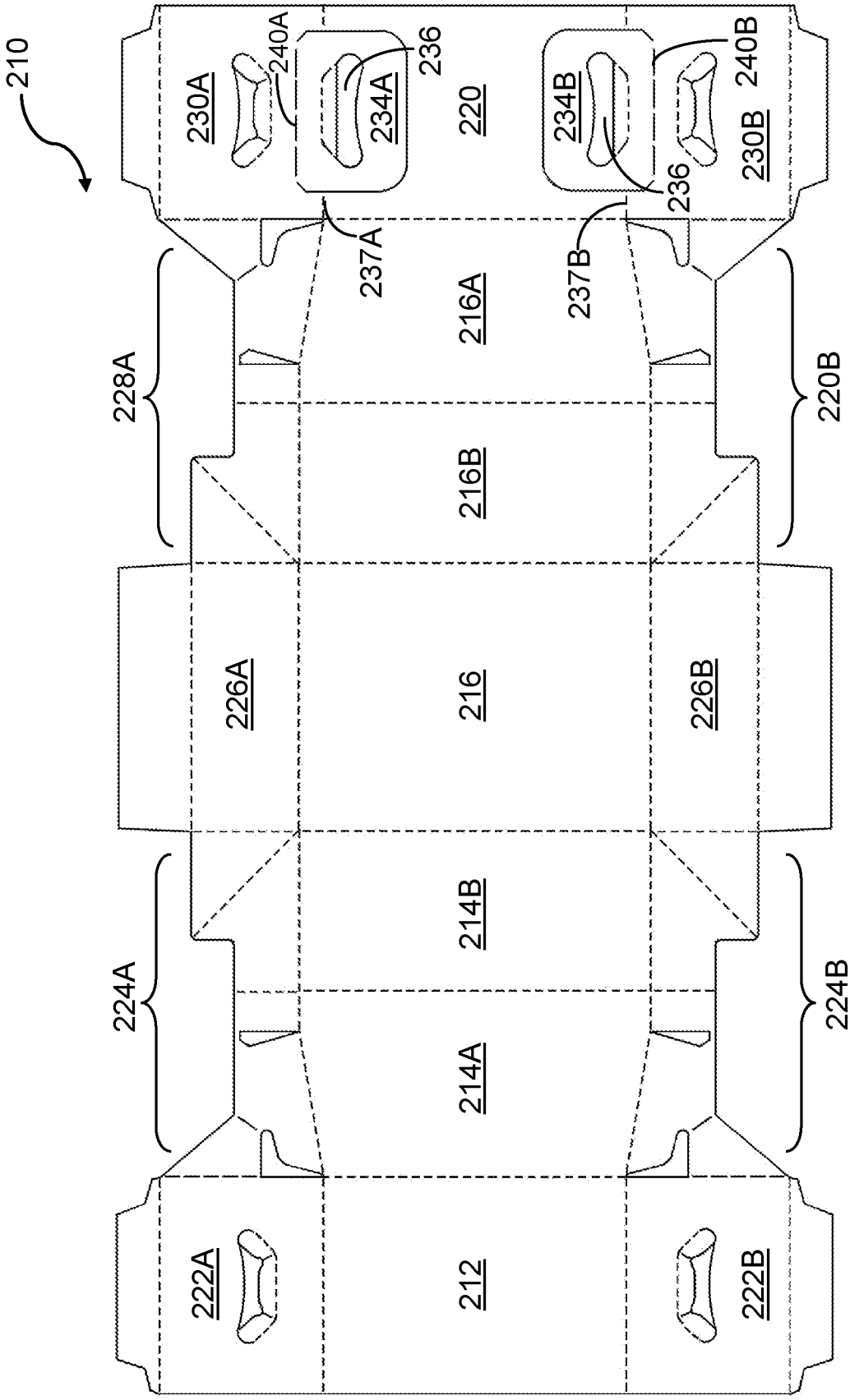

210
230A
240A
234A
236
220
234B
240B
230B
236
237A
237B
216A
228A
220B
216B
226A
216
226B
214B
224A
224B
214A
222A
212
222B

FIGURE 5

REFERENCES CITED IN THE DESCRIPTION

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- WO 2010014862 A **[0005]**