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(54) **CARTON, CARTON BLANK AND METHOD OF FORMING A LOADED CARTON**

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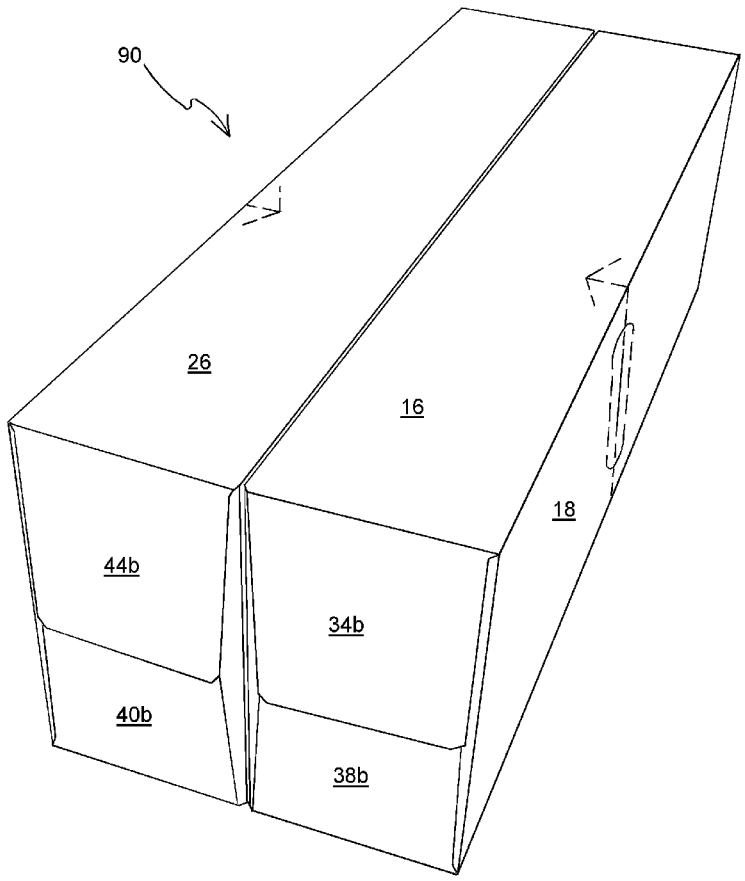
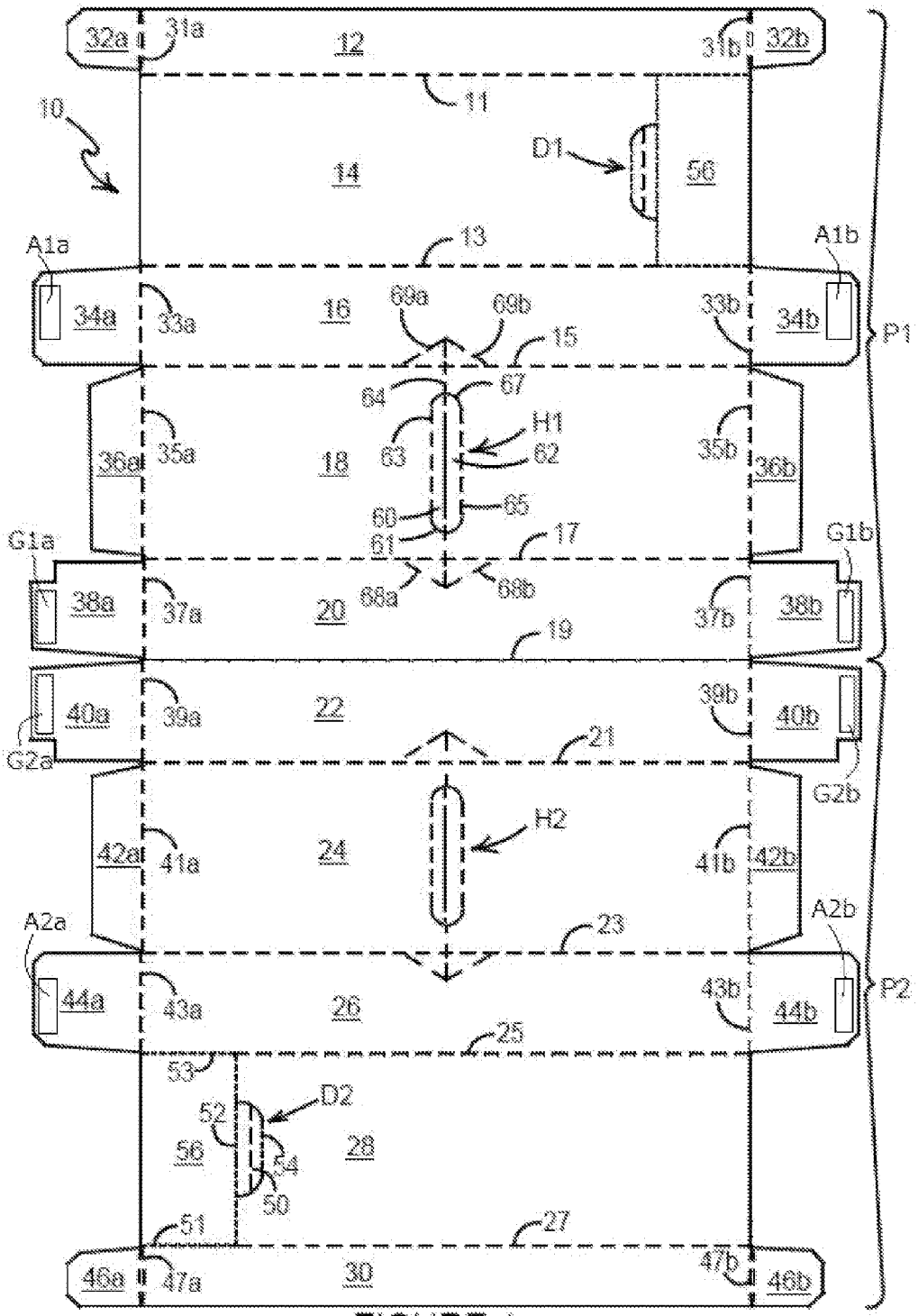
(57) **ABSTRACT**

A carton for packaging articles comprising a first plurality of walls including a top wall, base wall, first side wall and second side wall forming a first tubular structure, each end of the first tubular structure being at least partially closed by one or more end closure panels, wherein the carton comprises an end pull device for withdrawing the carton from a display apparatus wherein the end pull device comprises a first recess struck from an end of the first side wall panel whereby facilitating access to an edge of a first end closure panel.

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31b
32b
11
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D1
14
56
A1a
13
A1b
34a
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69b
33b
34b
P1
15
64
67
H1
36a
35a
18
63
62
35b
36b
60
65
61
17
G1a
G1b
38a
37a
20
68a
68b
37b
38b
19
40a
39a
22
39b
40b
21
G2a
G2b
H2
42a
41a
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41b
42b
A2a
23
A2b
44a
43a
26
43b
44b
P2
25
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D2
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56
28
54
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51
27
46a
47a
30
47b
46b

FIGURE 1

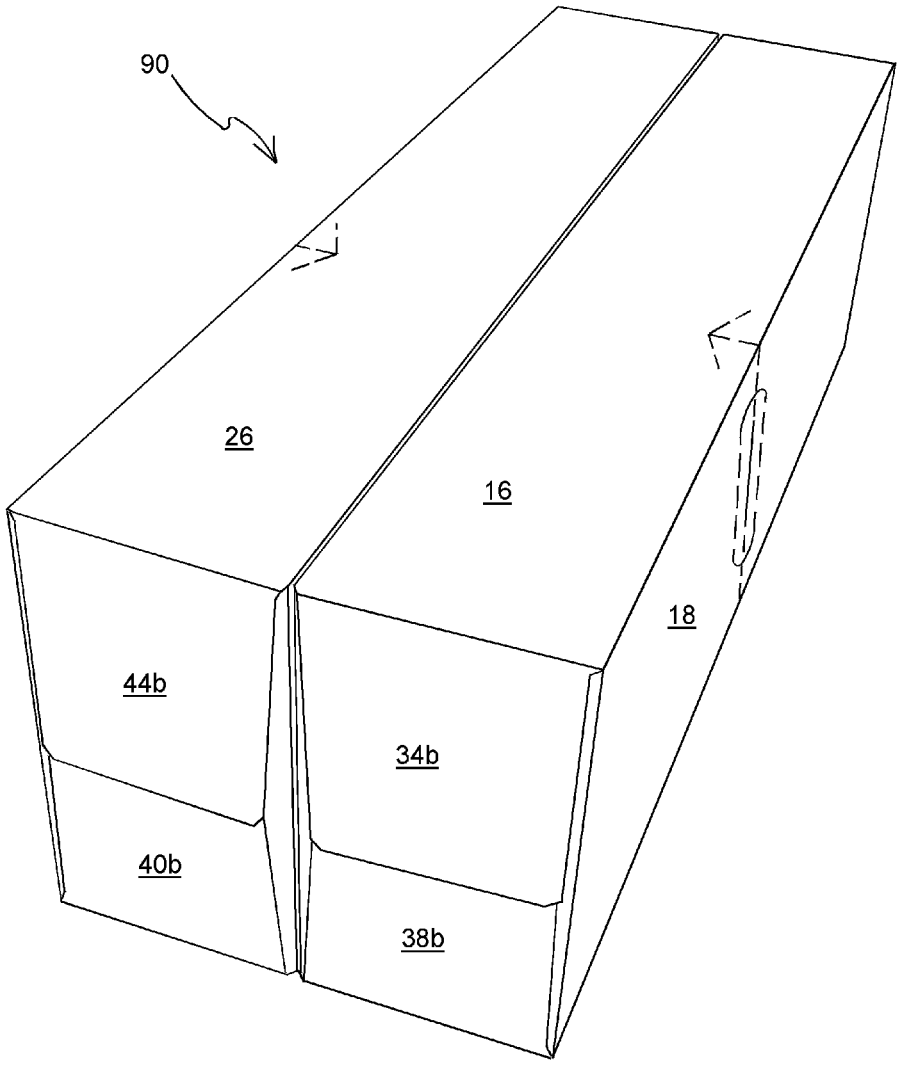


FIGURE 2

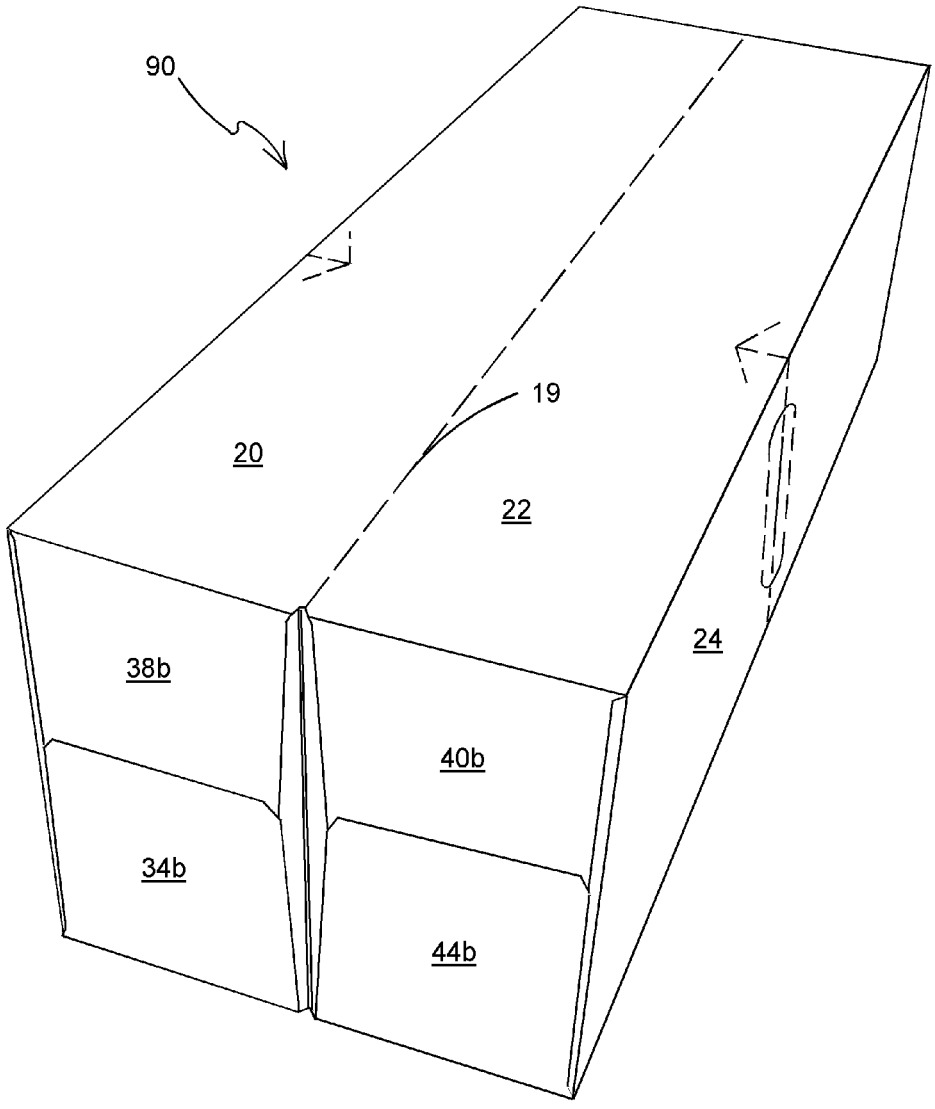


FIGURE 3

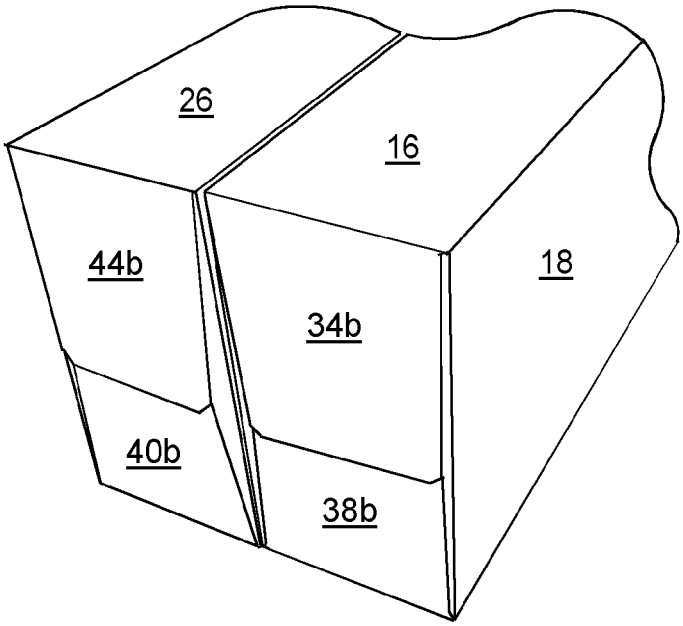


FIGURE 4

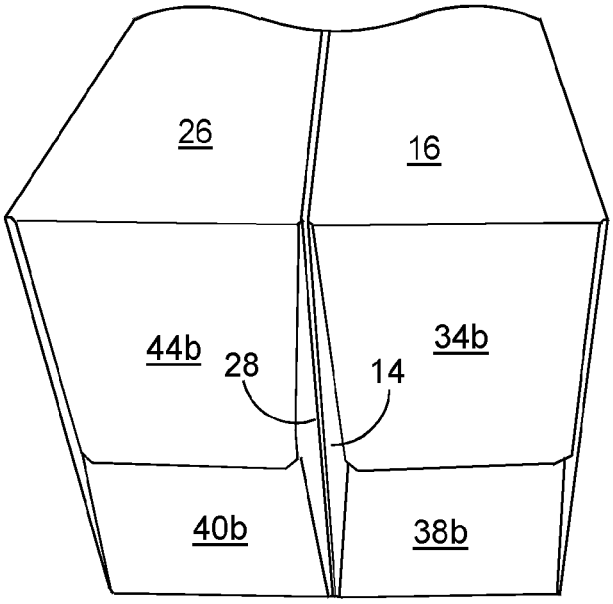


FIGURE 5

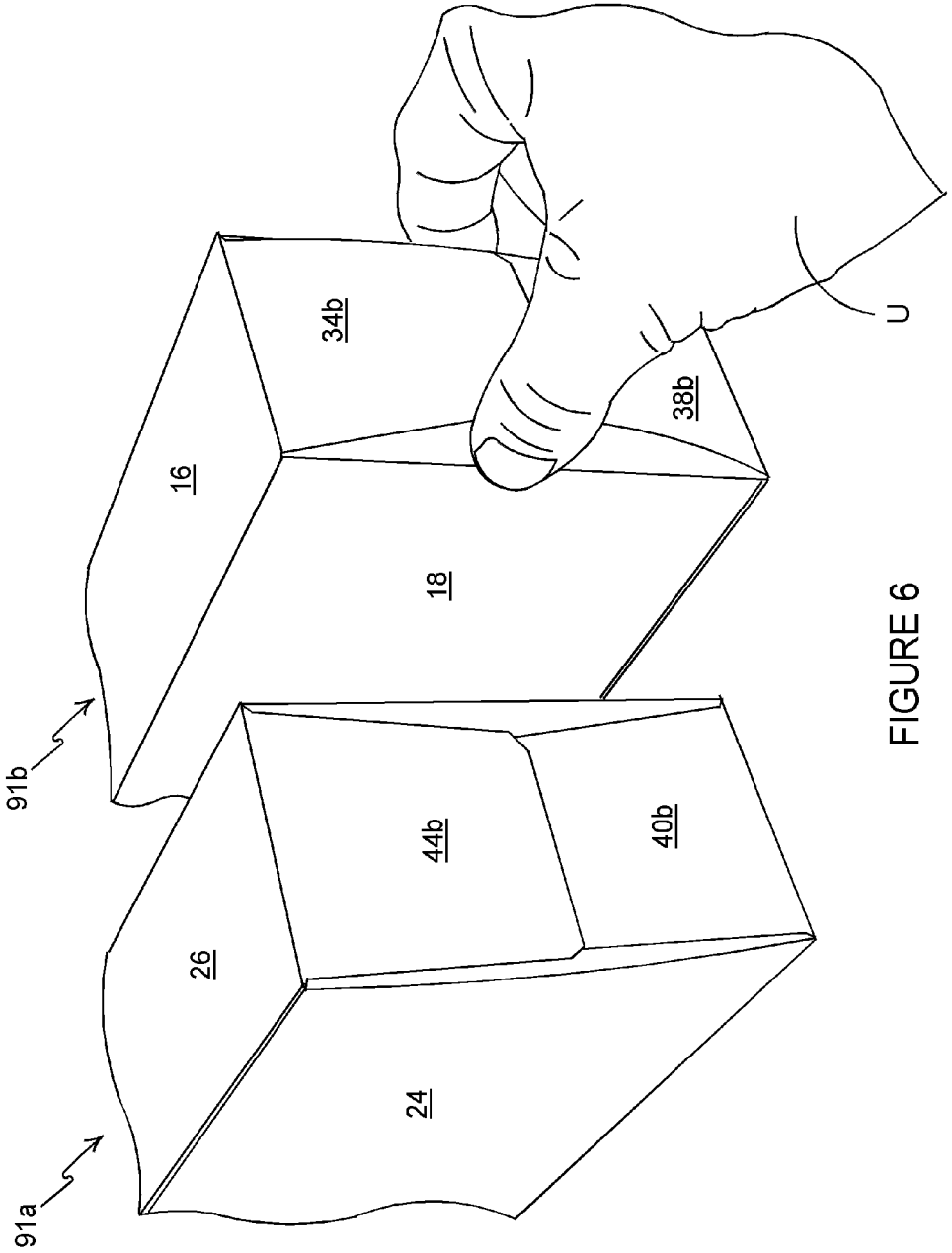
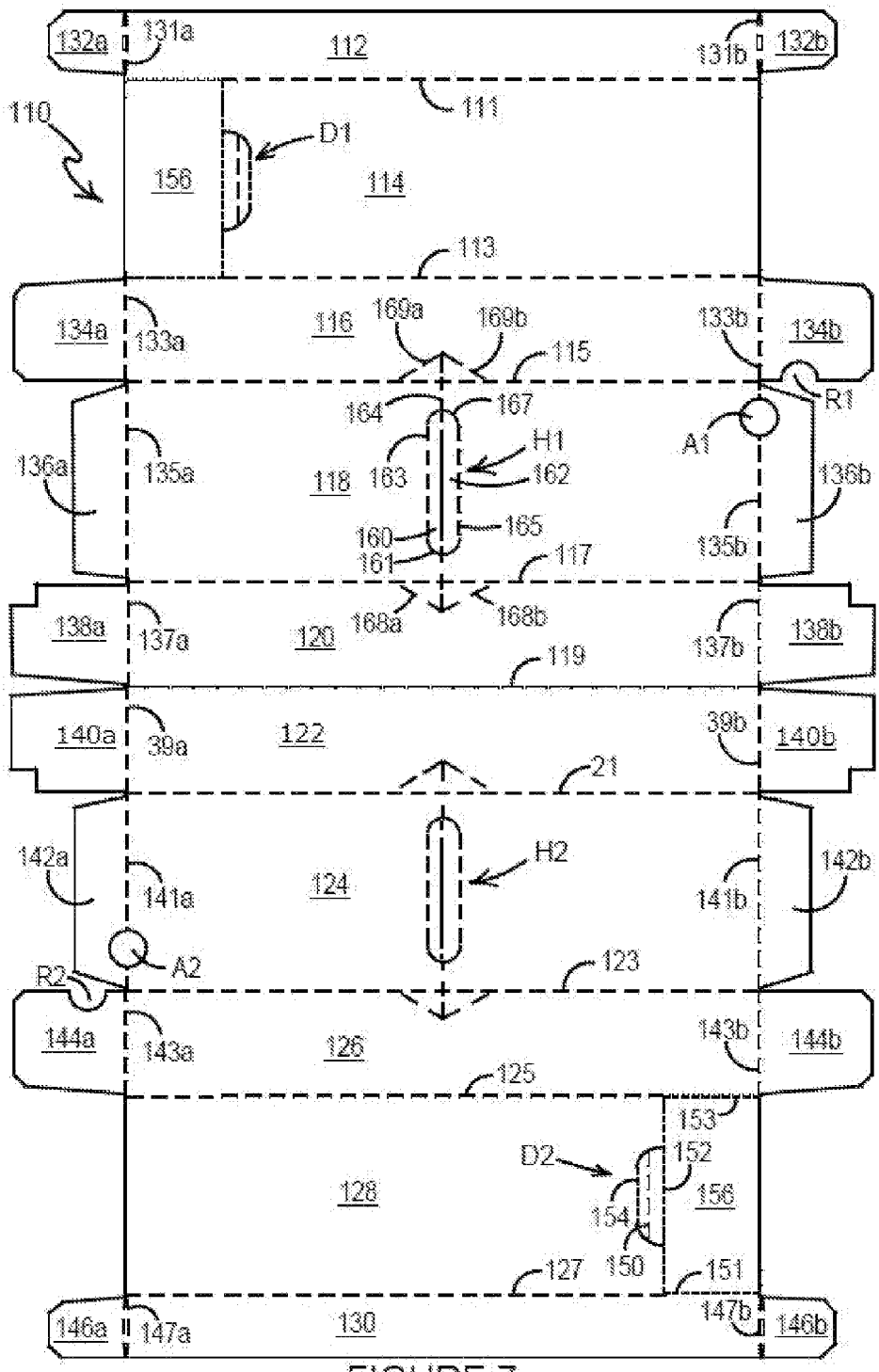


FIGURE 6


132a
131a
112
131b
132b
110
111
D1
156
114
113
134a
133a
116
169a
169b
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133b
134b
164
167
R1
H1
A1
136a
135a
118
163
162
136b
160
165
135b
161
117
138a
137a
120
168a
168b
137b
138b
119
140a
39a
122
39b
140b
21
142a
141a
124
H2
141b
142b
A2
R2
123
144a
143a
126
143b
144b
125
153
D2
152
128
154
156
127
150
151
146a
147a
130
147b
146b

FIGURE 7

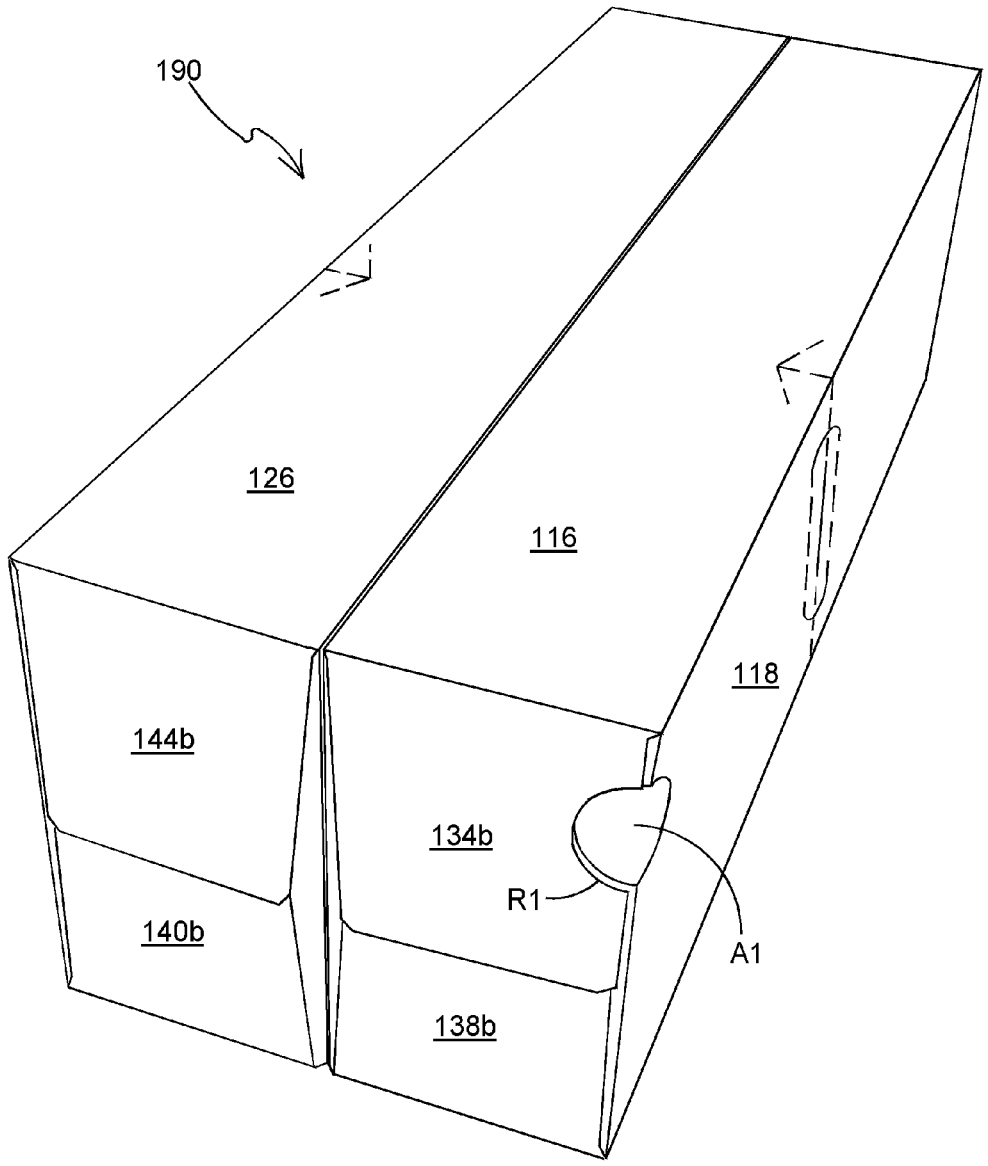

FIGURE 8

CARTON, CARTON BLANK AND METHOD OF FORMING A LOADED CARTON

FIELD OF THE INVENTION

[0001] The present invention relates to a carton for packaging one or more articles, a carton blank for forming the same and a method for forming a loaded carton more specifically, but not exclusively, to a carton which is divisible into at least two separate packages and a method of constructing, erecting and loading the divisible carton with articles.

BACKGROUND OF THE INVENTION

[0002] 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.

[0003] It is desirable to provide multi-packs with features such as, but not limited to, end pull devices such that when multiple packages are disposed in a stacked configuration in close proximity upon a shelf or other display means a consumer can readily slide one of the packages from the stack.

[0004] It is also desirable to provide a multipack which can be split or divided into two separate packages. It is desirable to automate the construction and erection of the multipack into a completed package.

[0005] The present invention seeks to overcome or at least mitigate the problems of the prior art.

SUMMARY OF INVENTION

[0006] According to a first aspect of the present invention there is provided a carton for packaging articles comprising a first plurality of walls including a top wall, base wall, first side wall and second side wall forming a first tubular structure, each end of the first tubular structure being at least partially closed by one or more end closure panels to form a first package, and a second plurality of walls including a top wall, base wall, first side wall and second side wall forming a second tubular structure, each end of the first tubular structure being at least partially closed by one or more end closure panels to form a second package, wherein the second tubular structure and the first package are frangibly connected together, the base wall of the first package and the base wall of the second package being formed from a unitary bottom wall of the carton whereby coupling the first package to the second package, the unitary bottom wall of the carton comprising a weakened line of severance for facilitating separation of the first package from the second package.

[0007] Optionally, the carton comprises at least one an end pull device for withdrawing the first package and/or the second package from a display apparatus wherein the end pull device comprises a first recess struck from an end of the first side wall panel thereby facilitating access to an edge of a first end closure panel.

[0008] In some embodiments, the first end closure panel comprises a second recess struck from a side edge thereof.

[0009] Optionally, the carton comprises a second end closure panel hinged to an end edge of the first side wall panel and a third recess is struck from the second end closure panel, the first recess and the third recess together forming an aperture which interrupts the hinged connection between the second end closure panel and the first side wall panel.

[0010] The first end closure panel may comprise a second recess struck from a side edge thereof arranged to be in registry with a portion of the aperture when the first end closure panel is in overlapping relationship with the second end closure panel.

[0011] Optionally, the end pull device comprises a fourth recess struck from an end of the second side wall panel.

[0012] In some embodiments the fourth recess is disposed at an elevation above the base panel substantially equal to the elevation of the first recess above the base panel.

[0013] Optionally, the second side wall panel comprises a free end edge.

[0014] In some embodiments the carton comprises two end pull devices for withdrawing each of the first and second packages from a display apparatus.

[0015] Optionally, a first end pull device is disposed at a first end of the carton and a second end pull device is disposed at second end of the carton, the second end opposing the first end.

[0016] The second side wall panel of the first package and the second side wall panel of the second package may be disposed in face contacting relationship with each other and may form an internal divider structure between two adjacent rows of articles.

[0017] The second side wall panel of the first package and the second side wall panel of the second package may be secured to each other by glue or other adhesive treatment.

[0018] According to a second aspect of the present invention there is provided a carton for packaging articles comprising a first plurality of walls including a top wall, base wall, first side wall and second side wall forming a first tubular structure, each end of the first tubular structure being at least partially closed by one or more end closure panels to form a first package, wherein the carton comprises a first end pull device for withdrawing the first package from a display apparatus wherein the first end pull device comprises a first recess struck from an end of the first side wall panel of the first tubular structure thereby facilitating access to an edge of a first end closure panel of the first tubular structure, the carton comprising a second plurality of walls including a top wall, base wall, first side wall and second side wall forming a second tubular structure, each end of the second tubular structure being at least partially closed by one or more end closure panels to form a second package, wherein the carton comprises a second end pull device for withdrawing the second package from a display apparatus and wherein the second end pull device comprises a second recess struck from an end of the first side wall panel of the second tubular structure thereby facilitating access to an edge of a first end closure panel of the second tubular structure and wherein the second tubular structure and the first package are frangibly connected together, the base wall of the first package and the base wall of the second package being formed from a unitary bottom wall of the carton whereby coupling the first package to the second package, the unitary bottom wall of the carton comprising a weakened line of severance for facilitating separation of the first package from the second package.

[0019] Optionally, the first end pull device is disposed at a first end of the carton and the second end pull device is disposed at second end of the carton, the second end opposing the first end.

[0020] According to a third aspect of the present invention there is provided a blank for forming a carton, the blank comprising a first plurality of walls including a top wall, base wall, first side wall and second side wall forming a first tubular structure, the blank comprising one or more end closure panels for at least partially closing each end of the first tubular structure, and a second plurality of walls including a top wall, base wall, first side wall and second side wall forming a second tubular structure, the blank comprising one or more end closure panels for at least partially closing each end of the second tubular structure, wherein the second tubular structure and the first package are frangibly connected together, the base wall of the first tubular structure and the base wall of the second tubular structure being formed from a unitary panel of the blank whereby coupling the first tubular structure to the second tubular structure, the unitary bottom wall of the blank comprising a weakened line of severance for facilitating separation of a first package formed from the first plurality of panels from a second package formed from the second plurality of panels.

[0021] According to a fourth aspect of the present invention there is provided a blank for forming a carton, the blank comprising a first plurality of walls including a top wall, base wall, first side wall and second side wall forming a first tubular structure, the blank comprising one or more end closure panels for at least partially closing each end of the first tubular structure to form a first package, wherein the blank comprises a first end pull device for withdrawing the first package from a display apparatus wherein the first end pull device comprises a first recess struck from an end of the first side wall panel of the first tubular structure thereby facilitating access to an edge of a first end closure panel of the first tubular structure, the blank comprising a second plurality of walls including a top wall, base wall, first side wall and second side wall forming a second tubular structure, the blank comprising one or more end closure panels for at least partially closing each end of the second tubular structure to form a second package, wherein the blank comprises a second end pull device for withdrawing the second package from a display apparatus and wherein the second end pull device comprises a second recess struck from an end of the first side wall panel of the second tubular structure thereby facilitating access to an edge of a first end closure panel of the second tubular structure and wherein the second tubular structure and the first package are frangibly connected together, the base wall of the first package and the base wall of the second package being formed from a unitary bottom wall panel of the blank whereby coupling the first package to the second package, the unitary bottom wall panel of the blank comprising a weakened line of severance for facilitating separation of the first package from the second package.

[0022] According to a fifth aspect of the present invention there is provided a method of packaging articles in the carton as described in the foregoing paragraphs comprising:

[0023] providing cartons in a flat collapsed condition to a packaging machine;

[0024] erecting the cartons into a pair of open ended tubular structures such that a bottom wall of the carton is disposed lowermost, the bottom wall of the carton including a weakened line of severance for facilitating separation of a first package from a second package;

[0025] loading articles through at least one open end of each tubular structure;

[0026] closing, at least partially, each end of each tubular structure to retain the articles therein.

[0027] Within the scope of this application it is envisaged and intended 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

[0028] Exemplary embodiments of the invention will now be described with reference to the accompanying drawings, in which:

[0029] FIG. **1** is a plan view from above of a blank for forming a carton according to a first embodiment of the invention;

[0030] FIG. **2** is a perspective view from above of a carton formed from the blank of FIG. **1**;

[0031] FIG. **3** is a perspective view from below of the carton of FIG. **2**;

[0032] FIGS. **4** and **5** are perspective views from above of an end portion of the carton of FIG. **2**;

[0033] FIG. **6** is a perspective view from above of end portions of a pair of packages formed from the carton of FIG. **2** and illustrates a user withdrawing one package with respect to the other package;

[0034] FIG. **7** is a plan view from above of a blank for forming a carton according to a second embodiment of the invention; and

[0035] FIG. **8** is a perspective view from above of a carton formed from the blank of FIG. **7**.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0036] Detailed descriptions of specific embodiments of the package, blanks, cartons and methods 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 package, blanks, cartons and methods 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.

[0037] Referring to FIG. **1** there is shown a plan view of a blank **10** capable of forming a carton **90**, shown in FIG. **2**, for

packaging one or more primary product containers such as, but not limited to, bottles or cans, hereinafter referred to as articles.

[0038] 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 product containers. It is contemplated that the teachings of the invention can be applied to various product containers, which may or may not be tapered and/or cylindrical. Exemplary containers include bottles (for example metallic, glass or plastics bottles), cans (for example aluminium cans), tins, pouches, packets and the like.

[0039] 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, where suitable, for example, to provide the carrier structure described in more detail below.

[0040] In the exemplary embodiment, the blank is configured to form a carton or carrier for packaging an exemplary arrangement of exemplary articles. In a first illustrated exemplary embodiment, the arrangement is a 2×6 matrix and the articles are cans. The blank can be alternatively configured to form a carrier for packaging other types, number and size of article and/or for packaging articles in a different arrangement or configuration.

[0041] The blank **10** comprises a plurality of panels for forming a carton **90**. The carton **90** is divisible into two separate cartons or packages. A first set of panels P**1** of the blank **10** forms a first carton or first package **91***b* (see FIG. **6**) and a second set of panels P**2** of the blank **10** forms a second carton or second package **91***a* (see FIG. **6**).

[0042] The blank **10** comprises a plurality of main wall panels **12**, **14**, **16**, **18**, **20** for forming a first package **91***b*. The first package **91***b* comprises: a first or inner base wall **12**, a first side wall **14**, a top wall **16**, a second side wall **18** and a second or outer base wall **20** in a set-up condition. The inner base wall panel **12** is hinged to the first side wall panel **14** by a fold line **11**. The first side wall panel **14** is hinged to the top wall panel **16** by a fold line **13**. The top wall panel **16** is hinged to the second side wall panel **18** by a fold line **15**. The outer base wall panel **20** is hinged to the second side wall panel **18** along a fold line **17**.

[0043] The blank **10** also comprises a plurality of main wall panels **22**, **24**, **26**, **28**, **30** for forming a second package **91***a*. The second package **91***a* comprises: a first or inner base wall **30**, a first side wall **28**, a base wall **26**, a second side wall **24** and a second or outer base wall **22** in a set-up condition. The outer base wall panel **22** is hinged to the second side wall panel **24** by a fold line **21**. The second side wall panel **24** is hinged to the top wall panel **26** by a fold line **23**. The top wall panel **26** is hinged to the first side wall panel **28** by a fold line **25**. The inner base wall panel **30** is hinged to the first side wall panel **28** along a fold line **27**.

[0044] The plurality of main panels **12**, **14**, **16**, **18**, **20** of the first package **91***b* form a first tubular structure in a set-up condition. Each of the ends of the tubular structure of the first package **91***b* are at least partially closed by end closure panels **32***a*, **34***a*, **36***a*, **38***a*, **32***b*, **34***b*, **36***b*, **38***b*. End closure panels **32***a*, **34***a*, **36***a*, **38***a* are configured to close a first end of the tubular structure and end panels **32***b*, **34***b*, **36***b*, **38***b* are configured to close a second end of the tubular structure. A first end closure panel **32***a* is hinged to a first end of inner base wall panel **12** by a pair of arcuate fold lines **31***a*. A second end closure panel **34***a* is hinged to a first end of top panel **16** by a fold line **33***a*. A third end closure panel **36***a* is hinged to a first end of second side wall panel **18** by a fold line **35***a*. A fourth end closure panel **38***a* is hinged to a first end of the outer base wall panel **20** by a fold line **37***a*.

[0045] A fifth end closure panel **32***b* is hinged to a second end of inner base wall panel **12** by a pair of arcuate fold lines **31***b*. A sixth end closure panel **34***b* is hinged to a second end of top wall panel **16** by a fold line **33***b*. A seventh end closure panel **36***b* is hinged to a second end of second side panel **18** by a fold line **35***b*. An eighth end closure panel **38***b* is hinged to a second end of the outer base wall panel **20** by a fold line **37***b*.

[0046] The third end closure panel **36***a* and the seventh end closure panel **36***b* each form a side end closure panel of the first package **91***b*. The second end closure panel **34***a* and the sixth end closure panel **34***b* each form an upper end closure panel of the first package **91***b*. The fourth end closure panel **38***a* along with the first end closure panel **32***a* forms an inner lower end closure panel of the first package **91***b*. The eighth end closure panel **38***b* along with the fifth end closure panel **32***b* forms an outer lower end closure panel of the first package **91***b*. The outside surfaces of the outer lower end closure panels **38***a*, **38***b* have glue application areas G**1***a*, G**1***b* for being secured to the inside surfaces of the upper end closure panels **34***a*, **34***b* respectively. Alternatively, the inside surfaces of the upper end closure panels **34***a*, **34***b* have glue application areas A**1***a*, A**1***b* for being secured to the outside surfaces of the outer lower end closure panels **38***a*, **38***b* respectively. By this means, the upper end closure panels **34***a*, **34***b* are allowed to be secured in face-contacting relationship to the outside surfaces of the outer lower end closure panels **38***a*, **38***b* respectively when the blank is erected into a carton. The inner lower end closure panels **32***a*, **32***b* are disposed in face-contacting relationship with the inside surfaces of the outer lower end closure panels **38***a*, **38***b* respectively when the carton is erected.

[0047] The plurality of main panels **22**, **24**, **26**, **28**, **30** of the second package **91***a* form a second tubular structure in a set-up condition. Each of the ends of the tubular structure of the second package **91***a* are at least partially closed by end closure panels **40***a*, **42***a*, **44***a*, **46***a*, **40***b*, **42***b*, **44***b*, **46***b*. End closure panels **40***a*, **42***a*, **44***a*, **46***a* are configured to close a first end of the tubular structure and end panels **40***b*, **42***b*, **44***b*, **46***b* are configured to close a second end of the tubular structure. A first end closure panel **40***a* is hinged to a first end of second or outer base wall panel **22** by a fold line **39***a*. A second end closure panel **42***a* is hinged to a first end of second side panel **24** by a fold line **41***a*. A third end closure panel **44***a* is hinged to a first end of top wall panel **26** by a fold line **43***a*. A fourth end closure panel **46***a* is hinged to a first end of the inner base wall panel **30** by a pair of arcuate fold lines **47***a*.

[0048] A fifth end closure panel **40***b* is hinged to a second end of second or outer base wall panel **22** by a fold line **39***b*. A sixth end closure panel **42***b* is hinged to a second end of second side wall panel **24** by a fold line **41***b*. A seventh end closure panel **44***b* is hinged to a second end of top panel **26** by a fold line **43***b*. An eighth end closure panel **46***b* is hinged to a second end of the inner base wall panel **30** by a pair of arcuate fold lines **47***b*.

[0049] The first end closure panel **40***a* along with the fourth end closure panel **46***a* forms an outer lower end closure panel

of the second package **91***a*. The second end closure panel **42***a* and the sixth end closure panel **42***b* each form a side end closure panel of the second package **91***a*. The third end closure panel **44***a* and the seventh end closure panel **44***b* each form an upper end closure panel of the second package **91***a*. The fifth end closure panel **46***b* along with the eighth end closure panel **46***b* also forms an inner lower end closure panel of the second package **91***a*. The outside surfaces of the outer lower end closure panels **40***a*, **40***b* have glue application areas G**2***a*, G**2***b* for being secured to the inside surfaces of the upper end closure panels **44***a*, **44***b* respectively. Alternatively, the inside surfaces of the upper end closure panels **44***a*, **44***b* have glue application areas A**2***a*, A**2***b* for being secured to the outside surfaces of the outer lower end closure panels **40***a*, **40***b* respectively. By this means, the upper end closure panels **44***a*, **44***b* are allowed to be secured in face-contacting relationship to the outside surfaces of the outer lower end closure panels **40***a*, **40***b* respectively when the blank is erected into a carton. The inner lower end closure panels **46***a*, **46***b* are disposed in face-contacting relationship with the inside surfaces of the outer lower end closure panels **40***a*, **40***b* respectively when the carton is erected.

[0050] The outer top panel **20** of the first package **91***b* is coupled to the outer top panel **22** of the second package **91***a* by a frangible line **19**. The outer top panel **20** of the first package **91***b* and the outer top panel **22** of the second package **91***a* form a common top wall **20**/**22** of the carton **90**.

[0051] The second side wall panel **18** of the first package **91***b* forms a first outer side wall **18** of the carton **90**. The second side wall panel **24** of the second package **91***a* forms a second outer side wall **24** of the carton **90**.

[0052] The top panel **16** of the first package **91***b* forms a first part **16** of a base wall **16**/**26** of the carton **90**. The top panel **26** of the second package **91***a* forms a second part **26** of a base wall **16**/**26** of the carton **90**.

[0053] The end closure panels **32***a*, **34***a*, **36***a*, **38***a* of the first package **91***b* and the end closure panels **40***a*, **42***a*, **44***a*, **46***a* of the second package **91***a* form a first end wall of the carton **90**.

[0054] The end closure panels **32***b*, **34***b*, **36***b*, **38***b* of the first package **91***b* and the end closure panels **40***b*, **42***b*, **44***b*, **46***b* of the second package **91***a* form a second end wall of the carton **90**.

[0055] The first side wall panel **14** of the first package **91***b* and the first side wall panel **28** of the second package **91***a* form an internal divider structure in the set-up carton **90**. The internal divider structure separates a first row of articles disposed in the first package **91***b* from a second row of articles disposed in the second package **91***a*.

[0056] The blank **10** comprises a pair of handle structures H**1**, H**2**. A first handle structure H**1** is provided in the first package **91***b*, which comprises a pair of elongate tabs **60**, **62**, which are defined in part by a severance line **64**. The severance line **64** extends transversely across the second side wall panel **18** and into each of the top wall panel **16** and the outer base wall panel **20**. A first elongate tab **60** is defined in part by a first fold line **63**, which is disposed in a spaced apart parallel relationship to the severance line **64**. A second elongate tab **62** is defined in part by a second fold line **65** which is disposed in a spaced apart parallel relationship to the severance line **64**. The first and second fold lines **63**, **65** are disposed on opposing sides of the severance line **64**. A first arcuate cutline **61** defines first ends of each of the first and second elongate tabs **60**, **62**. The first arcuate cutline **61** extends between a first end of the first fold line **63** and a first end of the second fold line **65**, across the severance line **64**. A second arcuate cutline **67** defines second ends of each of the first and second elongate tabs **60**, **62**. The second arcuate cutline **67** extends between a second end of the first fold line **63** and a second end of the second fold line **65**, across the severance line **64**.

[0057] The first handle structure H**1** comprises a pair of fold lines or crease lines **69***a*, **69***b* at a first end of weakened line of severance **64**. The first end of the severance line **64** is disposed in the top wall panel **16** and terminates in a "V" shaped cutline wherein each of the arms of the "V" shaped cutline form a vertex, the vertex being disposed at the first end of the severance line **64**.

[0058] A first crease line **69***a* commences from a first end of the V" shaped cutline towards the fold line **15** between the top wall panel **16** and the second side wall panel **18**. A second crease line **69***b* commences from a second end of the V" shaped cutline towards the fold line **15** between the top wall panel **16** and the second side wall panel **18**. The first and second crease lines **69***a*, **69***b* together with the "V" shaped cutline form a "V" shape which converges at the first end of the severance line **64**.

[0059] The first handle structure H**1** comprises a second pair of fold lines or crease lines **68***a*, **68***b* at a second end of weakened line of severance **64**. The second end of the severance line **64** is disposed in the outer base wall panel **20** and terminates in "V" shaped cutline wherein each of the arms of the "V" shaped cutline form a vertex, the vertex being disposed at the second end of the severance line **64**.

[0060] A third crease line **68***a* commences from a first end of the "V" shaped cutline towards the fold line **17** between the outer base wall panel **20** and the second side wall panel **18**. A crease line **68***b* commences from a second end of the V" shaped cutline towards the fold line **17** between the outer base wall panel **20** and the second side wall panel **18**. The third and fourth crease lines **68***a*, **68***b* together with the "V" shaped cutline form a "V" shape which converges at the second end of the severance line **64**.

[0061] A second handle structure H**2** is provided in the second package **91***a* is substantially the same in construction as the first handle structure H**1**.

[0062] The blank **10** comprises a pair of access devices D**1**, D**2**. A first access device D**1** is provided in the portion of the blank **10** forming the first package **91***b*. A second access device D**2** is provided in the portion of the blank **10** forming the second package **91***a*. The first access device D**1** is substantially the same as the second device D**2**, and the access devices D**1**, D**2** will be described by reference to the second access device D**2**.

[0063] The second access device D**2** is provided for removal of a portion **56** of the second side wall panel **28** of the second package **91***a*. Removal of said portion **56** facilitates access to the contents of the second package **91***a*.

[0064] The second access device D**2** comprises a plurality of weakened lines of severance **51**, **53**, **54** which define at least in part a removable portion **56** of the first side wall panel **28**. The plurality of weakened lines of severance **51**, **53**, **54** includes: a first weakened line of severance **53** which extends from an end edge of the first side wall panel **28** along a portion of the fold line **25** between the top panel **26** and the first side wall panel **28**; a second weakened line of severance **54** extends from an end of first weakened line of severance **53** across the first side wall **28** from the fold line **25** to the fold line **27** between the first side wall panel **28** and the inner base wall panel **30**; and a third weakened line of severance **51**

extends from an end of second weakened line of severance **54** along a portion of the fold line **27**, between the first side wall panel **28** and the inner base wall panel **30**, to the end edge of the first side wall panel **28**.

[0065] The access device D**2** comprises an optional tear initiation tab **50** defined in part by the second weakened line of severance **54** and in part by a fold line **52**. The tear initiation tab **50** is hinged to the removable portion **56** of the first side wall panel **28** by the fold line **52**. The tear initiation tab **50** is detachable from the second package **91***a* along with the removable portion **56**.

[0066] Optionally, the fourth end closure panel **38***a* is tapered in shape. The fourth end closure panel **38***a* comprises first side edge and a second side edge which opposes the first side edge. The second side edge is arranged so as to converge towards the first side edge. In this way, the free end edge of the fourth end closure panel **38***a* is shorter in length dimension than the hinged end edge which is hinged to the outer base wall panel **20** of the first package **91***b*. A corresponding second side edge of the second end closure panel **34***a* is arranged to be contiguous with the second side edge of the fourth end closure panel **38***a* in a set-up carton. The second end closure panel **34***a* is also tapered in shape, such that the free end edge of the second end closure panel **34***a* is shorter in length dimension than the hinged end edge which is hinged to the top wall panel **16** of the first package **91***b*. In some embodiments the second side edges of the fourth and second end closure panels **38***a*, **34***a* are arcuate. In other embodiments it will be appreciated that the second side edge of the fourth and second end closure panels **38***a*, **34***a* may be linear. In some of those embodiments in which the second side edge of the fourth and second end closure panels **38***a*, **34***a* is linear the second side edge may be substantially parallel to the first side edge and/or substantially parallel to the fold line **13** or frangible line **19** respectively; in such embodiments, the second side edge is offset with respect to the fold line **13** or frangible line **19**. The fourth and second end closure panels **38***a*, **34***a* may not be tapered in such embodiments.

[0067] Optionally, the fifth end closure panel **40***b* is tapered in shape. The fifth end closure panel **40***b* comprises a first side edge and a second side edge, which opposes the first side edge. The second side edge is arranged so as to converge towards the first side edge. In this way, the free end edge of the fifth end closure panel **40***b* is shorter in length dimension than the hinged end edge which is hinged to the outer base wall panel **22** of the second package **91***a*. A corresponding second side edge of the seventh end closure panel **44***b* is arranged to be contiguous with the second side edge of the fifth end closure panel **40***b* in a set-up carton. The seventh end closure panel **44***b* is also tapered in shape, such that the free end edge of the seventh end closure panel **44***b* is shorter in length dimension than the hinged end edge which is hinged to the top wall panel **26** of the second package **91***a*. In some embodiments the second side edges of the fifth and seventh end closure panels **40***b*, **44***b* are arcuate.

[0068] In other embodiments it will be appreciated that the second side edge of the fifth and seventh end closure panels **40***b*, **44***b* may be linear. In some of those embodiments in which the second side edge of the fifth and seventh end closure panels **40***b*, **44***b* is linear, the second side edge may be substantially parallel to the first side edge and/or substantially parallel to the fold line **23** or frangible line **19** respectively; in such embodiments the second side edge is offset with respect to the fold line **23** or frangible line **19**. The fifth and seventh end closure panels **40***b*, **44***b* may not be tapered in such embodiments.

[0069] In some embodiments the articles being packaged have a substantially circular cross section, that is to say the articles are, at least in part, cylindrical, having a tubular axis which is orientated substantially parallel to the first and second side wall panels **14**, **28**, **18**, **24**. In these embodiments a void is provided in the corner of the package adjacent the end pull device. The void or gap is provided between the endmost article in the package and the end wall and/or between the endmost article in the package and the side wall. This void facilitates a user inserting a finger or thumb into the package.

[0070] The first side wall panel **14** of the first package **91***b* comprises a free end edge, that is to say there is no end closure panel hinged to the end edge of the first side wall panel **14**. The first side wall panel **28** of the second package **91***a* comprises a free end edge, that is to say there is no end closure panel hinged to the end edge of the first side wall panel **28**. In alternative embodiments the first side wall panel **14** of the first package **91***b* and the first side wall panel **28** of the second package **91***a* may comprise a minor end closure panel hinged to each end edge thereof. In embodiments comprising a minor end closure panel, the minor end closure panel may be arranged to facilitate access to the side edge of the adjacent major upper, or lower, end closure panel; for example, but not limited to, the minor end closure panel may comprise an aperture or recess; alternatively the minor end closure panel may not extend fully between the top wall and the base wall, that is to say the minor end closure panel may be shorter in height than the side wall to which it is hinged.

[0071] Turning to the construction of the carton **90** as illustrated in FIGS. **2** to **5** it is envisaged that the carton **90** can be formed by a series of sequential folding operations in a straight line packaging machine so that the carton **90** 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.

[0072] In order to form the carton **90**, in a first stage the blank **10** is folded to bring the inner base wall panel **12** of the first package **91***b* into face contacting relationship with the first side wall panel **14** folding the first base wall panel **12** about the fold line **11**.

[0073] The inner base wall panel **30** of the second package **91***a* is folded about the fold line **27** to bring the inner base wall panel **30** of the second package **91***a* into face contacting relationship with the first side wall panel **28**.

[0074] Glue or other adhesive treatment is applied to the inner base wall panel **12** of the first package **91***b*.

[0075] Glue or other adhesive treatment is applied to the inner base wall panel **30** of the second package **91***a*.

[0076] In alternative embodiments glue or other adhesive treatment is applied to the corresponding portions of each of the outer base wall panels **20**, **22** of the first and second packages **91***a*, **91***b* respectively.

[0077] The inner base wall panel **12**, first side wall panel **14** and the top panel **16** of the first package **91***b* are folded about the fold line **15** such that the top panel **16** is in overlying relationship with the second side wall panel **18**. This brings the inner base wall panel **12** into face contacting relationship with the outer base wall panel **20**. Pressure may be applied to the first side panel **14** of the first package **91***b* to secure the inner base wall panel **12** to the outer base wall panel **20**.

[0078] The inner base wall panel **30**, first side wall panel **28** and the top panel **26** of the second package **91***a* are folded about the fold line **23** such that the top panel **26** is in overlying relationship with the second side wall panel **24**. This brings the inner base wall panel **30** into face contacting relationship with the outer base wall panel **22**. Pressure may be applied to the first side panel **28** of the second package **91***a* to secure the inner base wall panel **30** to the outer base wall panel **22**.

[0079] Optionally, glue or other adhesive treatment is applied to an outer surface of the first side wall panel **14** of the first package **91***b* and/or to an outer surface of the first side wall panel **28** of the second package **91***a* adjacent to the top wall panel **16**, **26**.

[0080] The blank **10** may then be folded about the frangible line **19** to bring the first side wall panel **14** of the first package **91***b* into contacting relationship with the first side wall panel **28** of the second package **91***a*.

[0081] In an alternative embodiment, the second side panel **24** of the second package **91***a* may be folded with respect to the outer base wall panel **22** about the fold line **21**. Simultaneously the first side wall panel **28** may be folded with respect to inner base wall panel **30** by unfolding the first side wall panel **28** about the fold line **27**. The top wall panel **26** may be folded with respect to the first side wall panel **28** by folding about the fold line **25** to place the top wall panel **26** in face contacting relationship with the first side wall panel **28**. Simultaneously, the top wall panel **26** is folded with respect to the second side wall panel **24**, by unfolding the top wall panel **26** about the fold line **23**. In this way the portion of the blank **10** forming the second package **91***a* is folded into a flat collapsed state which overlies the portion of the blank **10** forming the first package **91***b* which is also in folded, flat collapsed condition. This provides a carton **90**, which is in a flat collapsed state in which it can be shipped and distributed to a converter plant. It will be appreciated that this alternative folding method could be readily modified to bring the portion of the blank **10** forming the first package **91***b* into a flat, folded, collapsed state which overlies the portion of the blank **10** forming the second package **91***a* which is also in a folded, flat, collapsed condition. These alternative methods avoid folding the blank **10** about the frangible line **19** and thus reduce the risk of the first and second packages **91***a*, **91***b* becoming separated during assembly and filling of the carton **90**.

[0082] The flat collapsed carton **90** may be erected into a tubular structure by engaging with a pair of adjacent walls of the carton **90** (such as one of the side wall panels **18**/**24** and one of the top wall panels **16**/**26**) and folding said adjacent walls with respect to one another such that they are disposed perpendicularly with respect to each other. Alternatively or simultaneously, the flat collapsed carton **90** may be engaged by suction cups at a pair of opposed walls of the carton **90** (such as the bottom wall **20** and **22** and one of the top wall panels **16**/**26**) and moving those opposed walls away from one another such that they are disposed parallel with one another with a space therebetween.

[0083] The erected tubular structure is placed with the bottom wall **20** and **22** down onto a supporting surface such as a belt conveyer and then loaded with articles through one or both open ends of each package while the tubular structure is being moved. One or more of the end closure panels **32***a*, **34***a*, **36***a*, **38***a*, **32***b*, **34***b*, **36***b*, **38***b*, **40***a*, **42***a*, **44***a*, **46***a*, **40***b*, **42***b*, **44***b*, **46***b* may be folded outwardly to act as a funnel to facilitate insertion of the articles into the carton **90**. The articles are slid over the inner surface of the bottom wall **12**/**20**, **22**/**30** formed by the inner base wall panels **12**, **30** and the outer base wall panels **20**, **22**.

[0084] Once the articles are loaded into the tubular structure, the ends of the tubular structure are closed. A first end of the first package **91***b* is closed by folding the third end closure panel **36***a* about fold line **35***a*. Glue or other adhesive treatment may be applied to an outer surface of the second end closure panel **34***a*. In alternative embodiments the glue or adhesive treatment may be applied to an inner surface of the corresponding region of the first, second and fourth end closure panels **32***a*, **34***a*, **38***a*.

[0085] The fourth end closure panel **38***a* is folded about fold line **37***a* and is optionally secured to the third end closure panel **36***a*. The first end closure panel **32***a*, which is secured to the inner surface of the fourth end closure panel **38***a*, is folded about arcuate fold lines **31***a*, simultaneously with the fourth end closure panel **38***a* being folded about fold line **37***a*. Glue or adhesive treatment is applied to the glue application area G**1***a* of the fourth end closure panel **38***a*. In an alternative embodiment glue or adhesive treatment is applied to glue application area A**1***a* of the second end closure panel **34***a*.

[0086] The second end closure panel **34***a* is then folded about the fold line **33***a* and brought into contact with the fourth end closure panel **38***a* such that the lower part of the second end closure panel **34***a* is in overlapping relationship with the upper part of the fourth end closure panel **38***a* and is secured and affixed thereto.

[0087] A second end of the first package **91***b* is closed by folding the seventh end closure panel **36***b* about fold line **35***b*. Glue or other adhesive treatment may be applied to an outer surface of the seventh end closure panel **36***b*. In alternative embodiments the glue or adhesive treatment may be applied to an inner or outer surface of the corresponding regions of the fifth, sixth and eighth end closure panels **32***b*, **34***b*, **38***b*.

[0088] The eighth end closure panel **38***b* is folded about fold line **37***b* and is optionally secured to the seventh end closure panel **36***b*. The fifth end closure panel **32***b*, which is secured to the inner surface of the eighth end closure panel **38***b*, is folded about arcuate fold lines **31***b*, simultaneously with the eighth end closure panel **38***b* being folded about fold line **37***b*. Glue or adhesive treatment is applied to glue application area G**1***b* of the eighth end closure panel **38***b*. In an alternative embodiment glue or adhesive treatment is applied to glue application area A**1***b* of the sixth end closure panel **34***b*.

[0089] The sixth end closure panel **34***b* is then folded about the fold line **33***b* and brought into contact with the eighth end closure panel **38***b* such that the lower part of the sixth end closure panel **34***b* is in overlapping relationship with the upper part of the eighth end closure panel **38***b* and is secured and affixed thereto.

[0090] A first end of the second package **91***a* is closed by folding the second end closure panel **42***a* about fold line **41***a*. Glue or other adhesive treatment may be applied to an outer surface of the second end closure panel **42***a*. In alternative embodiments the glue or adhesive treatment may be applied to an inner or outer surface of the corresponding regions of the first, third and fourth end closure panels **40***a*, **44***a*, **46***a*.

[0091] The first end closure panel **40***a* is then folded about the fold line **39***a* and is optionally secured to the outer surface of the second end closure panel **42***a*. The fourth end closure panel **46***a*, which is secured to the inner surface of the first end

closure panel **40***a*, is folded about arcuate fold lines **47***a*, simultaneously with the first end closure panel **40***a* being folded about fold line **39***a*.

[0092] Glue or adhesive treatment is applied to glue application area G**2***a* of the first end closure panel **40***a*. In an alternative embodiment, glue or adhesive treatment is applied to glue application area A**2***a* of the third end closure panel **44***a*. The third end closure panel **44***a* is folded about fold line **43***a* and brought into contact with the first end closure panel **40***a* such that the lower part of the third end closure panel **44***a* is in overlapping relationship with the upper part of the first end closure panel **40***a* and is secured and affixed thereto.

[0093] A second end of the second package **91***a* is closed by folding the sixth end closure panel **42***b* about fold line **41***b*. Glue or other adhesive treatment may be applied to an outer surface of the sixth end closure panel **42***b*. In alternative embodiments the glue or adhesive treatment may be applied to an inner or outer surface of the corresponding regions of the fifth, seventh and eighth end closure panels **40***b*, **44***b*, **46***b*.

[0094] The fifth end closure panel **40***b* is then folded about the fold line **39***b* and is optionally secured to the outside surface of the sixth end closure panel **42***b*. The eighth end closure panel **46***b*, which is secured to the inner surface of the fifth end closure panel **40***b*, is folded about arcuate fold lines **47***b*, simultaneously with the fifth end closure panel **40***b* being folded about fold line **39***b*.

[0095] Glue or adhesive treatment is applied to glue application area G**2***b* of the fifth end closure panel **40***b*. In an alternative embodiment, glue or adhesive treatment is applied to glue application area A**2***b* of the seventh end closure panel **44***b*. The seventh end closure panel **44***b* is folded about fold line **43***b* and brought into contact with the fifth end closure panel **40***b* such that the lower part of the seventh end closure panel **44***b* is in overlapping relationship with the upper part of the fifth end closure panel **40***b* and is secured and affixed thereto.

[0096] In some embodiments one end of the tubular structure may be closed before loading articles through a remaining open end of the tubular structure.

[0097] It has been found that the carton **90** can be erected and loaded in a packaging machine (not shown) wherein the carton **90** is orientated within the packaging machine such that the base wall **20**/**22** of the carton **90**, formed by the second base wall panel **20** of the first package **91***b* and by the second base wall panel **22** of the second package **91***a*, is lowermost such that the articles may be inserted into the first and second packages **91***a*, **91***b* by sliding the articles over the base wall **20**/**22** of the carton **90**. The carton **90** does not require glue or other adhesive between the outer surface of the first side wall panel **14** of the first package **91***b* and the outer surface of the first side wall panel **28** of the second package **91***a* to maintain the first and second packages **91***a*, **91***b* in close proximity and/or to avoid severance of the frangible line **19**. It will be appreciated that this has several advantages, including: removing a gluing station form the packaging machine which converts the flat collapsed blank into the assembled carton; the appearance of the first and second packages **91***a*, **91***b* is improved when in a separated condition; the appearance of the carton **90** and of the first and second packages **91***a*, **91***b* when separated is improved since the frangible line **19** is concealed from view in normal use since the frangible line **19** is provided on the base wall **20**/**22**, the torn edges created by severance of the frangible line **19** when separating the first and second packages **91***a*, **91***b* are concealed, or are at least less prominent than if located on the top wall of the first or second packages **91***a*, **91***b*; the cost of producing the cartons is reduced since the process is simplified and the gluing process has been removed.

[0098] In some embodiments glue may be applied between the outer surface of the first side wall panel **14** of the first package **91***b* and the outer surface of the first side wall panel **28** of the second package **91***a*.

[0099] FIG. **6** illustrates the first and second packages **91***a*, **91***b* in a separated condition. A retailer has severed the frangible line **19** such that the first package **91***b* is separate to the second package **91***a*. In those embodiments in which the first side wall panel **14** of the first package **91***b* is glued to the first side wall panel **28** of the second package **91***a*, the retailer severs or breaks the glue connection. In some embodiments the first side wall panel **14**, **28** of the first and/or second package **91***a* may comprise one or more glue locations which are surrounded by a half-cut perforation. In this way the retailer may readily, controllably and neatly tear an outer layer or skin of the substrate forming the first side wall panel **14**, **28**.

[0100] FIG. **6** illustrates a user U grasping an end of the first package **91***b*, the user U has pinched the end wall formed by the sixth end closure panel **34***b* and the eighth end closure panel **38***b* between their index finger and thumb. The user U has employed to the end wall to withdraw the first package **91***b* from a shelf or display apparatus (not shown).

[0101] Referring now to FIGS. **7** and **8**, there is shown an alternative embodiment of the present invention. In the second illustrated embodiment, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "**100**" to indicate that these features belong to the second embodiment. The alternative embodiment shares many common features with the first embodiment and therefore only the differences from the embodiment illustrated in FIGS. **1** to **6** will be described in any greater detail.

[0102] The blank **110** comprises a pair of end pull devices, see FIG. **8**. The first package comprises a first end pull device comprising an aperture A**1** and a recess R**1**. The aperture A**1** is struck in part from the second side wall panel **118** of the first package and in part from the seventh end closure panel **136***b*. The aperture A**1** interrupts the fold line **135***b* between the second side wall panel **118** and seventh end closure panel **136***b*. The recess R**1** is struck from a first side edge of the sixth end closure panel **134***b*. The aperture A**1** and the recess R**1** are arranged such that when the blank **110** is assembled into a carton **190**, the recess R**1** is in registry with a portion of the aperture A**1**. Aperture A**1** may be considered as a recess struck from an end edge of the second side wall panel **118** and a recess struck from a side edge of the seventh end closure panel **136***b*, the recesses together forming an aperture which interrupts the fold line **135***b*.

[0103] Optionally, the sixth end closure panel **134***b* is tapered in shape. The sixth end closure panel **134***b* comprises a second side edge which opposes the first side edge from which the recess R**1** is struck. The second side edge is arranged so as to converge towards the first side edge. In this way, the free end edge of the sixth end closure panel **134***b* is shorter in length dimension than the hinged end edge which is hinged to the top wall panel **116** of the first package. A corresponding second side edge of the eighth end closure panel **138***b* is arranged to be contiguous with the second side edge of the sixth end closure panel **134***b* in a set-up carton **190**. The eighth end closure panel **138***b* is also tapered in

shape, such that the free end edge of the eighth end closure panel **138***b* is shorter in length dimension than the hinged end edge which is hinged to the outer base wall panel **120** of the first package. In some embodiments the second side edges of the sixth and eighth end closure panels **134***b*, **138***b* are arcuate. In other embodiments it will be appreciated that the second side edge of the sixth and eighth end closure panels **134***b*, **138***b* a may be linear. In some of those embodiments in which the second side edge of the sixth and eighth end closure panels **134***b*, **138***b* is linear the second side edge may be substantially parallel to the first side edge and/or substantially parallel to the fold line **113** or frangible line **119** respectively; in such embodiments, the second side edge is offset with respect to the fold line **113** or frangible line **119**. The sixth and eighth end closure panels **134***b*, **138***b* may not be tapered in such embodiments.

[0104] The second package comprises a second end pull device comprising an aperture A**2** and a recess R**2**. The aperture A**2** is struck in part from the second side wall panel **124** of the second package and in part from the second end closure panel **142***a*. The aperture A**2** interrupts the fold line **141***a* between the second side wall panel **124** and the second end closure panel **142***a*. The recess R**2** is struck from a first side edge of the third end closure panel **144***a*. The aperture A**2** and the recess R**2** are arranged such that when the blank **110** is assembled into the carton **190**, the recess R**2** is in registry with a portion of the aperture A**2**.

[0105] Optionally, the third end closure panel **144***a* is tapered in shape. The third end closure panel **144***a* comprises a second side edge, which opposes the first side edge from which the recess R**2** is struck. The second side edge is arranged so as to converge towards the first side edge. In this way, the free end edge of the third end closure panel **144***a* is shorter in length dimension than the hinged end edge which is hinged to the top wall panel **126** of the second package. A corresponding second side edge of the first end closure panel **140***a* is arranged to be contiguous with the second side edge of the third end closure panel **144***a* in a set-up carton **190**. The first end closure panel **140***a* is also tapered in shape, such that the free end edge of the first end closure panel **140***a* is shorter in length dimension than the hinged end edge which is hinged to the outer base wall panel **122** of the second package. In some embodiments the second side edges of the third and first end closure panels **144***a*, **140***a* are arcuate.

[0106] In other embodiments it will be appreciated that the second side edge of the third and first end closure panels **144***a*, **140***a* may be linear. In some of those embodiments in which the second side edge of the third and first end closure panels **144***a*, **140***a* is linear the second side edge may be substantially parallel to the first side edge and/or substantially parallel to the fold line **125** or frangible line **119** respectively; in such embodiments, the second side edge is offset with respect to the fold line **125** or frangible line **119**. The third and first end closure panels **144***a*, **140***a* may not be tapered in such embodiments.

[0107] FIG. **6** illustrates the first and second packages in a connected condition. It is envisaged that a retailer may sever the frangible line **119** such that the first package is separated from the second package. In those embodiments in which the first side wall panel **114** of the first package is glued to the first side wall panel **128** of the second package, the retailer severs or breaks the glue connection. In some embodiments the first side wall panel **114**, **128** of the first and/or second package may comprise one or more glue locations which are surrounded by a half-cut perforation. In this way the retailer may readily, controllably and neatly tear an outer layer or skin of the substrate forming the first side wall panel **114**, **128**.

[0108] Once the retailer has separated the first package from the second package, the retailer rotates the first package with respect to the second package such that the end pull device of each of the first and second packages face the same direction. In this way, when the first and second packages are disposed upon a shelf (not shown), or other display apparatus, both the end pull devices face the consumer. Thus, when the consumer wishes to withdraw one package from the shelf, they may employ the end pull device of either one of the packages located on the shelf.

[0109] Optionally, the blank **110** may comprise a third recess (not shown) struck from the first side wall panel **114** of the first package and a fourth recess (not shown) struck from the first side wall panel **128** of the second package.

[0110] The third recess is located on an end edge of the first side wall panel **114** of the first package. The third recess is disposed adjacent to the fold line **113** such that in a set-up carton the third recess is at substantially the same elevation and at the same end of the first package as the recess R**1** and the aperture A**1**.

[0111] The fourth recess is located on an end edge of the first side wall panel **128** of the second package. The fourth recess is disposed adjacent to the fold line **125** such that in a set-up carton the fourth recess is at substantially the same elevation and at the same end of the second package as the recess R**2** and the aperture A**2**.

[0112] 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. It will be appreciated that the end pull device of any of the embodiments disclosed herein may be employed in a carton which is not divisible.

[0113] It will be recognized that as used herein, directional references such as "front", "back", "end", "side", "inner", "outer", "upper" and "lower" do not necessarily limit the respective panels to such orientation, but may merely serve to distinguish these panels from one another.

[0114] As used herein, the terms "hinged connection" and "fold line" refer 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 a 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.

[0115] As used herein, the term "weakened line of severance" or "frangible line" refers to all manner of lines that facilitate separating portions of the substrate from one another or that indicate optimal separation locations. Weakened lines of severance may be frangible or otherwise weakened lines, tear lines, cut lines, or slits.

[0116] It should be understood that hinged connections, 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.

[0117] The phrase "in registry with" as used herein refers to alignment of two or more elements in an erected carton, such as a recess formed in a first of two overlapping panels and an aperture formed in a second of two overlapping panels. Those elements in registry with each other may be aligned with each other in the direction of the thickness of the overlapping panels. For example, when a recess in a first panel is "in registry with" an aperture in a second panel that is placed in an overlapping arrangement with the first panel, an edge of the recess may extend along at least a portion of an edge of the aperture and may be aligned, in the direction of the thickness of the first and second panels, with the aperture.

1. A carton for packaging articles, the carton comprising a first plurality of walls including a top wall, base wall, first side wall and second side wall forming a first tubular structure, each end of the first tubular structure being at least partially closed by one or more end closure panels to form a first package, and a second plurality of walls including a top wall, base wall, first side wall and second side wall forming a second tubular structure, each end of the second tubular structure being at least partially closed by one or more end closure panels to form a second package, wherein the first package and the second package are connected together by a unitary bottom wall of the carton formed from the base walls of the first and second packages, the unitary bottom wall of the carton comprising a frangible line along which the base walls of the first and second packages are detachably connected.

2. A carton according to claim **1** wherein the carton comprises at least one an end pull device for withdrawing the first package and/or the second package from a display apparatus wherein the end pull device comprises a first recess defined at an end of the first side wall panel of at least one of the first and second tubular structures so as to facilitate access to an edge of the one or more end closure panels at an adjacent end of the at least one of the first and second tubular structures.

3. A carton according to claim **2** wherein the one or more end closure panels at the adjacent end of the at least one of the first and second tubular structures comprises a first end closure panel, and wherein the first end closure panel comprises a second recess defined along a side edge thereof.

4. A carton according to claim **3** wherein the one or more end closure panels at the adjacent end of the at least one of the first and second tubular structures further comprises a second end closure panel hinged to the end of the first side wall panel of the at least one of the first and second tubular structures, and wherein a third recess is defined in the second end closure panel, the first recess and the third recess together forming an aperture which interrupts the hinged connection between the second end closure panel and the first side wall panel of the at least one of the first and second tubular structures.

5. A carton according to claim **4** wherein the second recess is arranged to be in registry with at least a portion of the aperture when the first end closure panel is in overlapping relationship with the second end closure panel.

6. A carton according to claim **4** wherein the end pull device comprises a fourth recess defined at an end of the second side wall panel of the at least one of the first and second tubular structures.

7. A carton according to claim **2** wherein the second side wall panel comprises a free end edge which is connected to no other part of the carton.

8. A carton according to claim **2** wherein the at least one end pull device comprises two end pull devices for withdrawing each of the first and second packages from a display apparatus.

9. A carton according to claim **8** wherein a first one of the two end pull device is disposed at a first end of the carton and a second one of the two end pull device is disposed at second end of the carton, the second end opposing the first end.

10. A carton according to claim **1** wherein the second side wall panel of the first package and the second side wall panel of the second package are disposed in face contacting relationship with each other to form an internal divider structure between two adjacent rows of articles to be received in the carton.

11. A carton according to claim **10** wherein the second side wall panel of the first package and the second side wall panel of the second package are secured to each other by glue or other adhesive treatment.

12. A blank for forming a carton, the blank comprising a first plurality of walls including a top wall, base wall, first side wall and second side wall, for forming a first tubular structure, one or more end closure panels for at least partially closing each end of the first tubular structure, a second plurality of walls including a top wall, base wall, first side wall and second side wall, for forming a second tubular structure, and one or more end closure panels for at least partially closing each end of the second tubular structure, wherein the base walls of the first and second plurality of walls are frangibly connected together by a frangible line such that the base walls of the first and second plurality of walls form a unitary panel by which the first and second tubular structures are connected together when the blank is erected into a carton.

13. A blank according to claim **12** wherein the one or more end closure panels for closing each end of the first and second tubular structures includes an upper end closure panel and a lower end closure panel, the upper end closure panel is hingedly connected to a respective one of the top walls, the lower end closure panel is hingedly connected to a respective one of the base walls, an outside surface of the lower end closure panel for each end has a glue application area for being secured to an inside surface of a respective one of the upper end closure panels.

14. A blank according to claim **12** wherein the one or more end closure panels for closing each end of the first and second tubular structures includes an upper end closure panel and a lower end closure panel, the upper end closure panel is hingedly connected to a respective one of the top walls, the lower end closure panel is hingedly connected to a respective one of the base walls, an inside surface of the upper end closure panel for each end has a glue application area for being secured to an outside surface of a respective one of the lower end closure panels.

15. A method of packaging articles in the carton of claim **1** comprising:

providing the carton in a flat collapsed condition to a packaging machine;

erecting the carton into an open ended double tube structure including the first and second tubular structures;

placing the carton with the bottom wall down onto a supporting surface of the packaging machine;

loading articles into the carton through at least one open end of each of the first and second tubular structures; and

closing, at least partially, each end of the first and second tubular structures to retain the articles therein.

16. A method of forming a loaded carton using a divisible carton, the divisible carton comprising:

a first plurality of walls including a top wall, base wall, first side wall and second side wall forming a first tubular structure, each end of the first tubular structure being at least partially closed by one or more end closure panels to form a first package, and a second plurality of walls including a top wall, base wall, first side wall and second side wall forming a second tubular structure, each end of the second tubular structure being at least partially closed by one or more end closure panels to form a second package, wherein the first package and the second package are connected together by a unitary bottom wall of the carton formed from the base walls of the first and second packages, the unitary bottom wall of the carton comprising a frangible line along which the base walls of the first and second packages are detachably connected, the method comprising:

forming the carton in a flat collapsed condition;

feeding the flat carton to a packaging machine;

erecting the carton into an open ended double tube structure including the first and second tubular structures;

placing the carton with the unitary bottom wall down onto a supporting surface of the packaging machine;

loading articles into the carton through at least one open end of each of the first and second tubular structures; and

closing, at least partially, each end of the first and second tubular structures to retain the articles therein, whereby a divisible, loaded carton is formed with the first and second packages detachably connected together along the frangible line.

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