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(54) **ARTICLE CARRIER AND BLANK**

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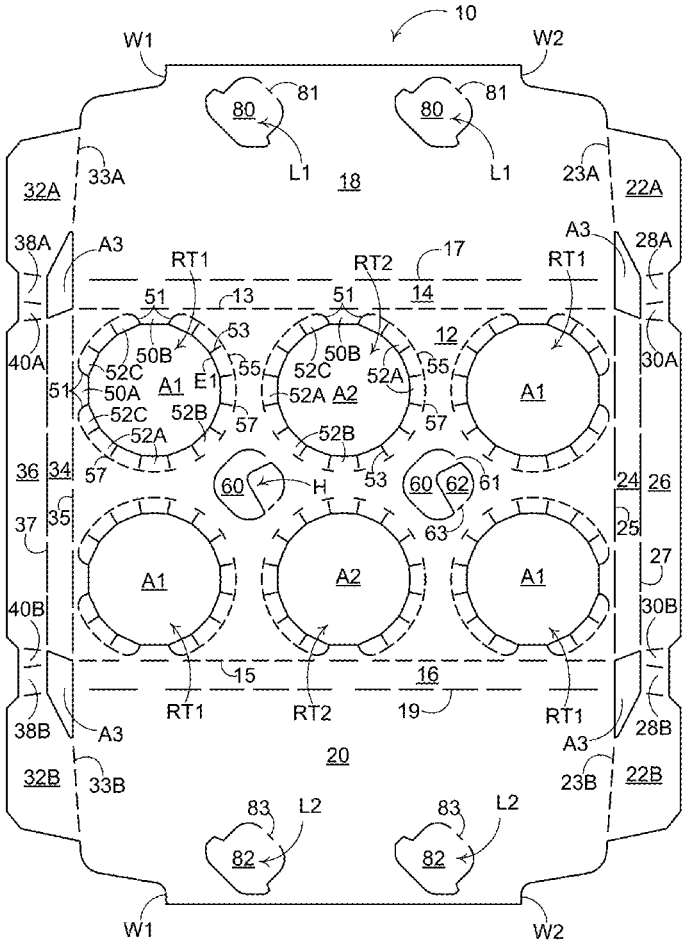
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CPC ***B65D 71/44*** (2013.01); ***B65D 71/48*** (2013.01); *B65D 2571/00185* (2013.01); *B65D 2571/00265* (2013.01); *B65D 2571/00277* (2013.01); *B65D 2571/00456* (2013.01)

(57) **ABSTRACT**

Aspects of the disclosure relate to a packaging system, a package (P), article carriers (**90**; **1090**; **2090**; **3090**) for packaging one or more articles and a joint member (**190**; **2190**; **3190**; **4190**; **5190**; **6190**), and blanks (**10**; **110**; **1010**; **1110**; **2010**; **2110**; **3010**; **4110**; **5110**; **6110**) for forming the article carriers (**90**; **1090**; **2090**; **3090**) and joint member (**190**; **2190**; **3190**; **4190**; **5190**; **6190**). The package P comprises a pair of sub-packages (**90**; **1090**; **2090**; **3090**), including a first sub-package (**90**; **1090**; **2090**; **3090**) and a second sub-package (**90**; **1090**; **2090**; **3090**) disposed next to each other, or one on top of another, and a joint member (**190**; **2190**; **3190**; **4190**; **5190**; **6190**), in the form of a handle strap, connecting the pair of sub-packages (**90**; **1090**; **2090**; **3090**) together into a unitary tertiary package (P). The joint member (**190**; **2190**; **3190**; **4190**; **5190**; **6190**) comprises a tubular structure disposed around the pair of sub-packages (**90**; **1090**; **2090**; **3090**).



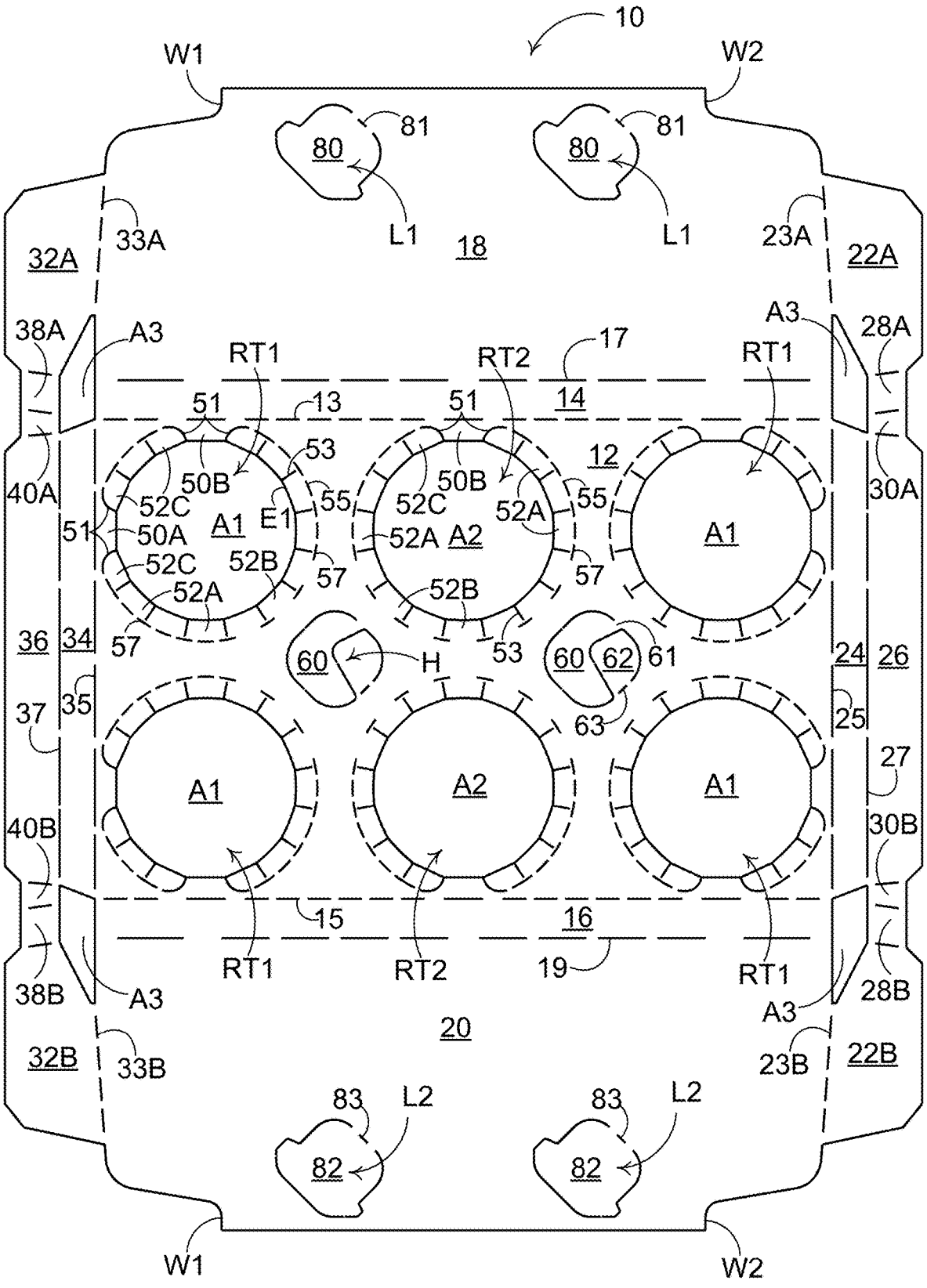

10
W1
W2
80
81
L1
18
32A
33A
23A
22A
38A
A3
28A
RT1
RT2
17
14
51
13
53
50B
52C
A1
E1
55
52A
A2
12
40A
30A
50A
52B
57
36
34
60
H
61
62
24
26
35
37
63
25
27
40B
30B
15
16
19
20
38B
28B
32B
33B
23B
22B
83
L2
82

FIG. 1

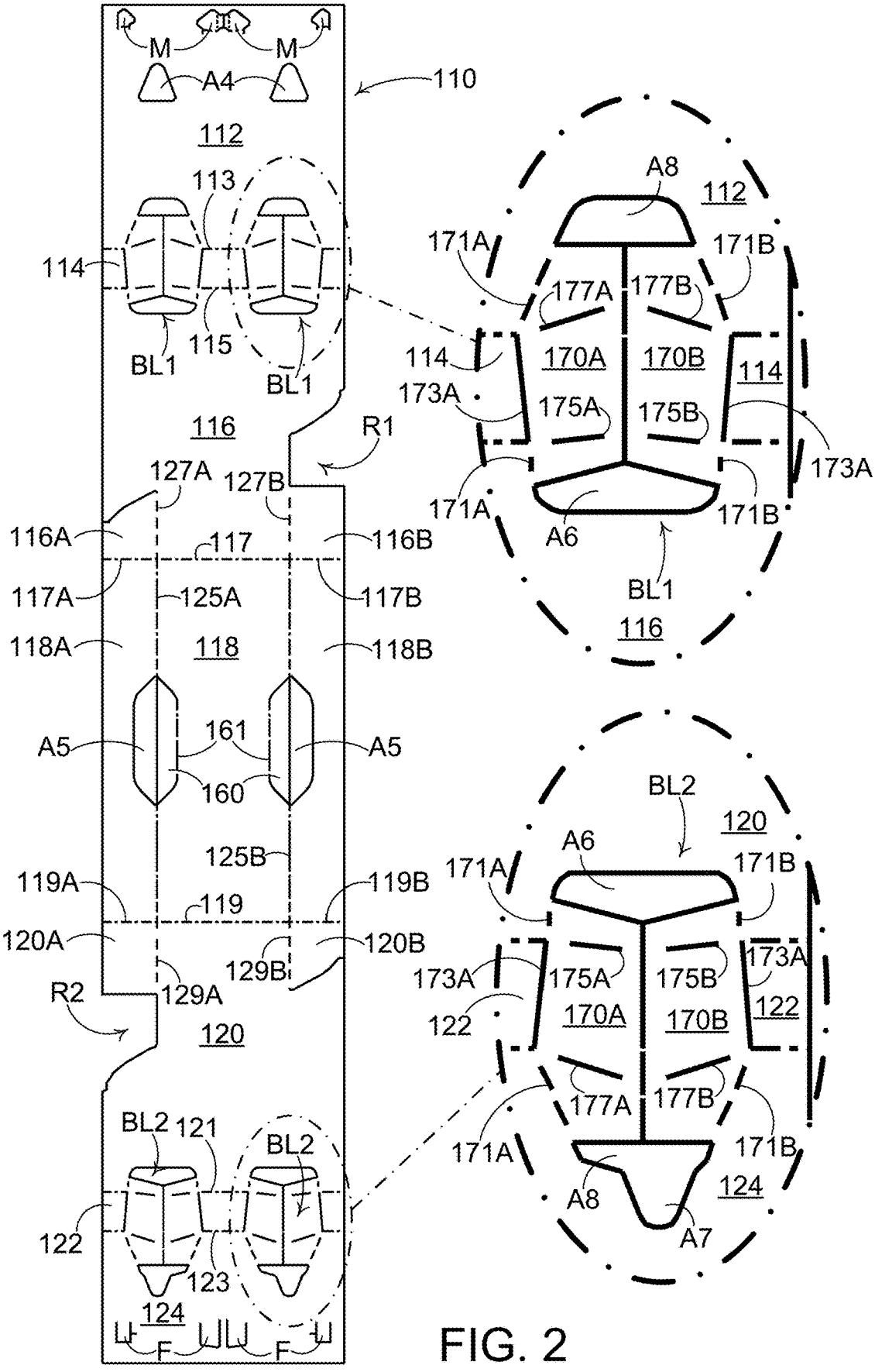

M
M
A4
110
112
113
114
BL1
115
BL1
116
R1
127A
127B
116A
117
116B
117A
125A
117B
118A
118
118B
A5
161
A5
160
125B
119A
119
119B
120A
120B
129B
R2
129A
120
BL2
121
BL2
122
123
124
F
F
A8
112
171A
171B
177A
177B
114
170A
170B
114
173A
175A
175B
173A
171A
171B
A6
BL1
116
BL2
120
A6
171A
171B
173A
175A
175B
173A
122
170A
170B
122
177A
177B
171A
171B
A8
124
A7

FIG. 2

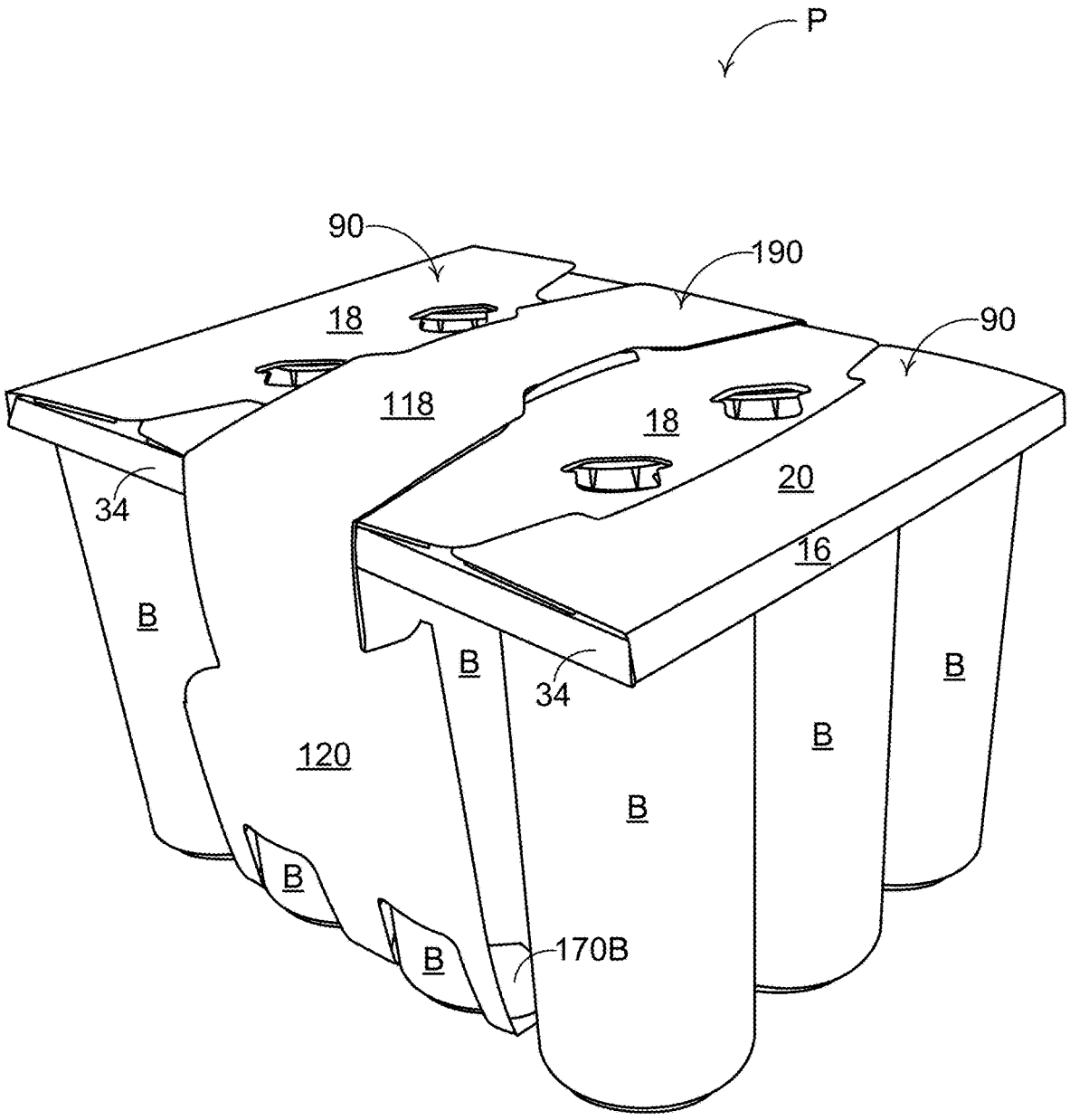


FIG. 3

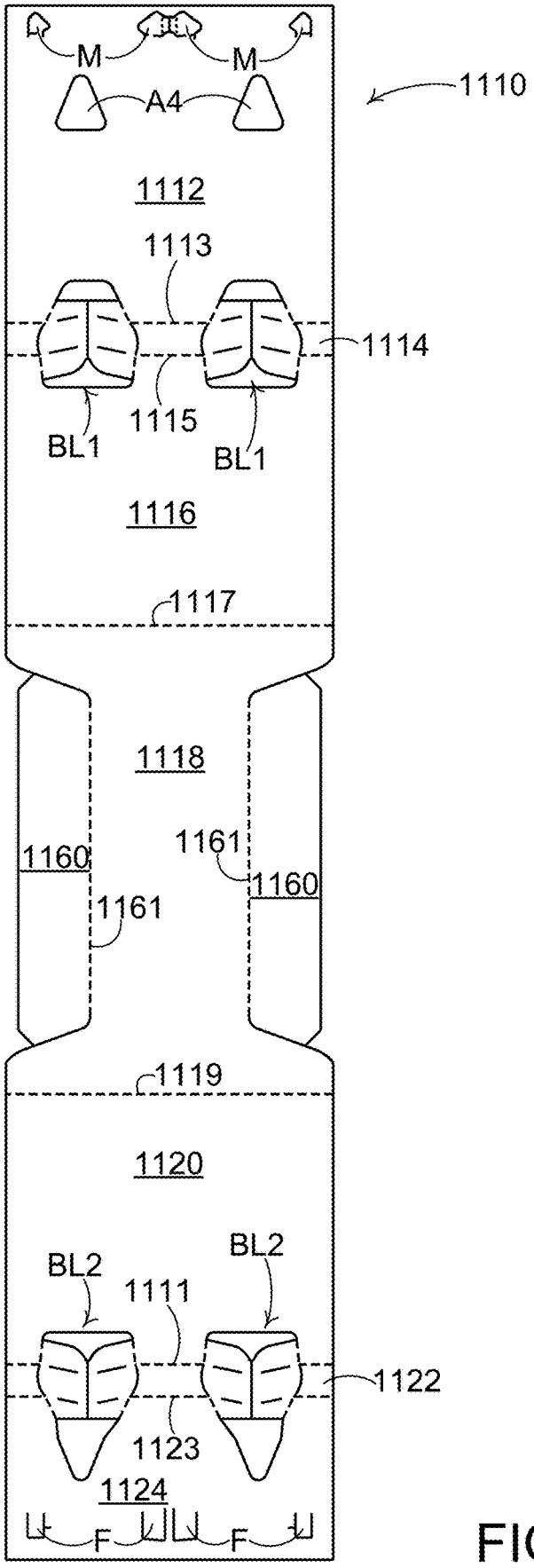

M
M
A4
1110
1112
1113
1114
1115
BL1
BL1
1116
1117
1118
1160
1161
1161
1160
1119
1120
BL2
BL2
1111
1122
1123
1124
F
F

FIG. 4

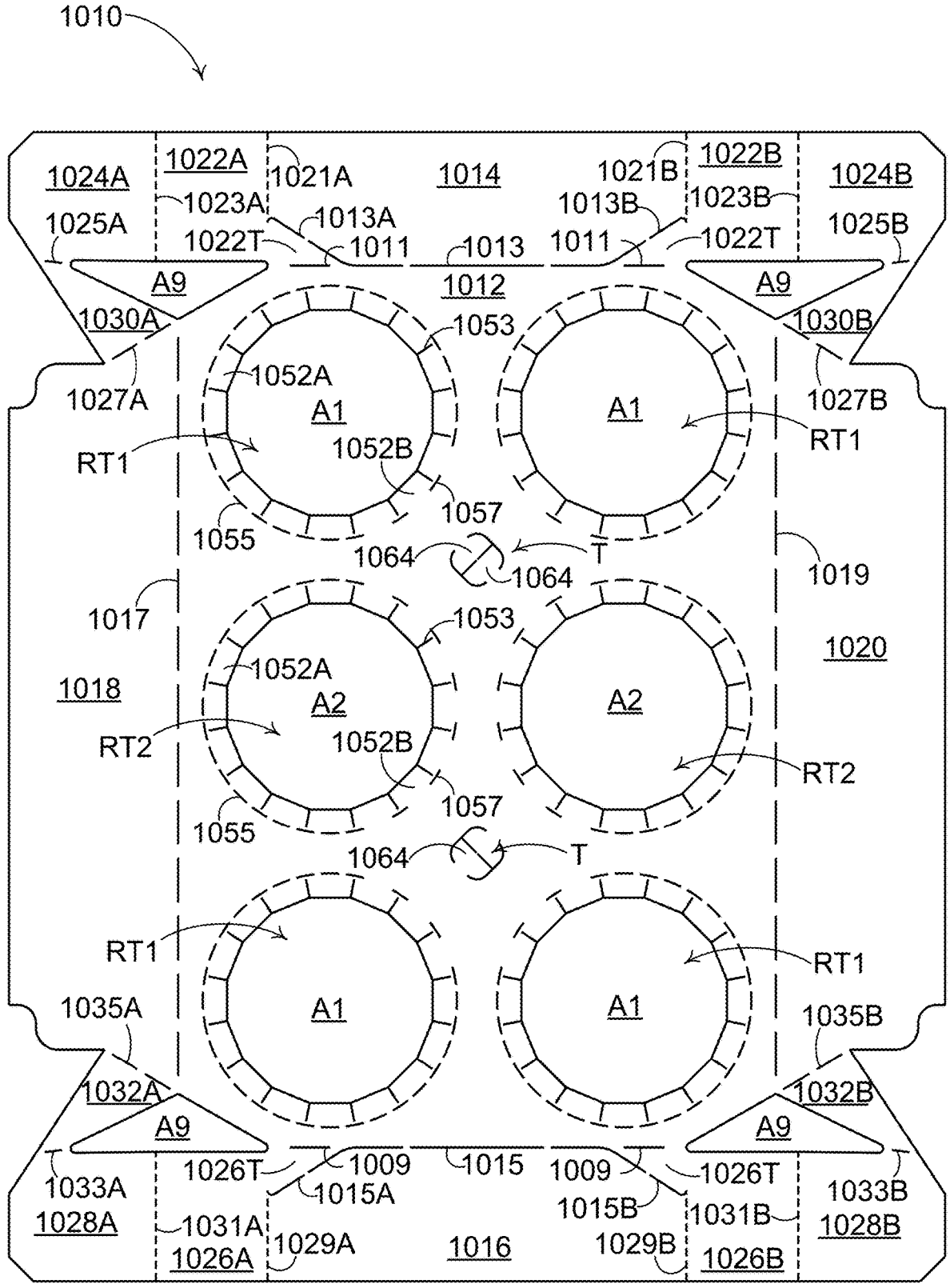

1010
1024A
1022A
1021A
1014
1021B
1022B
1024B
1023A
1013A
1013B
1023B
1025A
1022T
1011
1013
1011
1022T
1025B
A9
1012
A9
1030A
1053
1030B
1052A
1027A
A1
A1
1027B
RT1
1052B
RT1
1057
1055
1064
T
1064
1019
1017
1053
1020
1052A
1018
A2
A2
RT2
1052B
RT2
1057
1055
1064
T
RT1
RT1
1035A
A1
A1
1035B
1032A
1032B
A9
A9
1026T
1009
1015
1009
1026T
1033A
1015A
1015B
1033B
1028A
1031A
1031B
1028B
1029A
1016
1029B
1026A
1026B

FIG. 5

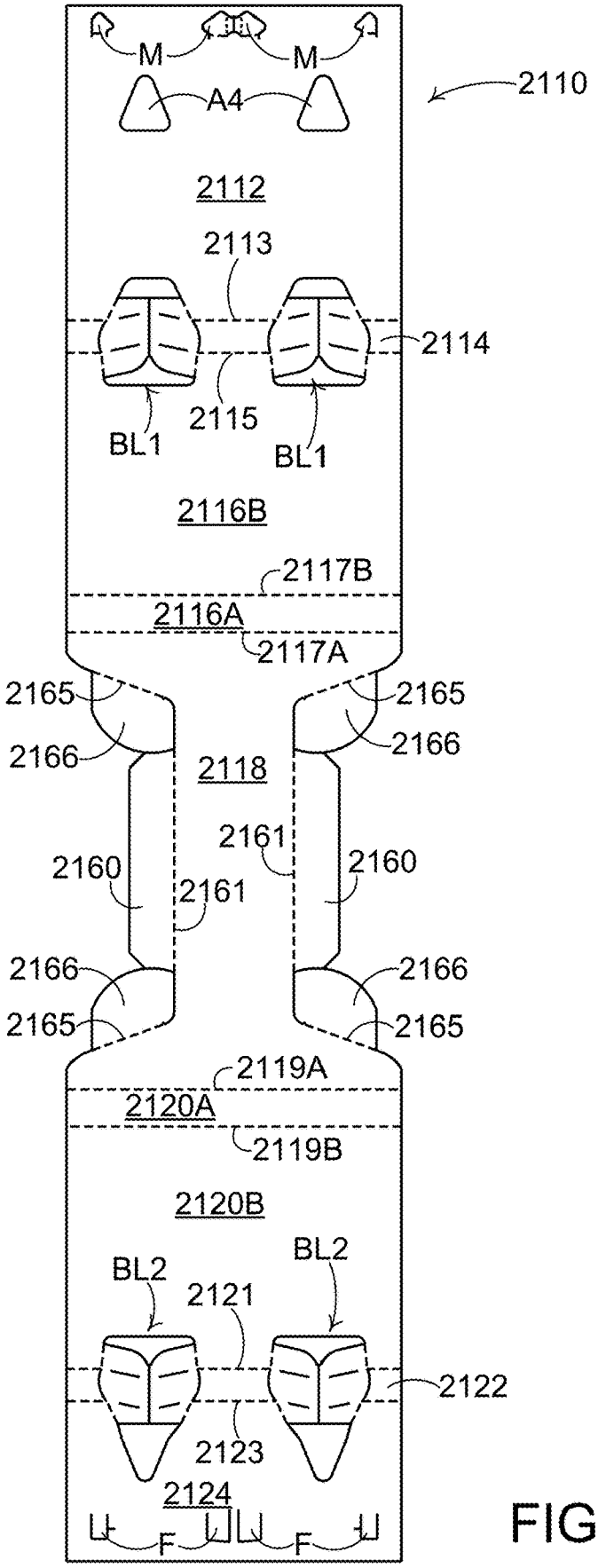

M
M
A4
2110
2112
2113
2114
2115
BL1
BL1
2116B
2117B
2116A
2117A
2165
2165
2166
2166
2118
2161
2160
2160
2161
2166
2166
2165
2165
2119A
2120A
2119B
2120B
BL2
BL2
2121
2122
2123
2124
F
F

FIG. 6

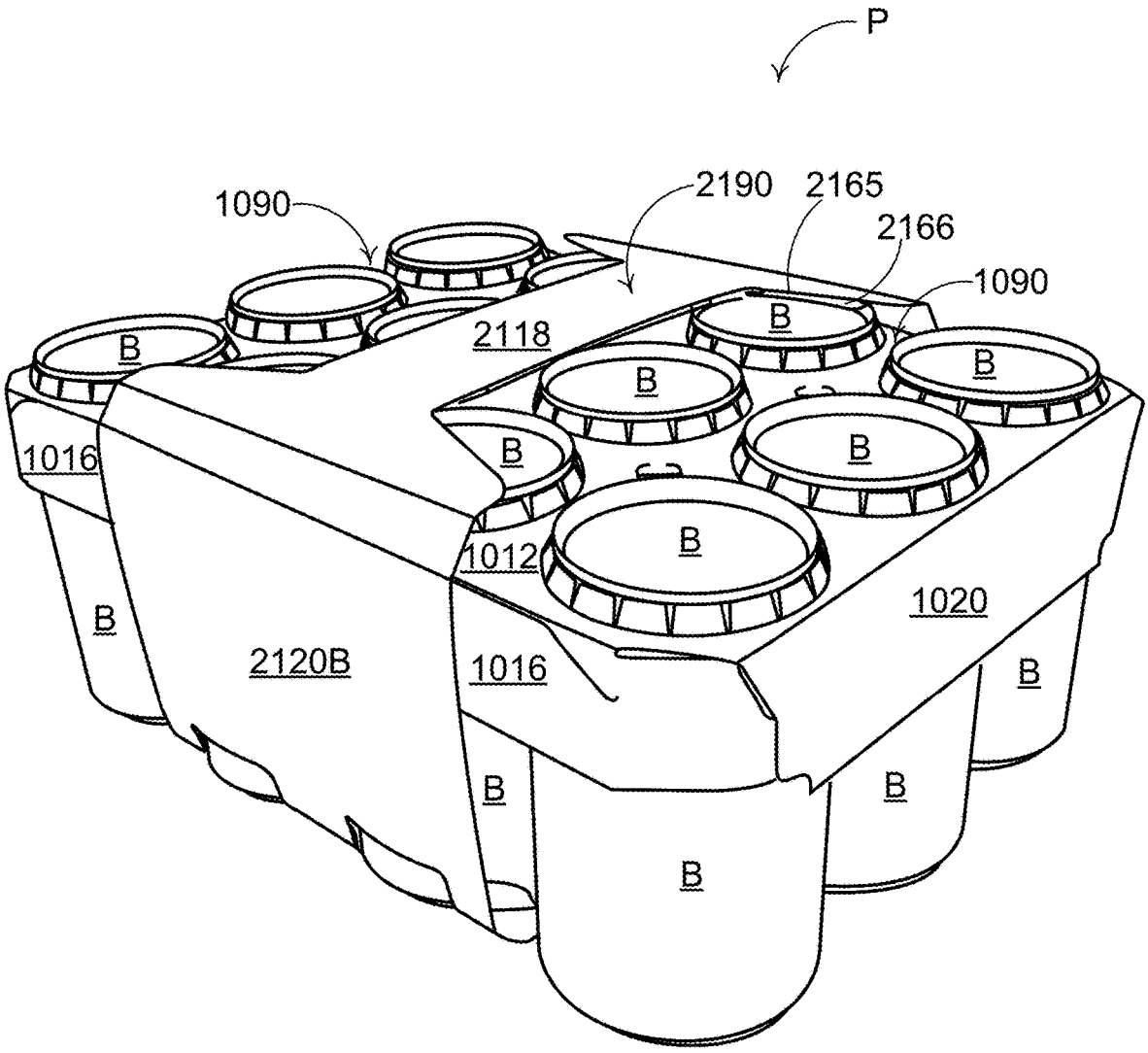


FIG. 7

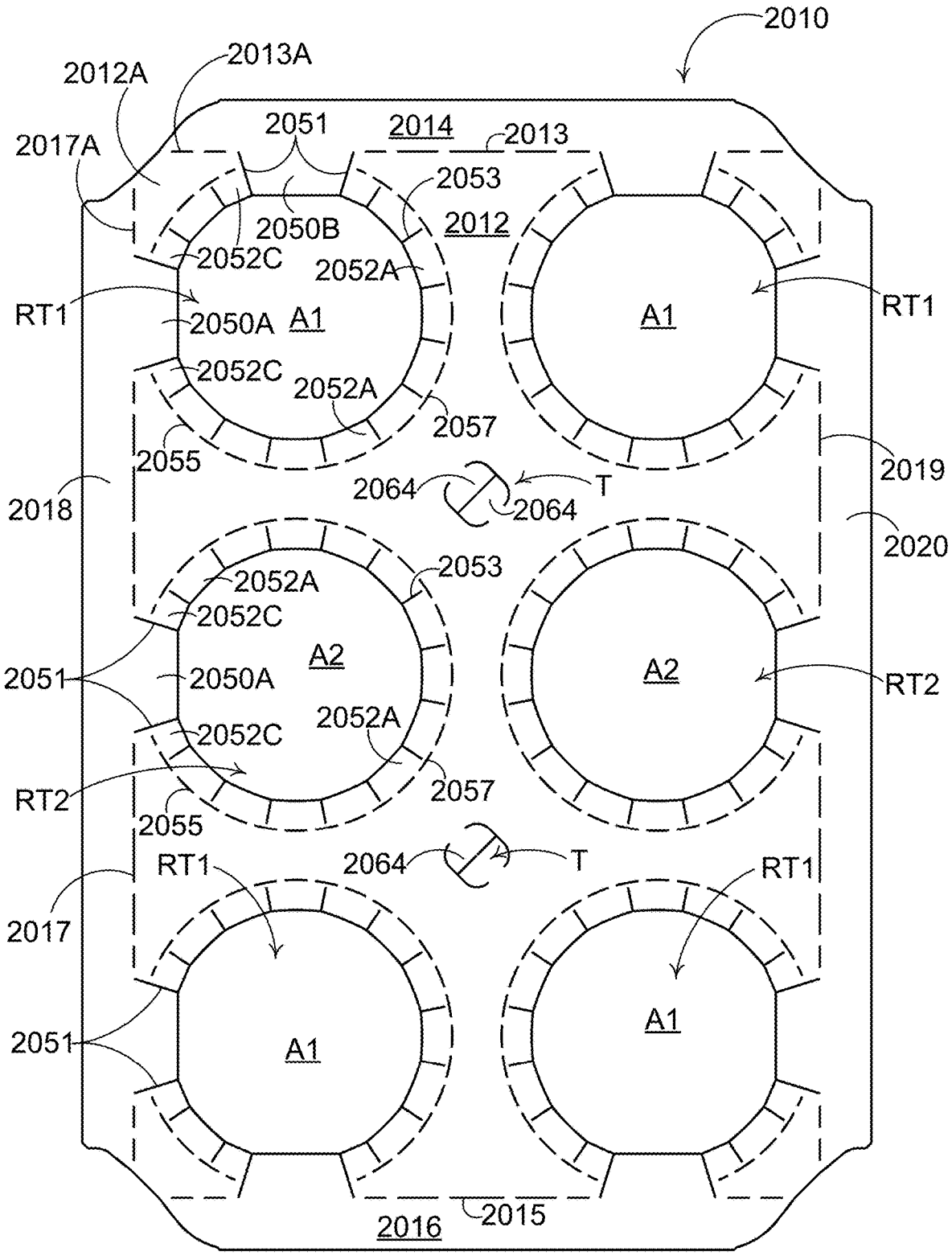

2010
2012A
2013A
2017A
2051
2014
2013
2053
2012
2050B
2052C
2052A
RT1
2050A
A1
2057
2055
2018
2064
T
2019
2020
2053
2052A
2052C
A2
2051
2050A
RT2
2017
2016
2015

FIG. 8

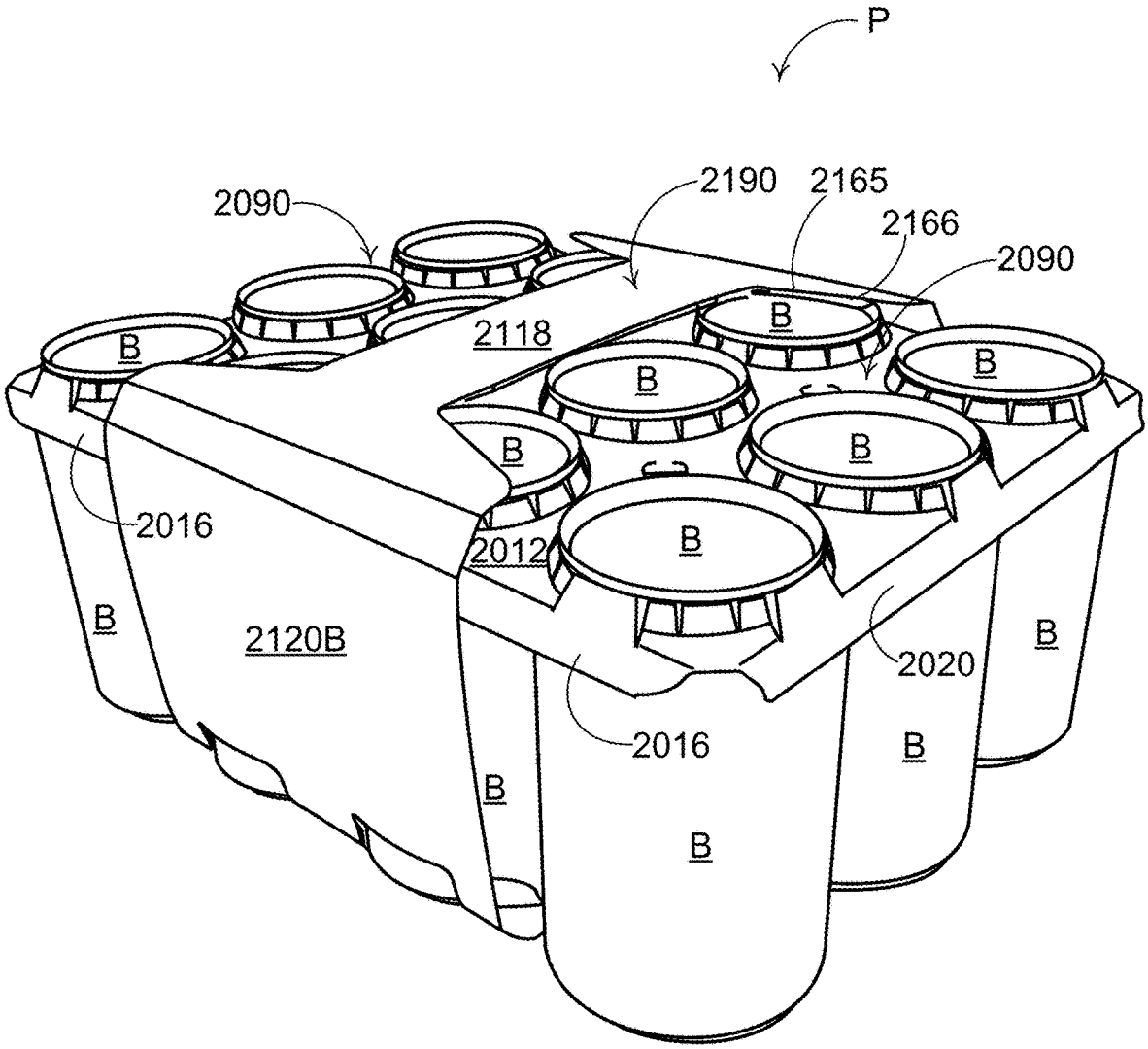


FIG. 9

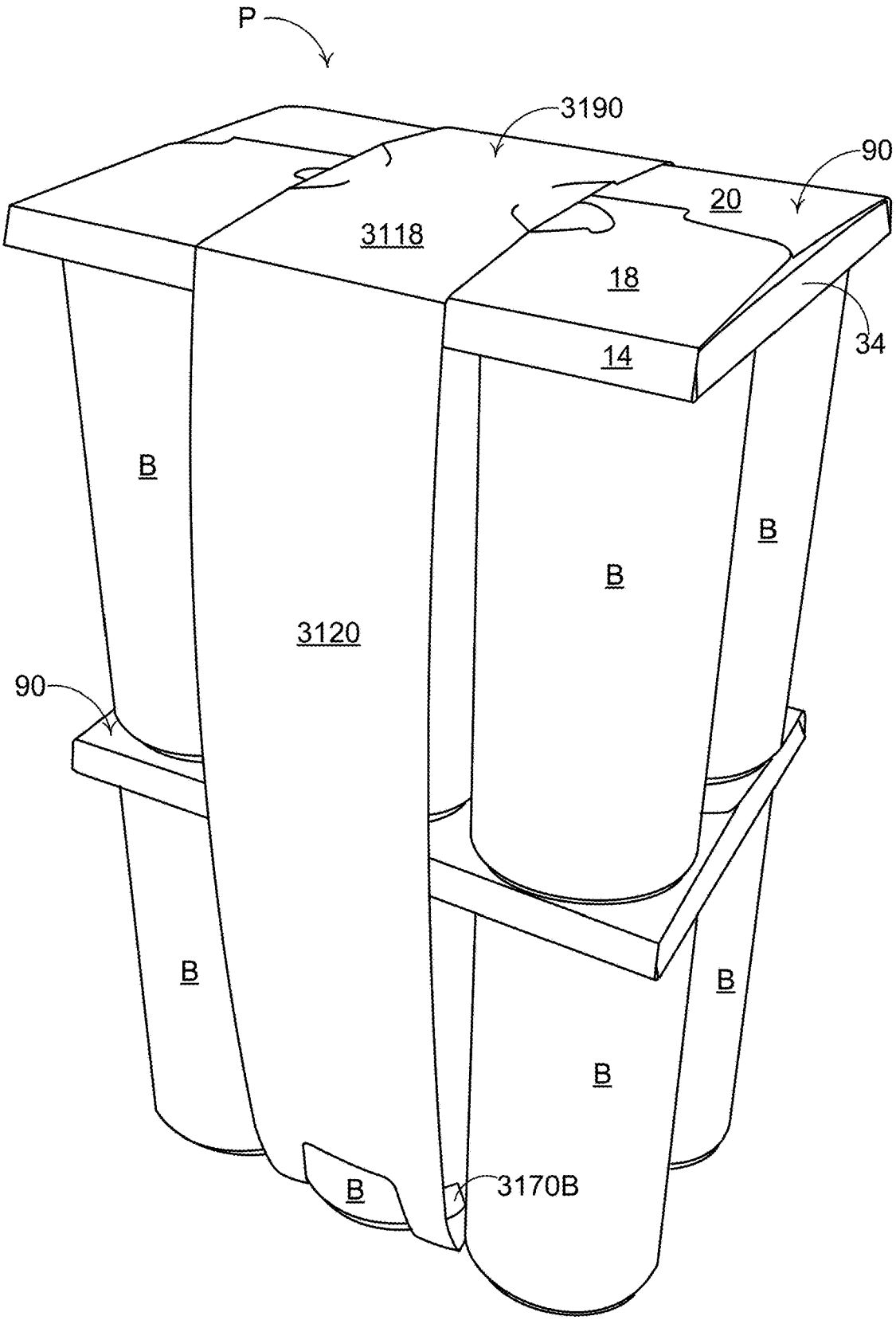


FIG. 10

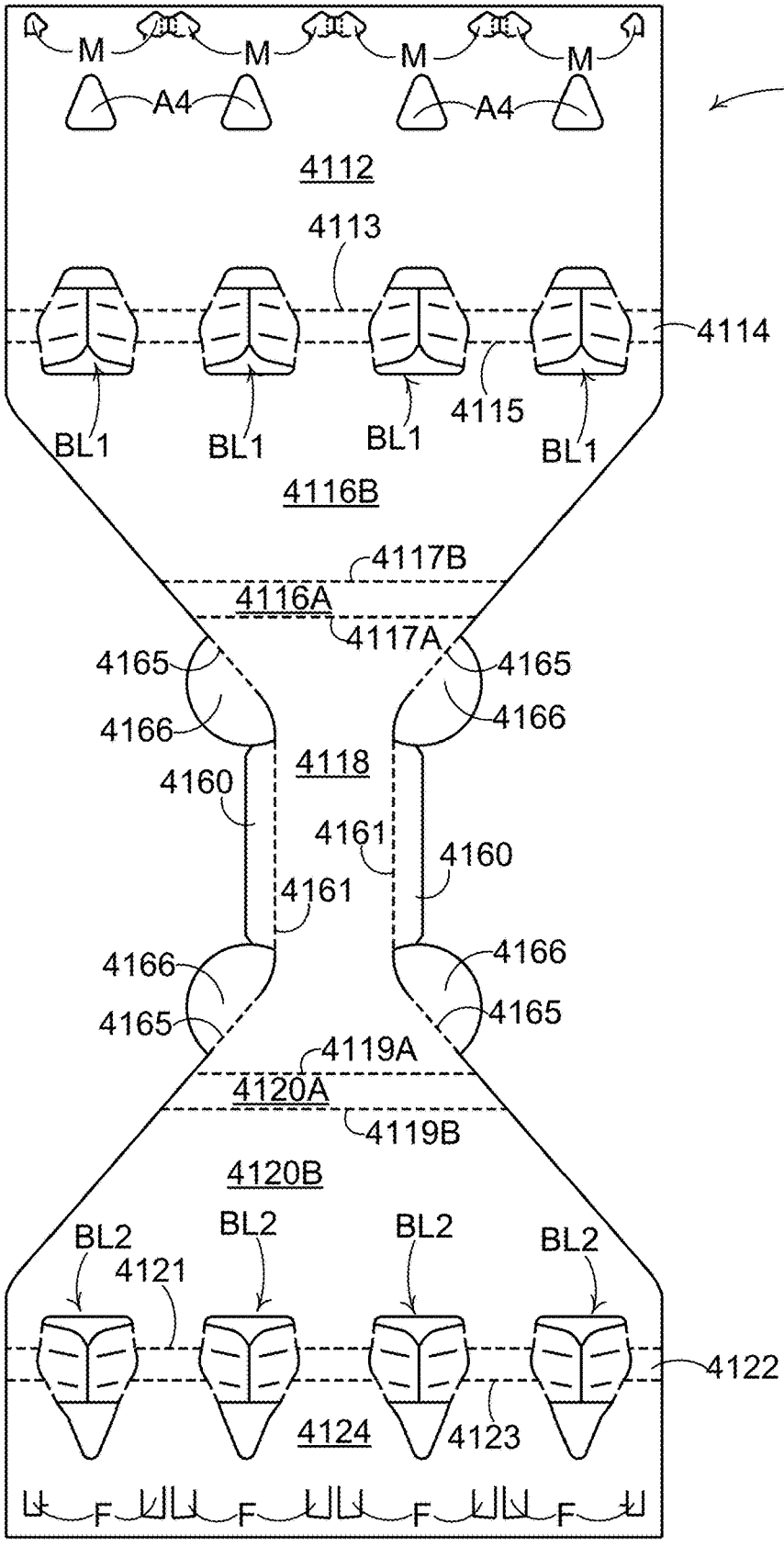

M
M
M
M
A4
A4
4110
4112
4113
4114
4115
BL1
BL1
BL1
BL1
4116B
4117B
4116A
4117A
4165
4165
4166
4166
4118
4160
4161
4161
4160
4166
4166
4165
4165
4119A
4120A
4119B
4120B
BL2
BL2
BL2
BL2
4121
4122
4124
4123
F
F
F
F

FIG. 11

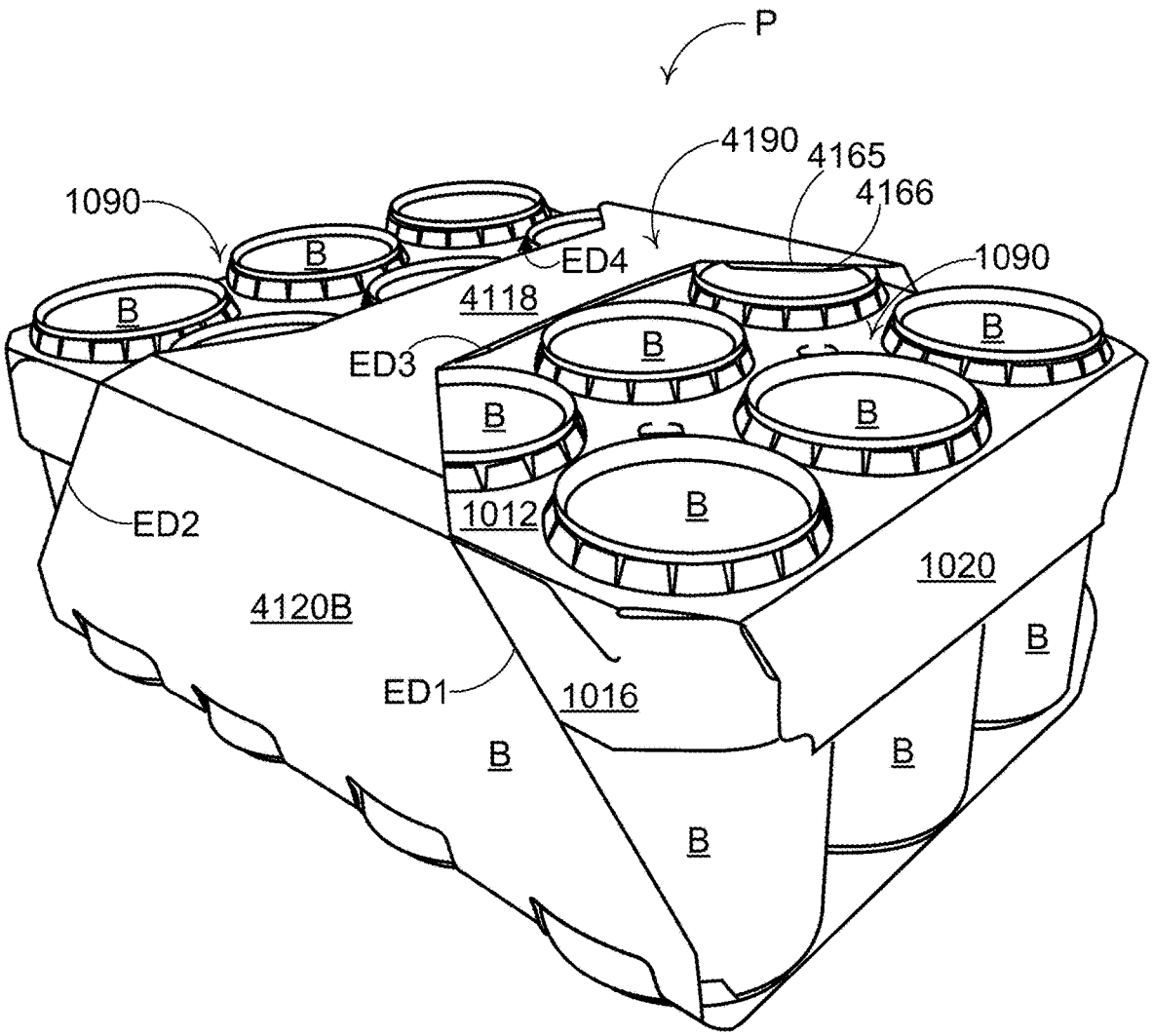

P
4190
4165
4166
1090
1090
B
ED4
4118
ED3
ED2
1012
1020
4120B
ED1
1016

FIG. 12

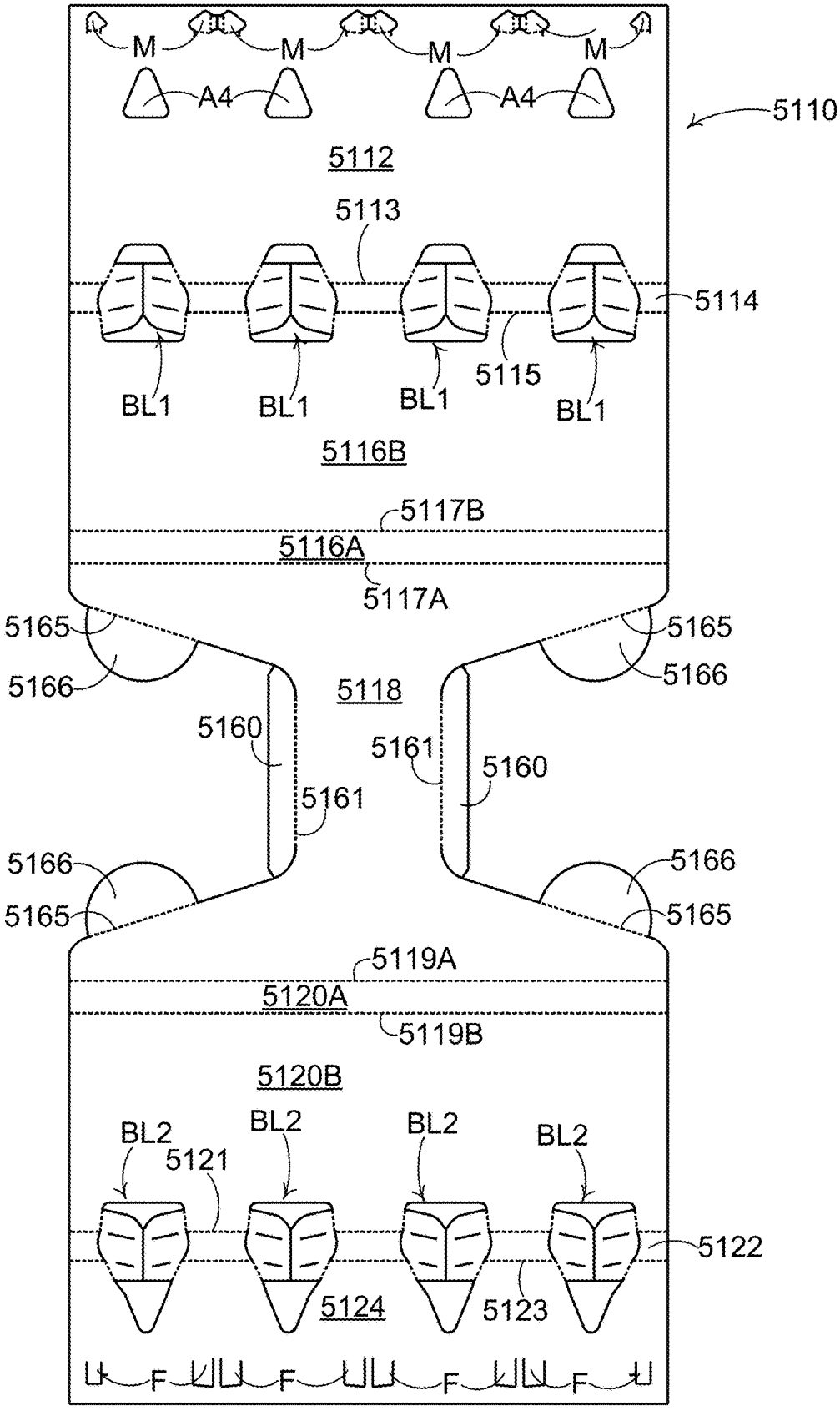

M
M
M
M
A4
A4
5110
5112
5113
5114
5115
BL1
BL1
BL1
BL1
5116B
5117B
5116A
5117A
5165
5166
5165
5166
5118
5160
5161
5161
5160
5166
5165
5166
5165
5119A
5120A
5119B
5120B
BL2
BL2
BL2
BL2
5121
5122
5124
5123
F
F
F
F

FIG. 13

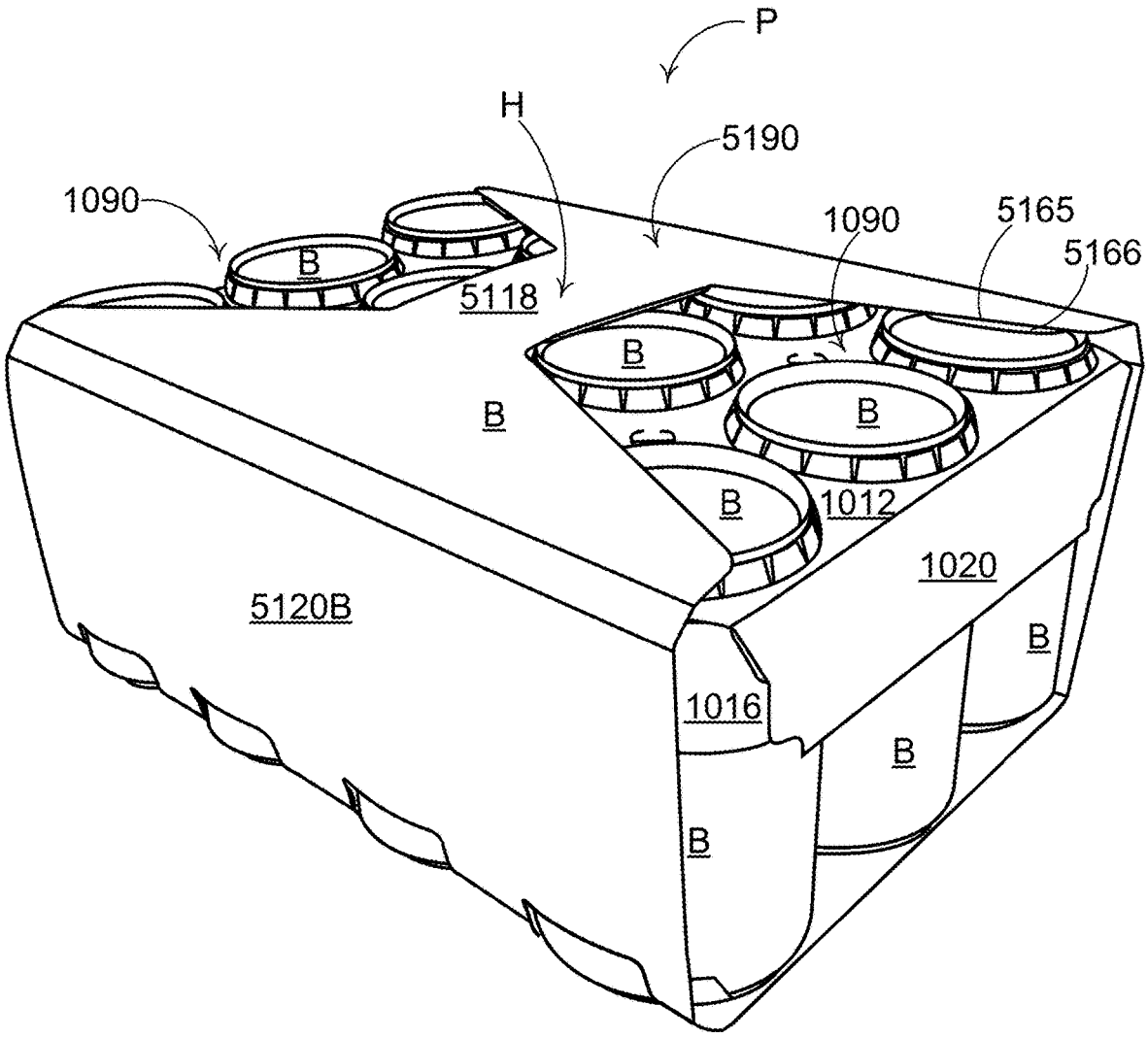

P
H
5190
1090
1090
5165
5166
B
5118
B
B
B
B
1012
1020
5120B
B
1016
B
B

FIG. 14

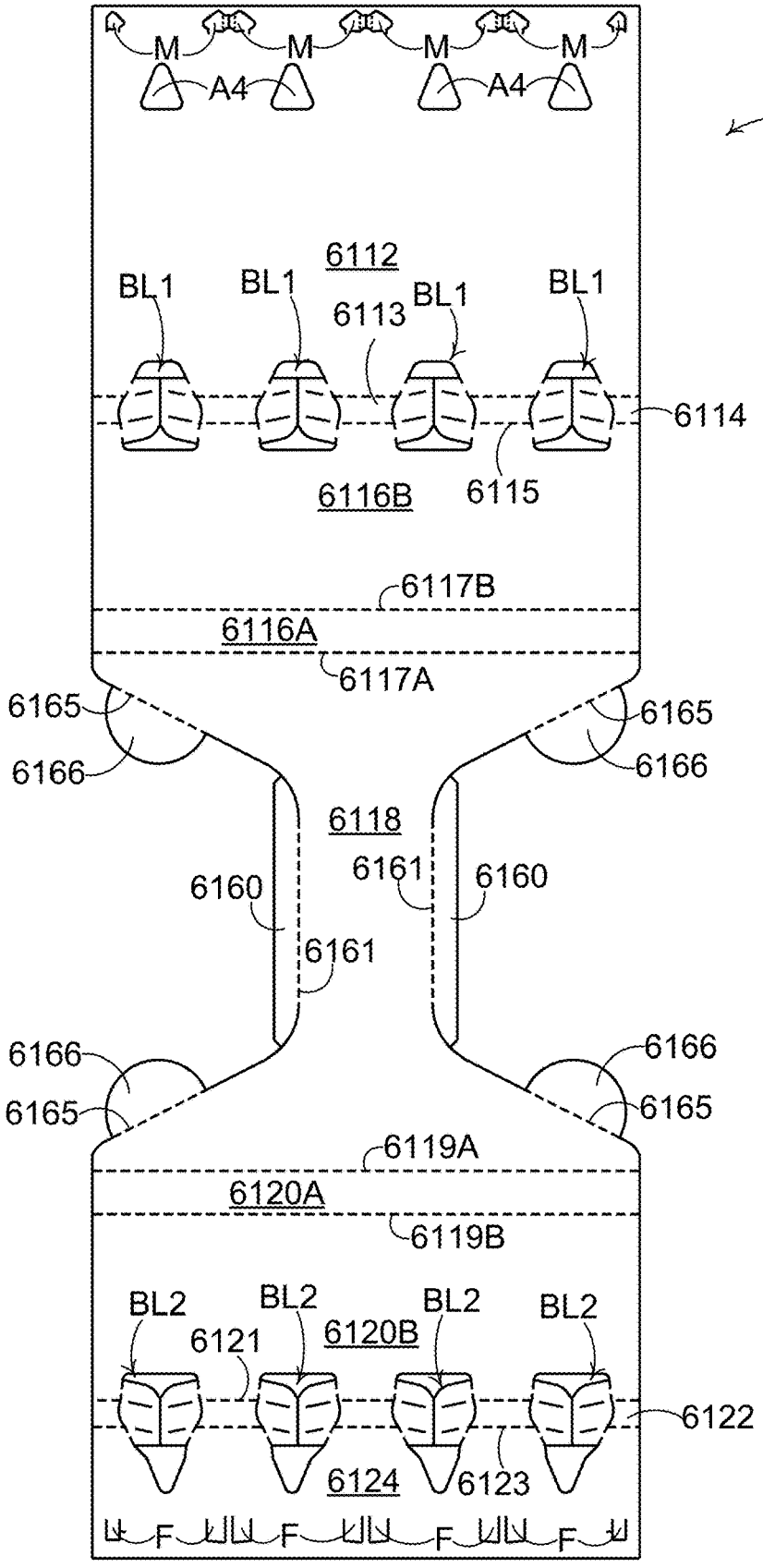

M
M
M
M
A4
A4
6110
6112
BL1
BL1
6113
BL1
BL1
6114
6116B
6115
6117B
6116A
6117A
6165
6166
6165
6166
6118
6160
6161
6161
6160
6166
6165
6166
6165
6119A
6120A
6119B
BL2
BL2
BL2
BL2
6121
6120B
6122
6124
6123
F
F
F
F

FIG. 15

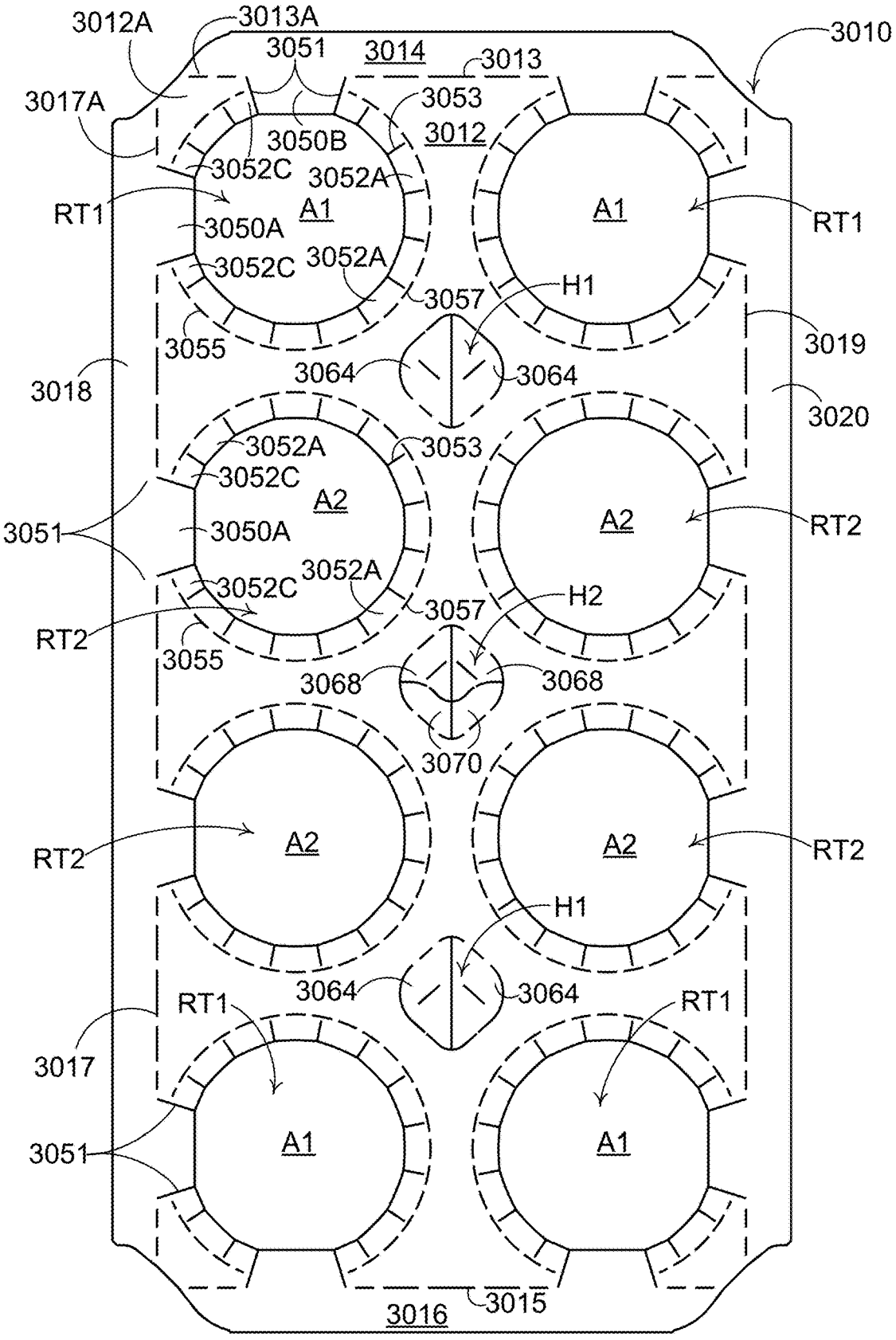

3012A
3013A
3051
3014
3013
3010
3017A
3053
3012
3050B
3052C
3052A
RT1
A1
3050A
3052C
3052A
3057
H1
3055
3019
3064
3064
3018
3020
3052A
3053
3052C
A2
3051
3050A
3052A
RT2
3052C
3057
H2
RT2
3055
3068
3068
3070
A2
A2
RT2
RT2
H1
3064
3064
RT1
RT1
3017
3051
A1
A1
3016
3015

FIG. 16

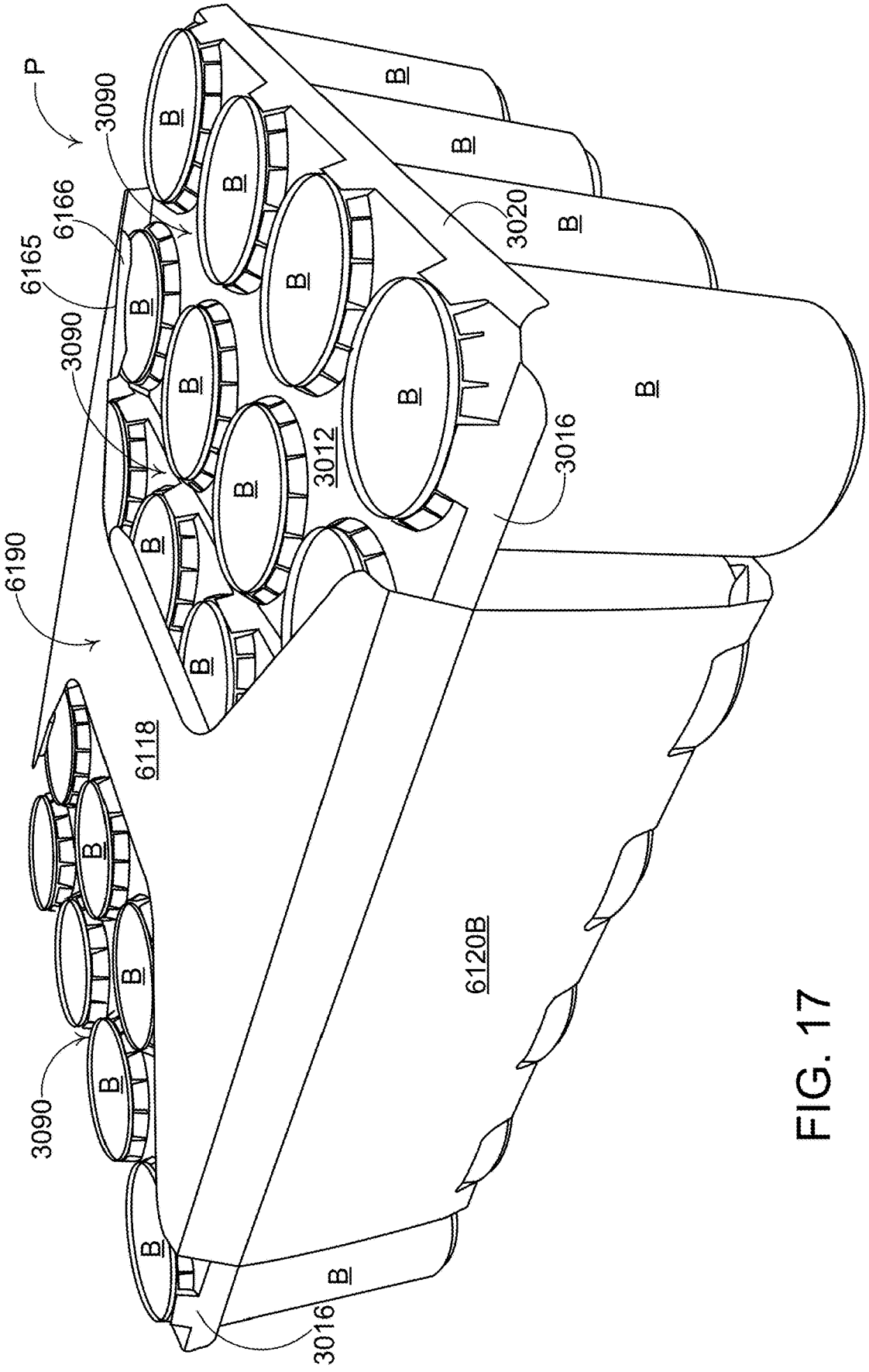

P
3090
6166
6165
3090
6190
6118
3090
3016
3012
3020
3016
6120B
B

FIG. 17

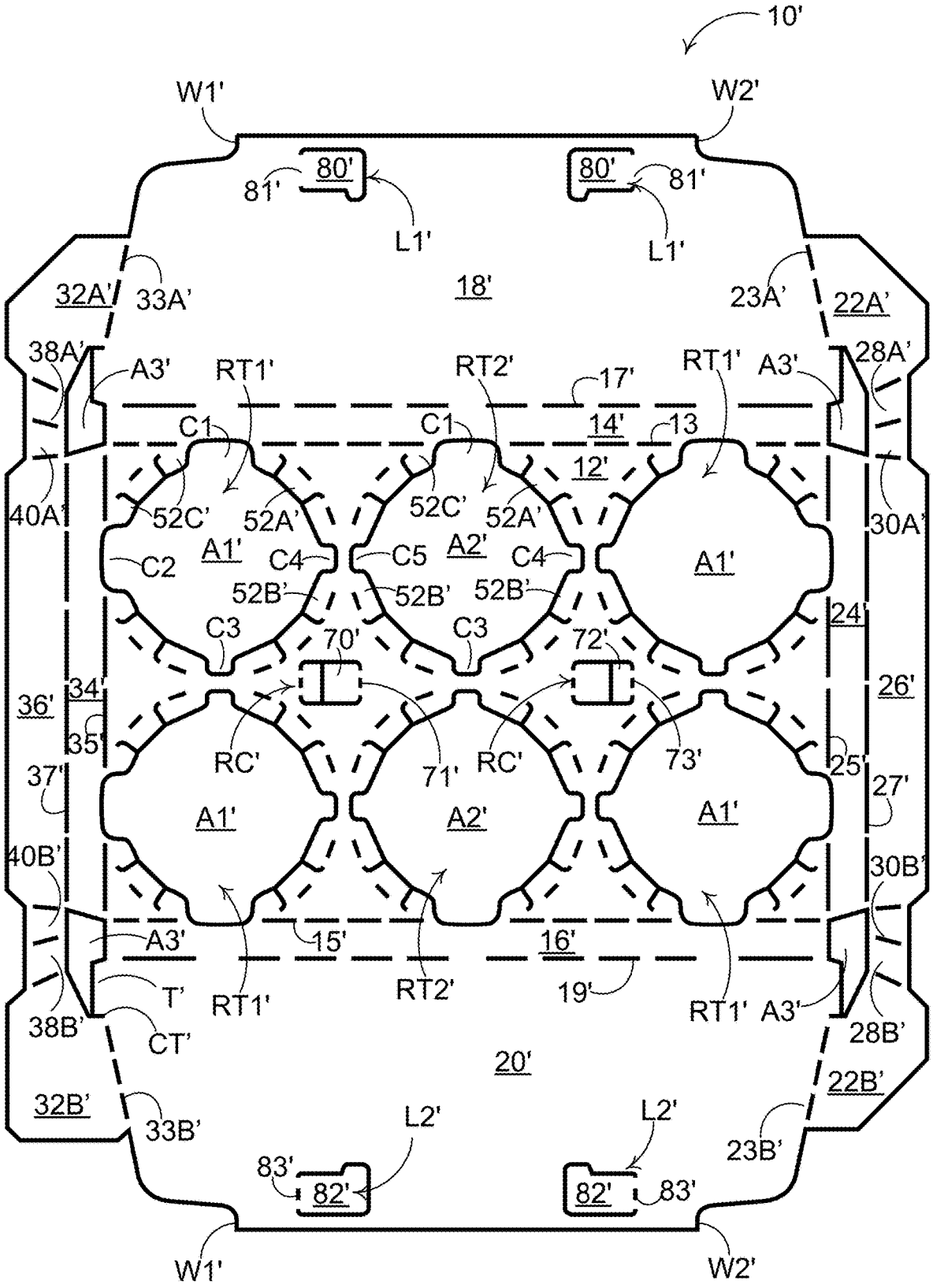

10'
W1'
W2'
80'
81'
L1'
18'
32A'
33A'
23A'
22A'
38A'
A3'
RT1'
RT2'
17'
C1
14'
13
12'
40A'
52C'
52A'
C2
A1'
C4
C5
A2'
30A'
52B'
C3
70'
72'
24'
34'
36'
26'
35'
RC'
71'
73'
25'
37'
27'
40B'
30B'
15'
16'
T'
19'
38B'
CT'
28B'
20'
22B'
32B'
33B'
L2'
23B'
83'
82'

FIG. 18

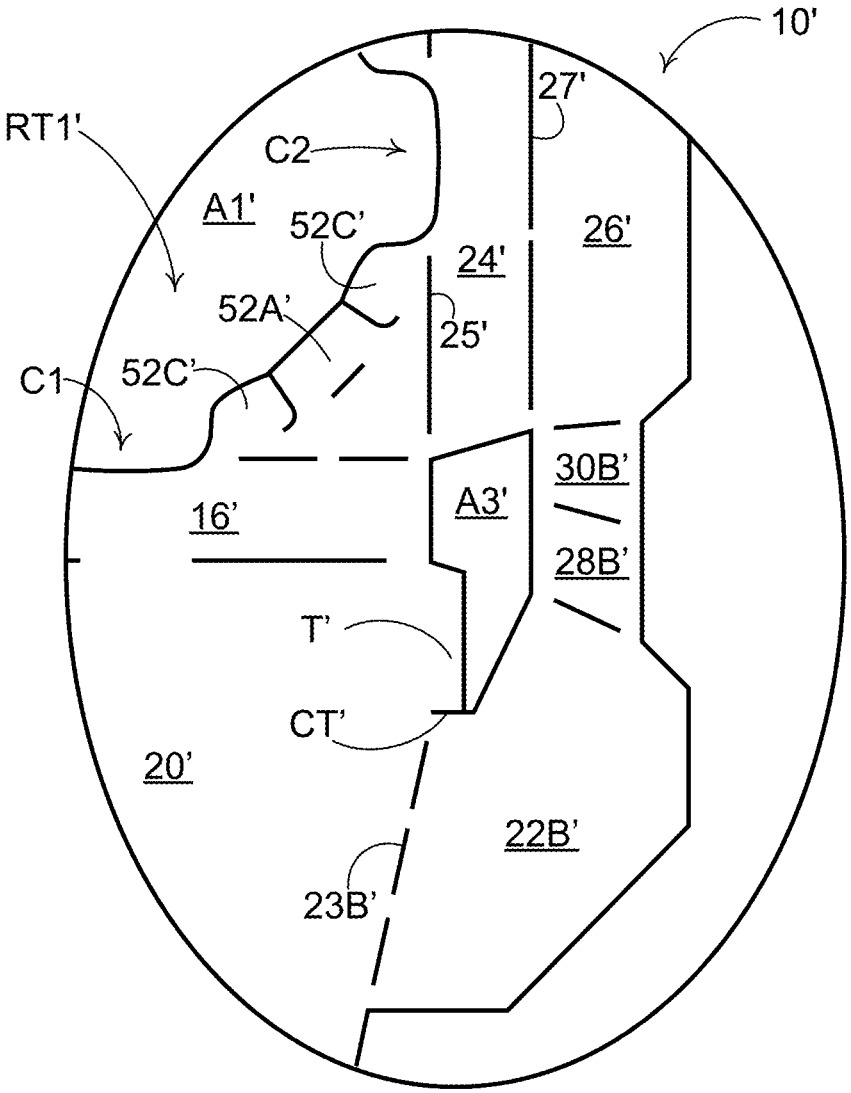


FIG. 18B

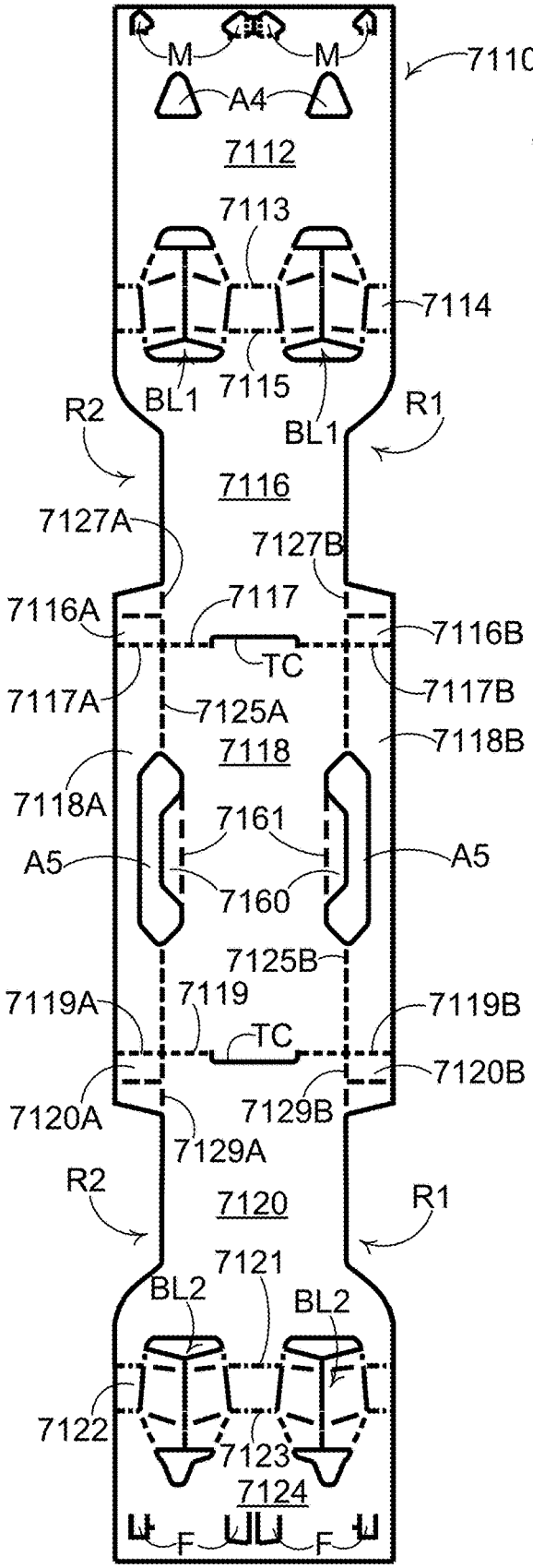

M
M
7110
A4
7112
7113
7114
BL1
7115
BL1
R2
R1
7116
7127A
7127B
7116A
7117
7116B
TC
7117A
7117B
7125A
7118
7118B
7118A
7161
A5
A5
7160
7125B
7119A
7119
7119B
TC
7120B
7120A
7129B
7129A
R2
R1
7120
7121
BL2
BL2
7122
7123
7124
F
F

FIG. 19

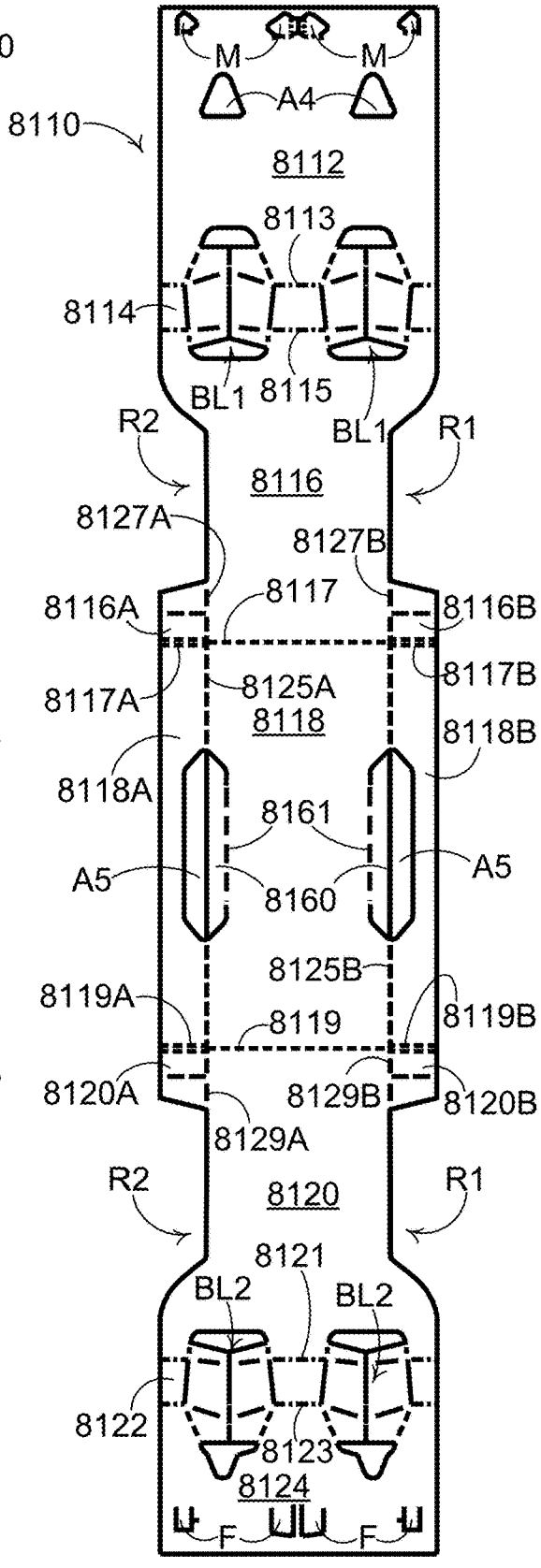

M
M
8110
A4
8112
8113
8114
BL1
8115
BL1
R2
R1
8116
8127A
8127B
8116A
8117
8116B
8117A
8125A
8117B
8118
8118B
8118A
8161
A5
A5
8160
8125B
8119A
8119
8119B
8120A
8129B
8120B
8129A
R2
R1
8120
8121
BL2
BL2
8122
8123
8124
F
F

FIG. 21

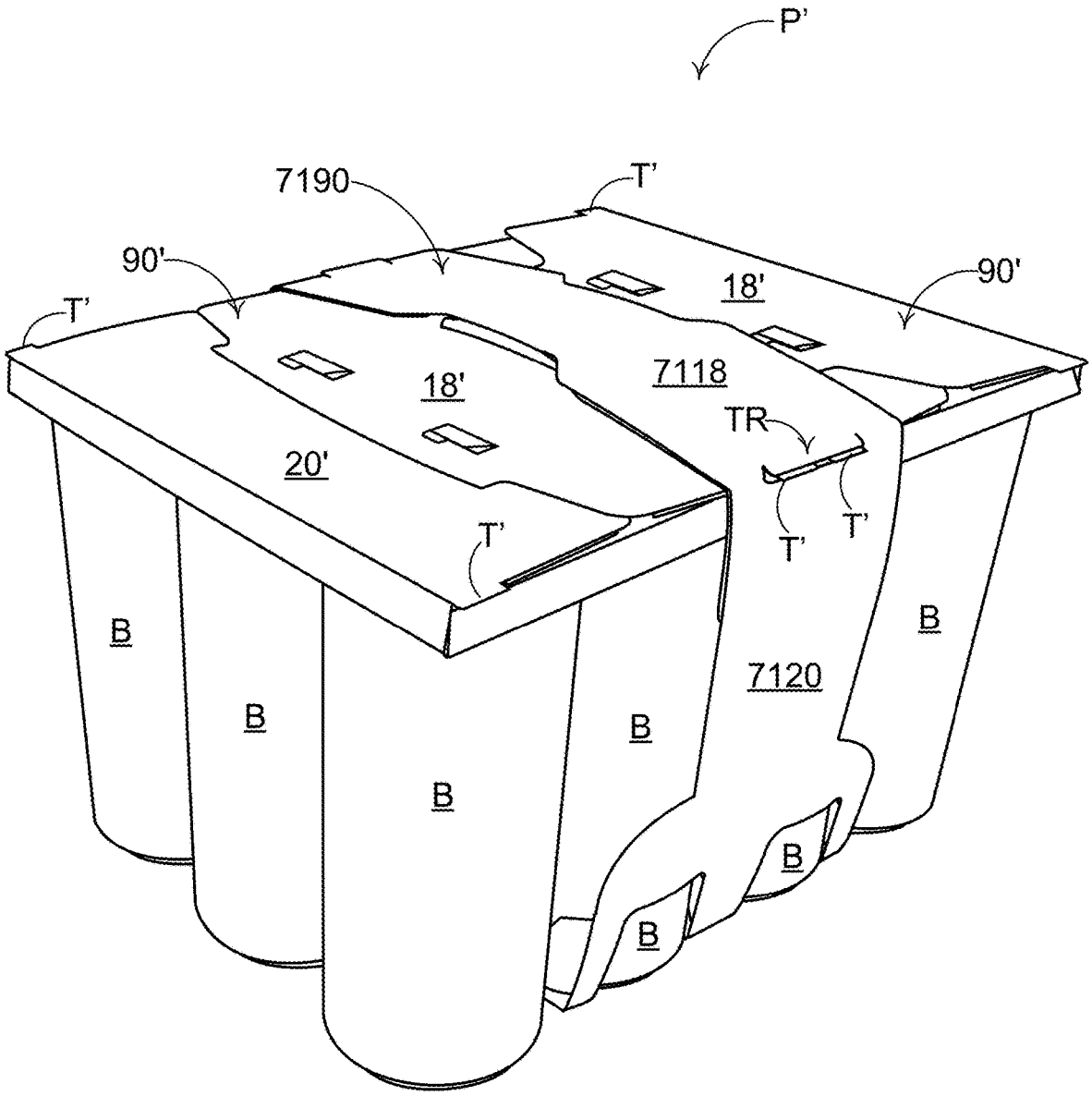


FIG. 20

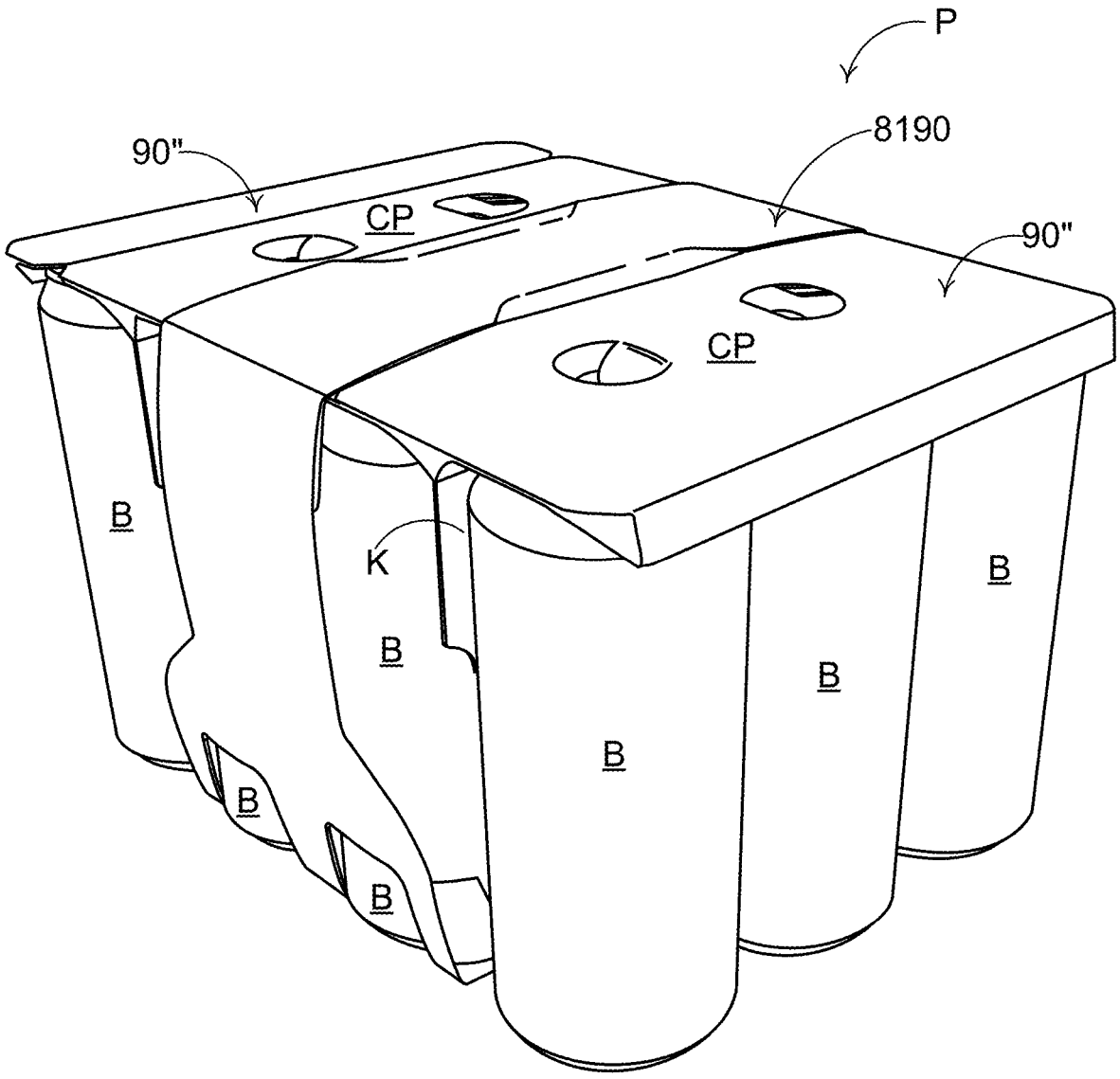


FIG. 22

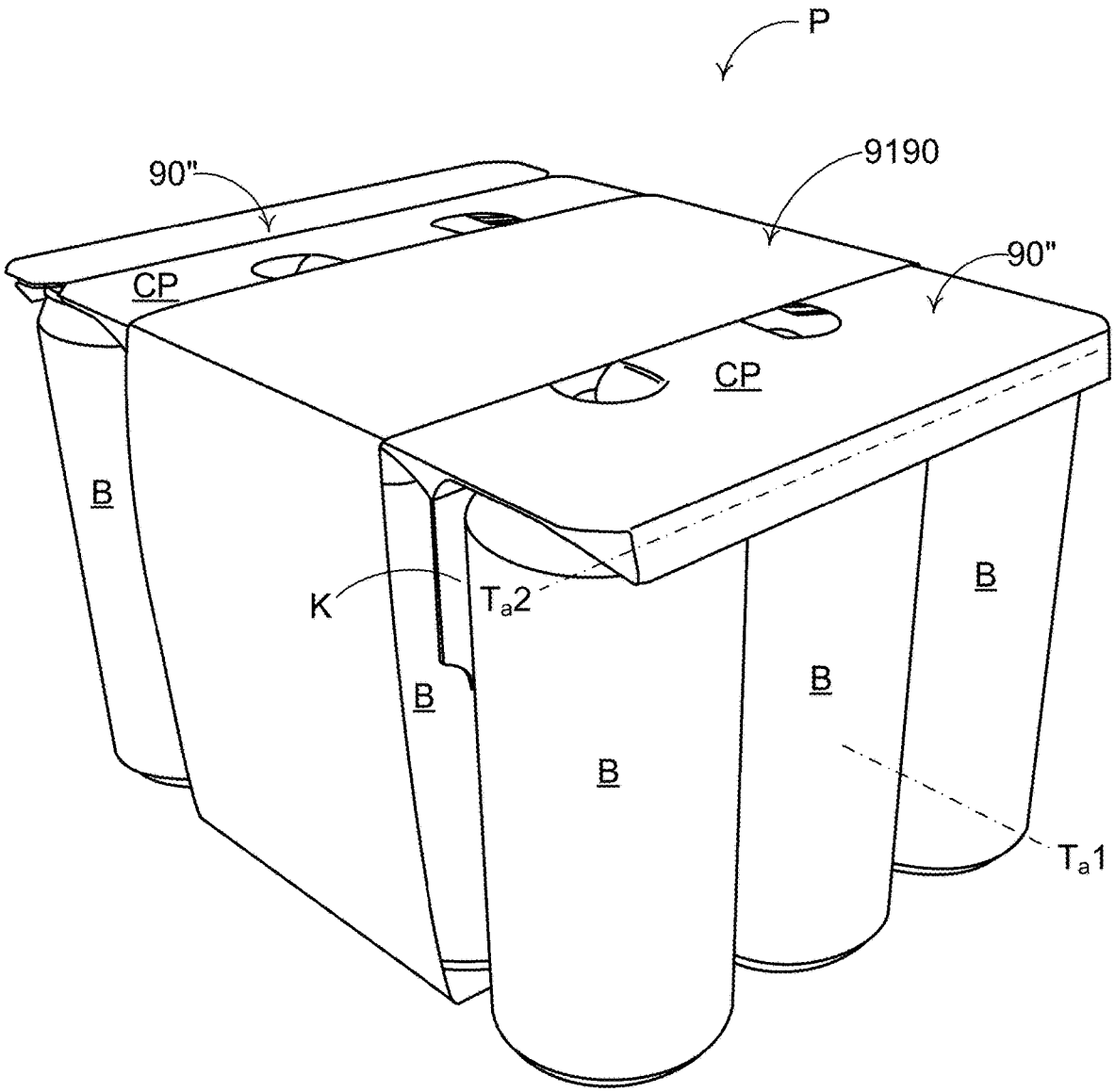


FIG. 23

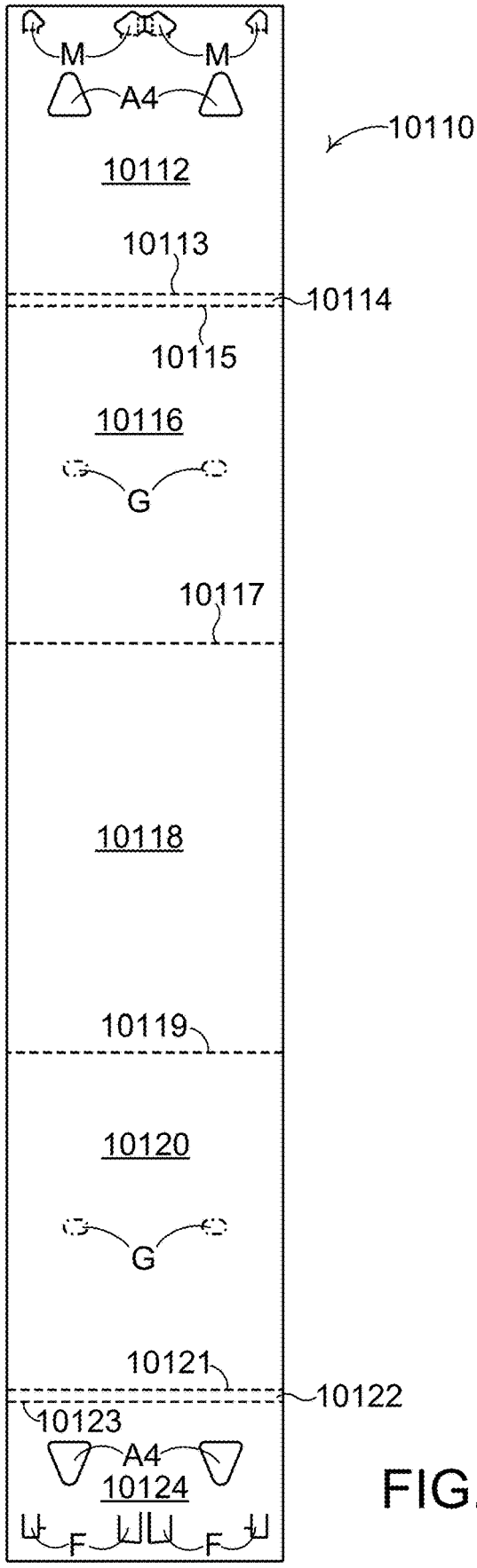

M
M
A4
10110
10112
10113
10114
10115
10116
G
10117
10118
10119
10120
G
10121
10122
10123
A4
10124
F
F

FIG. 24

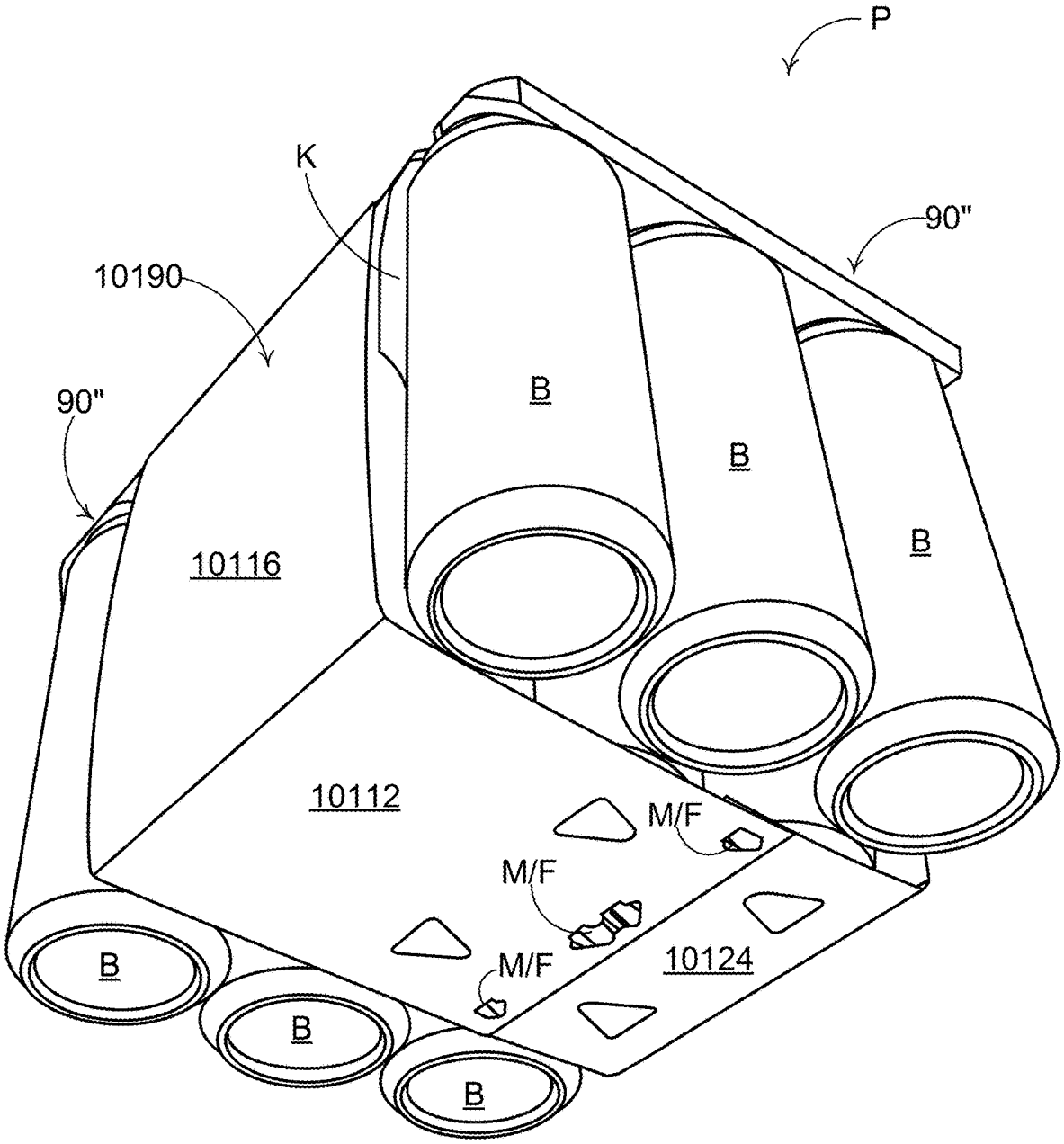


FIG. 25

ARTICLE CARRIER AND BLANK

TECHNICAL FIELD

[0001] The present invention relates to packaging, to article carriers and blanks for forming the same. More specifically, but not exclusively, the invention relates to a package comprising a plurality of carriers of the top-gripping type having one or more apertures for receiving and retaining an article therein and a handle strap binding the carriers together.

BACKGROUND

[0002] In the field of packaging, it is known to provide cartons for carrying multiple articles. Cartons are well known in the art and are useful for enabling consumers to transport, store and access a group of articles for consumption. 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. Further considerations are the strength of the carton and its suitability for holding and transporting large weights of articles. It is desirable that the contents of the carton are secure within the carton.

[0003] It is well known to provide top gripping article carriers in which an aperture is formed in a panel of the carrier, wherein tabs are struck from said panel and are arranged about the aperture. The tabs are displaced out of the plane of said panel when an article is received in the aperture, wherein said tabs engage the article generally about a flange or lip of the article.

[0004] It is desirable to provide a carrying handle for transportation of the article carrier. It is a further object of the present disclosure to provide a strap for binding or combining two or more article carrier together during transportation.

[0005] The present invention seeks to provide an improvement in the field of packaging, of cartons, typically formed from paperboard or the like, and apparatus for assembly of said cartons.

SUMMARY

[0006] A first aspect of the invention provides a package comprising a pair of sub-packages, including a first sub-package and a second sub-package disposed next to each other, and a joint member connecting the pair of sub-packages together into a unitary package. The joint member comprises a tubular structure having opposed open ends and disposed around each of the pair of sub-packages such that part of the first sub-package extends outwards from one of the opposed open ends of the tubular structure and part of the second sub-package extends outwards from the other one of the opposed open ends of the tubular structure. The tubular structure comprises first and second engaging openings or tabs in engagement with respective ones of the first and second sub-packages.

[0007] Optionally, the joint member provides a handle strap.

[0008] Optionally, the first and second engaging tabs are hinged to a top panel of the tubular structure by respective first and second fold lines, the first and second fold lines are divergently arranged with respect to each other to encourage the first and second sub-packages towards each other.

[0009] Optionally, the first and second engaging tabs are hinged to a top panel of the tubular structure by respective first and second fold lines, the first and second fold lines are divergently arranged with respect to each other to encourage the first and second sub-packages towards the middle of the top panel.

[0010] Optionally, the first and second engaging tabs are configured to engage a respective article in a first row or column of articles within one of the pair of sub-packages, the first row or column of articles being disposed proximate to the joint member and extending transversely with respect to a tubular axis of the joint member.

[0011] Optionally, the first and second engaging tabs are configured to engage an article in a second row or column of articles within one of the pair of sub-packages, the second row or column of articles being disposed distally from the joint member.

[0012] Optionally, the second row or column of articles is disposed adjacent to a first row or column of articles within the sub-packages disposed proximate to the joint member and extends transversely with respect to a tubular axis of the joint member.

[0013] Optionally, the article carrier comprises a plurality of engaging tabs hinged to a top panel of the tubular structure by respective fold lines, the plurality of engaging tabs configured to engage a respective article in each of a first and second row or column of articles within the sub-packages.

[0014] Optionally, the joint member comprises a base panel that is smaller in dimension, in a lateral direction, than the combined footprint of the pair of sub-packages.

[0015] Optionally, each of the pair of sub-packages comprise two or more rows of articles, and the joint member engages endmost articles in one row of the articles in the first sub-package and endmost articles in one row of the articles in the second sub-package, said one row of the articles in the second sub-package being disposed adjacent the aforesaid one row of the articles in the first sub-package.

[0016] Optionally, each of the pair of sub-packages comprise two or more rows of articles, the joint member engages endmost articles in a single row of the articles in each of the first and second sub-packages.

[0017] Optionally, the joint member is reinforced by at least one reinforcement flap disposed in face-to-face relationship with a top panel of the tubular structure.

[0018] Optionally, the at least one reinforcement flap may comprise at least one extension disposed in face-to-face relationship with one of a pair of opposing side panels of the tubular structure.

[0019] Optionally, the at least one reinforcement flap is hingedly connected to a side edge of the top panel.

[0020] Optionally, the at least one extension is hingedly connected to a side edge of said one of a pair of opposing side panels.

[0021] Optionally, the at least one extension is hingedly connected to the at least one reinforcement flap.

[0022] Optionally, the joint member comprises a handle flap struck from, or hinged to, the top panel.

[0023] Optionally, the at least one reinforcement flap may comprise a cutaway defining a recess disposed configured to receive at least a portion of the handle flap therein.

[0024] Optionally, the first and second engaging openings engage a heel of a respective article and are struck at least in part from a base panel of the tubular structure.

[0025] Optionally, the first and second engaging openings are struck from one of a pair of opposing side panels of the tubular structure.

[0026] Optionally, the first and second engaging openings are defined in part by a pair of flaps hingedly connected to the base panel and said one of the pair of opposing side panels of the tubular structure.

[0027] Optionally, the base panel comprises at least two handling apertures, one of the at least two handling apertures may be provided by a portion of one of the first and second engaging openings in the base panel, the other one of the at least two handling apertures is provided by an aperture disposed in a spaced apart relationship from the other one of the first and second engaging openings.

[0028] A second aspect of the invention provides a package comprising a pair of sub-packages, including a first sub-package and a second sub-package disposed next to each other, and a joint member connecting the pair of sub-packages together into a unitary package. The joint member comprises a tubular structure having opposed open ends and disposed around each of the pair of sub-packages such that part of the first sub-package extends outwards from one of the opposed open ends of the tubular structure and part of the second sub-package extends outwards from the other one of the opposed open ends of the tubular structure. The tubular structure comprises first and second engaging openings in engagement with respective ones of the first and second sub-packages.

[0029] A third aspect of the invention provides a package comprising a pair of sub-packages, including a first sub-package and a second sub-package disposed next to each other, and a joint member connecting the pair of sub-packages together into a unitary package. The joint member comprises a tubular structure having opposed open ends and disposed around each of the pair of sub-packages such that part of the first sub-package extends outwards from one of the opposed open ends of the tubular structure and part of the second sub-package extends outwards from the other one of the opposed open ends of the tubular structure. The tubular structure comprises first and second engaging tabs in engagement with respective ones of the first and second sub-packages.

[0030] A fourth aspect of the invention provides a package comprising a pair of sub-packages, including a first sub-package and a second sub-package disposed next to each other, and a joint member connecting the pair of sub-packages together into a unitary package. The joint member comprises a tubular structure having opposed open ends and disposed around each of the pair of sub-packages such that part of the first sub-package extends outwards from one of the opposed open ends of the tubular structure and part of the second sub-package extends outwards from the other one of the opposed open ends of the tubular structure. The tubular structure comprises first and second engaging openings and first and second engaging tabs in engagement with respective ones of the first and second sub-packages.

[0031] A fifth aspect of the invention provides blanks for forming a package, including at least two first blanks for forming sub-packages each first blank comprising a main panel having a plurality of article retention structures for engaging respective articles, and a second blank for forming a joint member for being disposed around the sub-packages. The second blank comprises a plurality of panels for forming an open-ended tubular structure. The second blank comprises first and second engaging openings or first and second engaging tabs for engagement with respective ones of the first and second sub-packages. The second blank is dimensioned such that in a set up condition part of a first sub-package extends outward from one of the open ends of the tubular structure and part of a second sub-package extends outward from the other one of the open ends of the tubular structure.

[0032] A sixth aspect of the invention provides a blank for forming a joint member for being disposed around at least two sub-packages. The blank comprises a plurality of panels for forming an open-ended tubular structure. The blank comprises first and second engaging openings or first and second engaging tabs for engagement with respective ones of the at least two sub-packages. The blank is dimensioned such that in a set up condition part of a first sub-package extends outward from one of the open ends of the tubular structure and part of a second sub-package extends outward from the other one of the open ends of the tubular structure.

[0033] A seventh aspect of the invention provides a package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package. The joint member comprises a tubular structure having opposed open ends and disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwards from one of the opposed open ends of the tubular structure and part of a second one of the sub-packages extends outwards from the other one of the opposed open ends of the tubular structure. Each of the sub-packages comprises a plurality of articles and a top-engaging carrier in engagement with an upper portion of each of the articles.

[0034] An eighth aspect of the invention provides a package comprising a stack of sub-packages disposed one on top of another, and a joint member connecting the sub-packages together into a unitary package. The joint member comprises a tubular structure having opposed open ends and disposed around the stack such that a part of each of the sub-packages of the stack extends outwards from one of the opposed open ends of the tubular structure and another part of each of the sub-packages of the stack extends outwards from the other one of the opposed open ends of the tubular structure, wherein each of the sub-packages comprises a plurality of articles and a top-engaging carrier in engagement with an upper portion of each of the articles.

[0035] A ninth aspect of the invention provides a package comprising a stack of sub-packages disposed one on top of another, and a joint member connecting the sub-packages together into a unitary package. The joint member comprising a tubular structure having opposed open ends and disposed around the stack such that a part of each of the sub-packages of the stack extends outwards from one of the opposed open ends of the tubular structure and another part of each of the sub-packages of the stack extends outwards from the other one of the opposed open ends of the tubular structure, wherein the tubular structure comprises at least one engaging opening or tab in engagement with at least one of the sub-packages of the stack.

[0036] A tenth aspect of the invention provides a package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package. The joint member comprises a plurality of panels connected together to form a tubular structure having opposed open ends. The plurality of panels

includes a pair of opposed side panels each having first and second opposed end edges. One of the opposed open ends is defined, in part, by the first end edges of the pair of opposed side panels. The other one of the opposed open ends of the tubular structure is defined, in part, by the second end edges of the pair of opposed side panels. The joint member is disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwardly from said first end edges and part of a second one of the sub-packages extends outwardly from said second end edges. Each of the sub-packages comprises a plurality of articles and a top-engaging carrier in engagement with an upper portion of each of the articles.

[0037] Optionally, part of the first one of the sub-packages extends outwardly from a first end edge of a base wall of the joint member and part of the second one of the sub-packages extends outwardly from a second, opposing, end edge of the base wall.

[0038] An eleventh aspect of the invention provides a package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package. The joint member comprises a plurality of panels connected together to form a tubular structure having opposed open ends. The plurality of panels includes a handle panel comprising a gripping portion extending transversely with respect to a tubular axis of the tubular structure. The gripping portion has a first transversely extending edge and a second opposing transversely extending edge. One of the opposed open ends of the tubular structure is defined in part by the first transversely extending edge of the gripping portion. The other one of the opposed open ends is defined in part by the second transversely extending edge of the gripping portion. The joint member is disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwardly from the first transversely extending edge of the gripping portion and part of a second one of the sub-packages extends outwards from the second transversely extending edge of the gripping portion. Each of the sub-packages comprises a plurality of articles and a top-engaging carrier in engagement with an upper portion of each of the articles.

[0039] A twelfth aspect of the invention provides a package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package. The joint member comprises a plurality of panels connected together to form a tubular structure having opposed open ends. The joint member is disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwards from one of the opposed open ends of the tubular structure and part of a second one of the sub-packages extends outwards from the other one of the opposed open ends of the tubular structure. Each of the first and second ones of the sub-packages comprises an engaging projection. The joint member comprises at least one receiving feature in which the engaging projection of each of the first and second ones of the sub-packages is received.

[0040] Optionally, each of the at least first and second sub-packages comprises a plurality of articles and a top-engaging carrier in engagement with an upper portion of each of the articles, and wherein the engaging projection is provided by the top-engaging carrier of the each of the first and second ones of the sub-packages.

[0041] Optionally, the engaging projection is provided by a cover panel disposed over the upper portions of the articles.

[0042] A thirteenth aspect of the invention provides a package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package. The joint member comprises a plurality of panels connected together to form a tubular structure having opposed open ends and first tubular axis. The joint member is disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwards from one of the opposed open ends of the tubular structure and part of a second one of the sub-packages extends outwards from the other one of the opposed open ends of the tubular structure. Each of the first and second ones of the sub-packages comprises a tubular structure having opposed ends and second tubular axis. The second tubular axis is perpendicular to the first tubular axis. The first and second tubular axes define a plane which is parallel to the plane of a top wall of the joint member and to the plane of a cover panel of the sub-packages.

[0043] Optionally, the top wall of the joint member is disposed in face-to-face relationship with the cover panel of the sub-packages.

[0044] Optionally, the top wall of the joint member is disposed in face contacting relationship with the cover panel of the sub-packages.

[0045] Further features and advantages of the present invention will be apparent from the specific embodiments illustrated in the drawings and discussed below.

[0046] Within the scope of this application, it is envisaged or 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 considered or taken independently or in any combination thereof.

[0047] Features or elements described in connection with, or relation to, one embodiment are applicable to all embodiments unless there is an incompatibility of features. One or more features or elements from one embodiment may be incorporated into, or combined with, any of the other embodiments disclosed herein, said features or elements extracted from said one embodiment may be included in addition to, or in replacement of one or more features or elements of said other embodiment.

[0048] A feature, or combination of features, of an embodiment disclosed herein may be extracted in isolation from other features of that embodiment. Alternatively, a feature, or combination of features, of an embodiment may be omitted from that embodiment.

BRIEF DESCRIPTION OF THE DRAWINGS

[0049] Exemplary embodiments of the invention will now be described with reference to the accompanying drawings, in which:

[0050] FIG. **1** is a plan view from above of a blank for forming a top-engaging carrier according to a first embodiment of the present disclosure;

[0051] FIG. **2** is a plan view from above of a blank for forming a binding or handle strap according to the first embodiment of the present disclosure;

[0052] FIG. **3** is a perspective view from above of a unitary package according to the first embodiment, which

comprising a pair of sub-packages formed from the carrier blanks of FIG. **1** and the handle strap blank of FIG. **2**;

[0053] FIG. **4** is a plan view from above of an alternative blank for forming a binding or handle strap, the blank taking a modified form of the blank of FIG. **2**;

[0054] FIG. **5** is a plan view from above of an alternative blank for forming a top-engaging carrier according to a second embodiment of the present disclosure;

[0055] FIG. **6** is a plan view from above of another alternative blank for forming a binding or handle strap according to the second embodiment of the present disclosure;

[0056] FIG. **7** is a perspective view from above of a unitary package according to the second embodiment, comprising a pair of sub-packages formed from the carrier blanks of FIG. **5** and the handle strap of FIG. **6**;

[0057] FIG. **8** is a plan view from above of still another alternative blank for forming a top-engaging carrier according to a third embodiment of the present disclosure;

[0058] FIG. **9** is a perspective view from above of a unitary package according to the third embodiment, comprising a pair of sub-packages formed from the carrier blanks of FIG. **8** and the binding handle strap of FIG. **6**;

[0059] FIG. **10** is a perspective view from above of a unitary package according to a fourth embodiment, comprising a pair of sub-packages formed from the carrier blanks of FIG. **1** and a binding strap of another modified form;

[0060] FIG. **11** is a plan view from above of another alternative blank for forming a binding or handle strap according to a fifth embodiment of the present disclosure;

[0061] FIG. **12** is a perspective view from above of a unitary package according to the fifth embodiment, comprising a pair of sub-packages formed from the carrier blanks of FIG. **5** and the handle strap of FIG. **11**;

[0062] FIG. **13** is a plan view from above of another alternative blank for forming a binding or handle strap according to a sixth embodiment of the present disclosure;

[0063] FIG. **14** is a perspective view from above of a unitary package according to the sixth embodiment, comprising a pair of sub-packages formed from the carrier blanks of FIG. **5** and the handle strap of FIG. **13**;

[0064] FIG. **15** is a plan view from above of another alternative blank for forming a binding or handle strap according to a seventh embodiment of the present disclosure;

[0065] FIG. **16** is a plan view from above of an alternative blank for forming a top-engaging carrier according to the seventh embodiment of the present disclosure;

[0066] FIG. **17** is a perspective view from above of a unitary package according to the seventh embodiment, comprising three sub-packages formed from carrier blanks of FIG. **16** and the handle strap of FIG. **15**;

[0067] FIG. **18** is a plan view from above of a blank for forming a top-engaging carrier according to an eighth embodiment of the present disclosure;

[0068] FIG. **18**B is an enlarged view of a portion of the blank of FIG. **18**;

[0069] FIG. **19** is a plan view from above of a blank for forming a binding or handle strap according to the eighth embodiment of the present disclosure;

[0070] FIG. **20** is a perspective view from above of a unitary package according to the eighth embodiment, which comprising a pair of sub-packages formed from the carrier blanks of FIG. **18** and the handle strap blank of FIG. **19**;

[0071] FIG. **21** is a plan view from above of a blank for forming a binding or handle strap according to a ninth embodiment of the present disclosure;

[0072] FIG. **22** is a perspective view from above of a unitary package according to the ninth embodiment, which comprising a pair of sub-packages and the handle strap blank of FIG. **19**;

[0073] FIG. **23** is a perspective view from above of a unitary package according to a tenth embodiment, which comprises a pair of sub-packages and the binding strap according to the tenth embodiment;

[0074] FIG. **24** is a plan view from above of a blank for forming a binding or handle strap according to an eleventh embodiment of the present disclosure; and

[0075] FIG. **25** is a perspective view from below of a unitary package according to the eleventh embodiment, which comprises a pair of sub-packages and the binding strap of FIG. **24**.

DETAILED DESCRIPTION OF EMBODIMENTS

[0076] Detailed descriptions of specific embodiments of the packaging system, methods, blanks, and carriers 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 packaging system, methods, blanks, and carriers 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.

[0077] Referring to FIG. **1**, there is shown a plan view of a blank **10** which is capable of forming a top-engaging carton or carrier **90**, as shown in FIG. **3**, for containing and carrying a group of primary products such as, but not limited to, bottles or cans, hereinafter referred to as articles B, as shown in FIG. **3**. The articles B may be generally cylindrical; the articles B may comprise a circular cross-sectional shape, at least about a region of engagement with the carrier **90**. The blank **10** forms a secondary package for packaging at least one primary product container or package. Alternative blanks **1010**; **2010**; **3010**; **10'** are shown in FIGS. **5**, **8**, **16**, and **18** for forming an alternative cartons or carriers **1090**; **2090**; **3090**; **90'**; **90"** as shown in FIGS. **7**, **9**, **12**, **14**, **17**, **20**, **22**, **23**, and **25**.

[0078] FIG. **2** shows a plan view of a blank **110** which is capable of forming a tertiary package P (see FIG. **3**) with a pair of carriers **90** formed form a pair of blanks **10** according to FIG. **1**. Alternative blanks **1110**; **2110**; **4110**; **5110**; **6110**; **7110**; **8110**; **10110** are shown in FIGS. **4**, **6**, **11**, **13**, **15**, **19**, **21**, and **24** and for forming alternative tertiary packages P;

P' as shown in FIGS. **7**, **9**, **12**, **14**, **17**, **20**, **22** and **25**. Further alternative tertiary packages P are shown in FIGS. **10** and **23**.

[0079] 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 and carrying articles, such as primary 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.

[0080] The cartons or carriers in the drawings are shown in the form of top engaging carriers as options only. The top engaging carriers, as illustrated throughout the disclosure, each has a main or primary engaging panel provided with a plurality of article retention structures. Each structure typically comprises an aperture for receiving an upper portion of an article and one or more engaging teeth or tabs joined along the perimeter of the aperture.

[0081] The blanks **10**; **10'**; **110**; **1010**; **1110**; **2010**; **2110**; **3010**; **4110**; **5110**; **6110**; **7110**; **8110**; **10110** are 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 recognised that one or other numbers of blanks may be employed, where suitable, for example, to provide the carrier structure described in more detail below.

[0082] The packaging structures or cartons described herein may be formed from a sheet material such as paperboard, which may be made of or coated with materials to increase its strength. An example of such a sheet material is tear-resistant NATRALOCK® paperboard made by WestRock® Company. It should be noted that the tear resistant materials may be provided by more than one layer, to help improve the tear-resistance of the package. Typically, one surface of the sheet material may have different characteristics to the other surface. For example, the surface of the sheet material that faces outwardly from a finished package may be particularly smooth and may have a coating such as a clay coating or other surface treatment to provide good printability. The surface of the sheet material that faces inwardly may, on the other hand, be provided with a coating, a layer, a treatment or be otherwise prepared to provide properties such as one or more of tear-resistance, good glue-ability, heat sealability, or other desired functional properties.

[0083] The blanks **10**; **10'**; **1010**; **2010** of FIGS. **1**, **5**, **8**, and **18** are configured to form a carton or carrier **90**; **90'**; **1090**; **2090** shown in FIGS. **3**, **7**, **9**, **10**, **12**, **14** and **20**, for packaging an exemplary arrangement of exemplary articles B. In the illustrated embodiments, the arrangement is a 2×3 matrix or array-two rows of three articles B are provided—and the articles B are 330 ml cans beverage cans. The blank **3010** of FIG. **16** is configured to form a carton or carrier **3090** shown in FIG. **17**, for packaging an exemplary arrangement of articles B arranged in a 2×4 matrix or array configuration-two rows of four articles B are provided—and the articles B are 330 ml cans beverage cans. Alternatively, the blanks **10**; **1010**; **2010**; **3010** can be configured to form a carrier for packaging other types, number, and size of articles and/or for packaging articles in a different arrangement or configuration.

[0084] In some embodiments, the blanks **10**; **1010**; **2010**; **3010** may be configured to accommodate beverage cans of the sleek or slim design that may be 330 ml cans. The sleek or slim articles B are substantially of the same diameter over their entire height. An exemplary article B has a maximum diameter or lateral dimension (the diameter may be about 2.25 inches or about 58 mm). The article B comprises an upper portion or top closure which has a diameter or lateral dimension (the diameter may be about 2.125 inches or 54.8 mm). The neck may provide an outwardly projecting flange, that is to say, it may comprise an undercut for engaging with the carrier. A top closure may be attached to the side wall of the article B to form a seam or "chime" which provides the flange. In some embodiments, the variation in diameter between the top closure and the main body of the article B is less than 7 mm, may be less than 5 mm and optionally is less than 4 mm. As used herein the terms "sleek" or "slim" refer to articles B which have little or no variation in their lateral dimension between the top closure which engages with the carrier **90**; **1090**; **2090**; **3090** and the main body of the article B. The articles B are substantially parallel sided or of substantially uniform diameter.

[0085] Referring to FIG. **1** there is shown a blank **10** comprising a plurality of panels **12**, **14**, **16**, **18**, **20**, including a main panel **12** for forming a bottom wall or an engaging panel of a carrier **90** (see FIG. **3**).

[0086] A first side panel **14** is hingedly connected to a first side of the main panel **12** by a hinged connection in the form of a fold line **13**. A first top or cover panel **18** is hingedly connected to the first side panel **14** by a hinged connection in the form of a fold line **17**.

[0087] A second side panel **16** is hingedly connected to a second side of the main panel **12** by a hinged connection in the form of a fold line **15**. A second top or cover panel **20** is hingedly connected to the second side panel **16** by a hinged connection in the form of a fold line **19**.

[0088] The main panel **12** of the blank **10** includes at least one article retention structure RT**1**, RT**2**. The main panel **12** comprises a plurality of article retention structures RT**1**, RT**2**, specifically six article retention structures RT**1**, RT**2** arranged in 2×3 matrix or array. Each of the article retention structures RT**1**, RT**2** comprises an opening or aperture A**1**, A**2**.

[0089] The blank **10** comprises four first article retention structures RT**1**. The first article retention structures RT**1** are located adjacent to ends of the main panel **12**. The blank **10** comprises two second article retention structures RT**2**. The second article retention structures RT**2** are located between a first pair of first article retention structures RT**1** disposed proximate a first end of the main panel **12** and a second pair of first article retention structures RT**1** disposed proximate a second end of the main panel **12**. The second article retention structures RT**2** are also referred to herein as intermediate article retention structures RT**2**. The first article retention structures RT**1** are also referred to herein as end article retention structures RT**1**.

[0090] Each of the first article retention structures RT**1** is substantially similar in construction and will therefore be described in detail with reference to a first one of the first article retention structures RT**1** located adjacent to a first end of the blank **10** as shown in FIG. **1**.

[0091] The first article retention structure RT**1** comprises an article receiving opening defined in part by an aperture A**1**.

[0092] The first article retention structure RT**1** comprises a plurality of engaging teeth or tabs **50**A, **50**B, **52**A, **52**B, **52**C disposed about the aperture A**1**.

[0093] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C are hinged to the main panel **12** by a fold line.

[0094] A first tab **50**A may be hinged to the main panel **12** by a hinged connection provided by a portion of a fold line **25**, **35** hinging an end panel **24**, **34** to the main panel **12**. The first tab **50**A comprises a pair of side edges, the side edges are defined by cut lines **51** extending outward from the aperture A**1**. The cut lines **51** may be nonlinear and may arcuate. The cut lines **51** may be divergently arranged with respect to each other, and may be comprise outer terminal end spaced apart from the fold line **25**, **35**.

[0095] A second tab **50**B may be hinged to the main panel **12** by a hinged connection provided by a portion of the fold line **13**, **15** hinging a side panel **14**, **16** to the main panel **12**. The second tab **50**B comprises a pair of side edges, the side edges are defined by cut lines **51** extending outward from the aperture A**1**. The cut lines **51** may be nonlinear and may arcuate. The cut lines **51** may be divergently arranged with respect to each other, and may comprise outer terminal ends spaced apart from the fold line **13**, **15**.

[0096] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C includes third, fourth, and fifth teeth **52**A, **52**B, **52**C hingedly connected to the main panel **12** by a fold line. The fold line may be defined by a plurality of cut lines **55**, **57**. The plurality of cut lines **55**, **57** may define or approximate a circle.

[0097] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C includes third teeth **52**A disposed about a portion of the aperture A**1**. Each of the plurality of third teeth **52**A comprises an engaging edge E**1** opposing a hinged edge. The engaging edges E**1** are defined by a linear portion of a cut line defining the aperture A**1**. Each engaging edge E**1** defines a part of a polygon. The illustrated embodiment comprises seven third teeth **52**A. Each third tooth **52**A comprises a pair of side edges, the side edges are defined by cut lines **53** extending radially outward from respective vertices of the polygon. From a respective vertex between a pair of adjacent linear portions of the cut line defining the aperture A**1**. The cut lines **53** are divergently arranged with respect to each other and define an angle therebetween, the angle may be about 22.5°.

[0098] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C includes fourth teeth **52**B disposed about a portion of the aperture A**1**. The illustrated embodiment comprises three fourth teeth **52**B. The fourth teeth **52**B are provided about an inner most region of the aperture A**1**, that is to say, about a region closest to the centre of the main panel **12**.

[0099] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C includes fifth teeth **52**C disposed about a portion of the aperture A**1**. The illustrated embodiment comprises four fifth teeth **52**C. The fifth teeth **52**B are provided on opposing sides of the first or second tab **50**A, **50**B.

[0100] The first article retention structure RT**1** may comprise a plurality of first circumferential cut lines **57**. Each of the plurality of first circumferential cut lines **57** is aligned with one of the radial cut lines **53** such that said one of the radial cut lines **53** or a notional extension thereof bisects a respective one of the plurality of first circumferential cut lines **57**.

[0101] Each of the plurality of first circumferential cut lines **57** is spaced apart from said one of the radial cut lines **53** bisecting it so as to define a connecting nick or bridge portion between a pair of adjacently disposed third, fourth, and fifth teeth **52**A, **52**B, **52**C.

[0102] Each of the plurality of first circumferential cut lines **57** may be linear in shape.

[0103] The first article retention structure RT**1** may comprise a plurality of second circumferential cut lines **55**. Each of the plurality of second circumferential cut lines **55** is disposed between a pair of the plurality of first circumferential cut lines **57** and is spaced apart therefrom so as to define a pair of connecting nick or bridge portions between each third and fifth tooth **52**A, **52**C and the main panel **12**. The pair of connecting nick or bridge portions provide a hinged or foldable connection between each third and fifth tooth **52**A, **52**C and the main panel **12**. The fourth teeth **52**B do not comprise a second circumferential cut line **55**, the fourth teeth **52**B are hinged to the main panel **12** by a single nick or bridge portions between a pair of first circumferential cut lines **57**.

[0104] Each of the plurality of second circumferential cut lines **55** may be linear in shape. In alternative embodiments, each of the plurality of first circumferential cut lines **57** may be arcuate or curved. In alternative embodiments, each of the plurality of second circumferential cut lines **55** may be arcuate or curved.

[0105] Each of the second article retention structures RT**2** is substantially similar in construction and will therefore be described in detail with reference to a first one of the second article retention structures RT**2** located adjacent to the first one of the first article retention structures RT**1** as shown in FIG. **1**.

[0106] The second article retention structure RT**2** comprises an article receiving opening defined in part by an aperture A**2**. The second article retention structure RT**2** comprises a plurality of engaging teeth or tabs **50**A, **50**B, **52**A, **52**B, **52**C disposed about the aperture A**2**.

[0107] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C are hinged to the main panel **12** by a fold line.

[0108] A second tab **50**B may be hinged to the main panel **12** by a hinged connection provided by a portion of the fold line **13**, **15** hinging a side panel **14**, **16** to the main panel **12**. The second tab **50**B comprises a pair of side edges, the side edges are defined by cut lines **51** extending outward from the aperture A**2**. The cut lines **51** may be nonlinear and may arcuate. The cut lines **51** may be divergently arranged with respect to each other, and may be comprise outer terminal end spaced apart from the fold line **13**, **15**.

[0109] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C includes third, fourth, and fifth teeth **52**A, **52**B, **52**C hingedly connected to the main panel **12** by a fold line. The fold line may be defined by a plurality of cut lines **55**, **57**. The plurality of cut lines **55**, **57** may define or approximate a circle.

[0110] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C includes third teeth **52**A disposed about a portion of the aperture A**2**. Each of the plurality of third teeth **52**A comprises an engaging edge opposing a hinged edge. The engaging edges are defined by a linear portion of a cut line defining the aperture A**2**. Each engaging edge defines a part

of a polygon. The illustrated embodiment comprises sixth third teeth **52**A. Each third tooth **52**A comprises a pair of side edges, the side edges are defined by cut lines **53** extending radially outward from respective vertices of the polygon. From a respective vertex between a pair of adjacent linear portions of the cut line defining the aperture A**2**. The cut lines **53** are divergently arranged with respect to each other and define an angle therebetween, the angle may be about 22.5°.

[0111] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C includes fourth teeth **52**B disposed about a portion of the aperture A**2**. The illustrated embodiment comprises seven fourth teeth **52**B. The fourth teeth **52**B are provided about an inner most region of the aperture A**2**, that is to say, about a region closest to the centre of the main panel **12**.

[0112] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C includes fifth teeth **52**C disposed about a portion of the aperture A**2**. The illustrated embodiment comprises two fifth teeth **52**C. The fifth teeth **52**B are provided on opposing sides of the second tab **50**B.

[0113] The second article retention structure RT**2** may comprise a plurality of first circumferential cut lines **57**. Each of the plurality of first circumferential cut lines **57** is aligned with one of the radial cut lines **53** such that said one of the radial cut lines **53** or a notional extension thereof bisects a respective one of the plurality of first circumferential cut lines **57**.

[0114] Each of the plurality of first circumferential cut lines **57** is spaced apart from said one of the radial cut lines **53** bisecting it so as to define a connecting nick or bridge portion between a pair of adjacently disposed third, fourth, and fifth teeth **52**A, **52**B, **52**C.

[0115] Each of the plurality of first circumferential cut lines **57** may be linear in shape.

[0116] The second article retention structures RT**2** may comprise a plurality of second circumferential cut lines **55**. Each of the plurality of second circumferential cut lines **55** is disposed between a pair of the plurality of first circumferential cut lines **57** and is spaced apart therefrom so as to define a pair of connecting nick or bridge portions between each third and fifth tooth **52**A, **52**C and the main panel **12**. The pair of connecting nick or bridge portions provide a hinged or foldable connection between each third and fifth tooth **52**A, **52**C and the main panel **12**. The fourth teeth **52**B do not comprise a second circumferential cut line **55**, the fourth teeth **52**B are hinged to the main panel **12** by a single nick or bridge portions between a pair of first circumferential cut lines **57**.

[0117] Each of the plurality of second circumferential cut lines **55** may be linear in shape. In alternative embodiments, each of the plurality of first circumferential cut lines **57** may be arcuate or curved. In alternative embodiments, each of the plurality of second circumferential cut lines **55** may be arcuate or curved.

[0118] The main panel **12** comprises a handle structure. The handle structure may comprise at least one handle opening. In the illustrated embodiment, the blank **10** comprises two handle openings. Each handle opening is defined in, or struck from, a region of the main panel **12** disposed centrally between four apertures A**1**, A**2** arranged as two adjacent pairs of apertures A**1**, A**2**. The handle openings are defined by a pair of handle tabs **60**, **62** hingedly connected to the main panel **12** by a respective hinged connection in the form of a fold line **61**, **63**. The fold lines may be disposed adjacent to each other and may be orthogonal to each other. The pair of handle tabs **60**, **62** are separated from each other by a cut line or severance line, the cut line or severance line may be non-linear and may be substantially "V" or "U" shaped.

[0119] The hinged connection between a first tab **60** and the main panel **12** defines a portion of a first edge of the handle opening. The pair of tabs **60**, **62** includes a second tab **62** hinged to the main panel **12**. The hinged connection between the second tab **62** and the main panel **12** defines a portion of a second, adjacent, edge of the handle opening. The second tab **62** is defined in part by a substantially "V" shaped cutline extending between the first and second edges of the handle opening. The first tab **60** may define at least a portion of at least three edges of the handle opening, and may define at least a portion of four edges of the handle opening. The handle opening may be substantially square or diamond shaped. The handle opening may provide a receiver element RC for receiving at least one locking tab **80**, **82** of a locking mechanism. The "V" shaped cutline defines a recess or cutaway in the first tab **60** capable of receiving a portion of at least one male tab **80**, **82**.

[0120] The first and second top panels **18**, **20** are arranged to be disposed in at least partially overlapping relationship with each other. The overlapping portions of the first and second top panels **18**, **20** are provided with a locking structure for locking the first and second top panels **18**, **20**. The locking structure may cooperate with the handle openings in the main panel **12** to secure the first and second top panels **18**, **20** to the main panel **12**.

[0121] The locking structure comprises at least one first locking element L**1** for being received in the receiver element RC. The first locking element L**1** comprises a tab **80** struck from the first top panel **18**, the illustrated embodiment comprises two tabs **80** each arranged to be engageable with one of the handle or receiver openings and pass through an opening in the second top panel **20**. Each tab **80** is hinged to the first top panel **18** by a hinged connection in the form of first fold line **81** having a first fold strength or resistance. The first fold line **81** may be defined by a single perforation or weakening element disposed between ends of a cutline defining the tab **80**. In some embodiments, the perforation or weakening element may be omitted.

[0122] The locking structure comprises at least one second locking element L**2** in the form of an opening in the second top panel **20**. The second locking element L**2** comprises a tab **82** struck from the second top panel **20**, the illustrated embodiment comprises two tabs **82** each arranged to be engageable with one of the handle or receiver openings in the main panel **12**. Each tab **82** is hinged to the second top panel **20** by a hinged connection in the form of second fold line **83** having a second fold strength or resistance, the second fold resistance may be equal to or lower than the first fold resistance, that is to say, the second tabs **82** may be more easily folded. The second fold line **83** may be defined by one, two or more perforations or weakening elements disposed between ends of a cutline defining the tab **82**. The second fold line **83** may comprise at least one more perforation than the first fold line **81**, alternatively a greater proportion of the hinged connection between the second top panel **20** and the second tabs **82** may be defined by, or comprise, a cut line, perforation, or other weakening element than the hinged connection between the first top panel **18** and the first tabs **80**.

[0123] The second tab **82** should be at least equal in size to the first tab **80**. The second tab **82** may be larger in dimension, in length and/or in width, than the first tab **80** so as to facilitate the first tab **80** readily passing through the second top panel **20**. The first tab **80** comprises first shoulders or hook portions for engaging with the main panel **12**. The second tab **82** comprises second shoulders or hook portions for engaging with the main panel **12**. The second shoulders or hook portions may be configured and arranged to be substantially aligned with the first shoulders or hook portions when the lock tabs **80**, **82** are in an engaged position.

[0124] The locking tabs **80**, **82** may be asymmetric in shape about a notional line bisecting the locking tabs **80**, **82** and extending perpendicularly to a notional line parallel or coincident with the fold line **81**, **83**.

[0125] The first top panel **18**, second top panel **20**, first and second side panels **14**, **16** and main panel **12** form a tubular structure. Each end of the tubular structure is closed by an end closure structure. A first end closure structure comprises a first end panel **24** hingedly connected to a first end of the main panel **12** by a hinged connection in the form of a fold line **25**. A first top end flap **26** is hingedly connected to the first end panel **24** by a hinged connection in the form of a fold line **27**.

[0126] A first anchor flap **22**A is hingedly connected to a first end of the first top panel **18** by a hinged connection in the form of a fold line **23**A. The first anchor flap **22**A is hingedly connected to the first top end flap **26** by a pair of hinged panels **28**A, **30**A. The pair of hinged panels **28**A, **30**A form a gusset. A first connecting panel **28**A is hingedly connected to the first anchor flap **22**A by a hinged connection in the form of a fold line. A second connecting panel **30**A is hingedly connected to the first connecting panel **28**A by a hinged connection in the form of a fold line. The second connecting panel **30**A is hingedly connected to the first top end flap **26** by a hinged connection in the form of a fold line.

[0127] A second anchor flap **22**B is hingedly connected to a first end of the second top panel **20** by a hinged connection in the form of a fold line **23**B. The second anchor flap **22**B is hingedly connected to the first top end flap **26** by a pair of hinged panels **28**B, **30**B forming a second gusset. A third connecting panel **28**B is hingedly connected to the second anchor flap **22**B by a hinged connection in the form of a fold line. A fourth connecting panel **30**B is hingedly connected to the third connecting panel **28**B by a hinged connection in the form of a fold line. The fourth connecting panel **30**B is hingedly connected to the first top end flap **26** by a hinged connection in the form of a fold line.

[0128] The first end panel **24** is separated from each of the first and second anchor flaps **22**A, **22**B by an aperture A**3**. The apertures A**3** separate each of the pair of hinged panels **28**A/**30**A, **28**B/**30**B from the respective one of the first and second side panels **14**, **16**.

[0129] A second end closure structure comprises a second end panel **34** hingedly connected to a second end of the main panel **12** by a hinged connection in the form of a fold line **35**. A second top end flap **36** is hingedly connected to the second end panel **34** by a hinged connection in the form of a fold line **37**.

[0130] A third anchor flap **32**A is hingedly connected to a second end of the first top panel **18** by a hinged connection in the form of a fold line **33**A. The third anchor flap **32**A is hingedly connected to the second top end flap **36** by a pair of hinged panels **38**A, **40**A forming a third gusset. A fifth connecting panel **38**A is hingedly connected to the third anchor flap **32**A by a hinged connection in the form of a fold line. A sixth connecting panel **340**A is hingedly connected to the fifth connecting panel **38**A by a hinged connection in the form of a fold line. The sixth connecting panel **40**A is hingedly connected to the second top end flap **36** by a hinged connection in the form of a fold line.

[0131] A fourth anchor flap **32**B is hingedly connected to a second end of the second top panel **20** by a hinged connection in the form of a fold line **33**B. The fourth anchor flap **32**B is hingedly connected to the second top end flap **36** by a pair of hinged panels **38**B, **40**B forming a fourth gusset. A seventh connecting panel **38**B is hingedly connected to the fourth anchor flap **32**B by a hinged connection in the form of a fold line. An eighth connecting panel **40**B is hingedly connected to the seventh connecting panel **38**B by a hinged connection in the form of a fold line. The eighth connecting panel **40**B is hingedly connected to the second top end flap **36** by a hinged connection in the form of a fold line.

[0132] The second end panel **34** is separated from each of the third and fourth anchor flaps **32**A, **32**B by an aperture A**3**. The apertures A**3** separate each of the pair of hinged panels **38**A/**40**A, **38**B/**40**B from the respective one of the first and second side panels **14**, **16**.

[0133] The blank **10** may comprise at least two alignment or registration devices W**1**, W**2**. Each of the registration devices W**1**, W**2** takes the form of a cutaway or recess defining a registration edge of the blank **10** for receiving or engaging a reference pin of a packaging machine. The blank **10** comprises a pair of first registration devices W**1** each defining a downstream or leading registration edge. The blank **10** may also comprise a second pair of registration devices W**2** each defining an upstream or trailing registration edge. Each of the cutaways or recesses defining a registration device W**1**, W**2** is struck from, or defined in, one of the first and second top panels **18**, **20**.

[0134] The blank **10** may comprise at least one stabilisation device. In the illustrated embodiment, the blank **10** comprises two stabilisation devices. Each stabilization device comprises an opening in at least one of the first top panel **18**, second top panel **20**, and the main panel **12**. Each stabilization device may comprise an opening in at least two, or all, of the first top panel **18**, second top panel **20**, and the main panel **12**. Each stabilisation device is configured to receive an abutment peg or dog of a packaging machine.

[0135] An opening forming at least part of the stabilisation device may be non-circular in shape, and may be substantially square or diamond shaped. The opening or openings in the panels providing the stabilisation device may be defined by at least one tab struck from the panel in which it is formed and hingedly connected thereto.

[0136] In the illustrated embodiment, stabilisation device openings are provided by the handle openings and/or the openings created by folding the locking tabs **80**, **82** out of the plane of the panel **18**, **120** to which they are hinged.

[0137] Turning to the construction of the carrier **90** from the blank **10**, the blank **10** may be formed into an assembled carrier **90**, as shown in FIG. **3**.

[0138] The blank **10** is applied to a group of articles B. The blank **10** is lowered with respect to a group of articles B. Each of the article retention structures RT**1**, RT**2** of the blank **10** is aligned with a respective article B in the group. Portions of the articles B pass through the main panel **12**.

The toothed regions of the main panel **12** about each of the article retention structures RT**1**, RT**2** may be folded out of the plane of the main panel **12**.

[0139] Each toothed region of the main panel **12** may be folded about one of the articles B received in the respective one of the article retention structures RT**1**, RT**2**. The main panel **12** may deform about the article B for example but not limited to a shoulder portion of the article B, where the article B is a can, the shoulder portion may be provided by the neck.

[0140] The blank **10** may be partially folded about fold lines **13**, **15** to bring the first and second side panels **14**, **16** into non-coplanar relationship with the main panel **12**.

[0141] The blank **10** is folded about fold lines **23**A, **23**B, **33**A, **33**B to fold the first, second, third and fourth anchor flaps **22**A, **22**B, **32**A, **32**B into substantially face to face relationship with the first or second side panels **14**, **16** to which they are hinged.

[0142] The blank **10** is folded about fold lines **25**, **35** to fold the first and second end panels **24**, **34** into at least substantially perpendicular relationship with the main panel **12**. In some embodiments, the first and second end panels **24**, **34** may be folded through an angle greater than 90° so as to be inclined.

[0143] The blank **10** is folded about fold lines **27**, **37** to fold the first and second top end flaps **26**, **36** with respect to the respective one of the first and second end panels **24**, **34** to which they are hinged.

[0144] The first and second top end flaps **26**, **36** may be folded over an upper end of an article B or articles B disposed adjacent to the first and second ends of the main panel **12**.

[0145] The first and second top end flaps **26**, **36** may be folded to be substantially parallel to the main panel **12**.

[0146] The first and second end panels **24**, **34** and first and second top end flaps **26**, **36** may be folded automatically in response to folding the first, second, third and fourth anchor flaps **22**A, **22**B, **332**A, **32**B into substantially face contacting relationship with the respective one of the first and second side panels **14**, **16**.

[0147] The blank **10** is folded about fold lines **13**, **15** to bring the first and second side panels **14**, **16** into substantially perpendicular relationship with the main panel **12**.

[0148] The blank **10** is folded about fold line **19** to fold the second top panel **20** over the tops of the articles B. The blank **10** is folded about fold line **17** to fold the first top panel **18** over the tops of the articles B and into overlapping relationship with the first top panel **18** to form a composite top panel **18**/**20**.

[0149] The locking tabs **80** are displaced out of the plane of the first top panel **18**, downwardly, in doing so the locking tabs **82** are displaced out of the plane of the second top panel **20**. The locking tabs **80** pass through the second top panel **20**.

[0150] The locking tabs **80**, **82** are folded internally of the carrier **90**, to displace the handle tabs **60**, **62** out of the plane of the main panel **12**. The locking tabs **80**, **82** pass through the main panel **12**.

[0151] The locking tabs **80**, **82** engage with the main panel **12**. Shoulders of the locking tabs **80**, **82** may engage not only with the perimeter of the respective handle opening but also with an edge of each of the one or both handle tabs **60**, **62**.

[0152] The handle tabs **60**, **62** may prevent or inhibit disengagement of the locking tabs **80**, **82** from the locked condition.

[0153] The locking tabs **80**, **82** may also serve to function as a spacer between the composite top panel **18**/**20** and the main panel **12**. The locking tabs **80**, **82** may engage the main panel **12** along the perimeters of the handle openings and/or the lower surface of the main panel **12** and may thereby serve as tension members for maintaining a spacing between the main panel **12** and the composite top panel **18**/**20** so as to prevent the spacing from increasing.

[0154] The locking tab **80**, **82** may also provide a cushioning tab improving comfort when the package **90** is carried by inserting one or more fingers into the openings in the composite top panel **18**/**20** and the main panel **12**.

[0155] Referring to FIG. **2** there is shown a blank **110** comprising a plurality of panels **112**, **114**, **116**, **118**, **120**, **122**, **124** for forming a handle strap and/or binding device for coupling two or more carriers **90** together.

[0156] The blank **110** includes a first bottom panel **112** hingedly connected to a first corner or bevel panel **114** by a hinged connection in the form of a fold line **113**. A first side panel **116** is hingedly connected to the first bevel panel **114** by a hinged connection in the form of a fold line **115**. A top panel **118** is hingedly connected to the first side panel **116** by a hinged connection in the form of a fold line **117**. A second side panel **120** is hingedly connected to the top panel **118** by a hinged connection in the form of a fold line **119**. A second corner or bevel panel **122** is hingedly connected to the second side panel **120** by a hinged connection in the form of a fold line **121**. A first bottom panel **124** is hingedly connected to a second bevel panel **122** by a hinged connection in the form of a fold line **123**.

[0157] The blank **110** is foldable to form a carrier **190** as illustrated in FIG. **3**. The first and second base panels **112**, **124** are engageable with one another in an overlapping relationship to form a composite base wall **112**/**124** of the carrier **190**. The blank **110** may comprise a complementary locking mechanism for securing the second base panel **124** to the first base panel **112**. The first base panel **112** may comprise at least one first part M of the complementary locking mechanism. The second base panel **124** may comprise at least one second part F of the complementary locking mechanism. In the illustrated embodiment, the second base panel **124** comprises a plurality of female tabs F defining openings in the first base panel **112**. The first base panel **112** comprises a plurality of male tabs M, the openings in the second base panel **124** being configured to receive a respective one of the male tabs M. The female tabs F are arranged to be displaced out of the second base panel **124** to form the opening and to bear against the male tabs M when received therein. In some embodiments, the complementary locking mechanism M/F may be omitted, the first and second base panels **112**, **124** may be secured to each other by other means such as but not limited to adhesive or staples.

[0158] Optionally, the first base panel **112** may comprise at least one first handling aperture A**4**; in alternative embodiments, the first handling aperture A**4** may be defined at least in part by a tab foldably or severably connected to the first base panel **112**. In the illustrated embodiment, the first base panel **112** comprises two first handling apertures A**4**. The first handling apertures A**4** may be employed to facilitate construction of the carrier **190**. A packaging machine component may engage with the first handling apertures A**4** to

enable the plurality of panels **112**, **114**, **116**, **118**, **120**, **122**, **124** to be tightened about a group of secondary packages or carriers **90**. The first handling apertures A**4** may also be employed to facilitate alignment of the first and second base panels **112**, **124** with respect to each other or to align the first part of the complementary locking mechanism with the second part of the complementary locking mechanism. The complementary locking mechanism illustrated and described is entirely optional.

[0159] The first handling apertures A**4** may be substantially triangular in shape.

[0160] The first base panel **112** further comprises portions of two first bottom locking arrangements BL**1** in the form of openings. The first bottom locking arrangements BL**1** extend from the first base panel **112** across the first bevel panel **114** and into the first side panel **116**, in-so-doing interrupting the fold lines **113**, **115** which hinge the first base panel **112**, first bevel panel **114** and first side panel **116** one to the next. Each first bottom locking arrangement BL**1** comprises a first aperture A**8** defined in the first base panel **112** and a second aperture A**6** defined in the first side panel **116**. A pair of flaps **170**A, **170**B extend between the first and second apertures A**8**, A**6**. The pair of flaps **170**A, **170**B are separated from one another by a cut line or severable line. The pair of flaps **170**A, **170**B are struck, in part, from the first base panel **112**, in part from the first bevel panel **114** and in part from the first side panel **116**. Each of the pair of flaps **170**A, **170**B is hinged to the first base panel **112** and to the first side panel **116** by respective hinged connection in the form of fold line **171**A, **171**B. Each of the pair of flaps **170**A, **170**B is separated from the first bevel panel **114** by a respective cut line or severance line **173**A, **173**B.

[0161] Each of the pair of flaps **170**A, **170**B comprises a pair of fold lines **175**A/**177**A, **175**B/**177**B. The fold lines **175**A, **177**A, **175**B, **177**B of each pair of fold lines **175**A/**177**A, **175**B/**177**B are divergently arranged with respect to each other. The second base panel **124** further comprises portions of two second bottom locking arrangements BL**2** in the form of openings. The second bottom locking arrangements BL**2** substantially similar to the first bottom locking arrangements BL**1** albeit first aperture A**8** comprises a V shaped recess A**7** that extends away from the flaps **170**A, **170**B into the second base panel **124**. This V shaped recess may be engaged by a finger or other machine tool during construction of the carrier **190** and employed in combination with the first handling apertures A**4**.

[0162] The top panel **118** comprises a first reinforcement flap **118**A hingedly connected along a first side edge of the top panel **118** by a hinged connection in the form of a fold line **125**A. The top panel **118** comprises a second reinforcement flap **118**B hingedly connected along a second side edge of the top panel **118**, the second side edge opposes the first side edge, by a hinged connection in the form of a fold line **125**B.

[0163] The first reinforcement flap **118**A may extend into the first and/or second side panels **116**, **120**, a first extension **116**A may be hingedly connected to the first side panel **116** by a hinged connection in the form of a fold line **127**A. A second extension **120**A may be hingedly connected to the second side panel **120** by a hinged connection in the form of a fold line **129**A. The first extension **116**A may be hingedly connected to the first reinforcement flap **118**A by a hinged connection in the form of a fold line **117**A. The second extension **120**A may be hingedly connected to the first reinforcement flap **118**A by a hinged connection in the form of a fold line **119**A.

[0164] The second reinforcement flap **118**B may extend into the first and/or second side panels **116**, **120**, a first extension **116**B may be hingedly connected to the first side panel **116** by a hinged connection in the form of a fold line **127**B. A second extension **120**B may be hingedly connected to the second side panel **120** by a hinged connection in the form of a fold line **129**B. The first extension **116**B may be hingedly connected to the first reinforcement flap **118**B by a hinged connection in the form of a fold line **117**B. The second extension **120**B may be hingedly connected to the first reinforcement flap **118**B by a hinged connection in the form of a fold line **119**B.

[0165] Optionally, the first side panel **116** may comprise a first recess R**1** struck from a side edge thereof. The first recess R**1** may define an end or lower (in normal use) edge of the first extension **116**B of the second reinforcement flap **118**B.

[0166] Optionally, the second side panel **120** may comprise a second recess R**2** struck from a side edge thereof. The second recess R**2** may define an end, or lower (in normal use), edge of the second extension **120**A of the first reinforcement flap **118**A.

[0167] The blank **110** may comprise a first handle flap **160** struck from the top panel **118**, disposed adjacent to a first side edge of the top panel **118**, and hingedly connected thereto by a hinged connection in the form of a fold line **161**. An aperture A**5** may be struck from the second reinforcement flap **118**B adjacent to the first handle flap **160** configured and arranged to accommodate the first handle flap **160** in an operative condition.

[0168] The blank **110** may comprise a second handle flap **160** struck from the top panel **118**, disposed adjacent to a second, opposing, side edge of the top panel **118**, and hingedly connected thereto by a hinged connection in the form of a fold line **161**. An aperture A**5** may be struck from the first reinforcement flap **118**A adjacent to the first handle flap **160** configured and arranged to accommodate the first handle flap **160** in an operative condition.

[0169] FIG. **3** shows a pair of article carriers **90** coupled together by a strap **190** formed from the blank **110** of FIG. **2**. The blank **110** is wrapped or folded about the pair of article carriers **90**.

[0170] The first and second reinforcement flaps **118**A, **118**B together with the extensions **116**A, **116**B, **120**A, **120**B are folded about respective fold lines into substantial face to face relationship with the panel to which they are hinged.

[0171] The blank **110** is placed over a pair of article carriers **90**, in part over a first article carrier **90** and in part over a second article carrier **90**. The first and second reinforcement flaps **118**A, **118**B are disposed between the top panel **118** and the upper ends of the article carriers **90**. The first and second side panels **116**, **120** are folded about fold lines **117**, **119** respectively to be brought into face-to-face relationship with ends of the article carriers **90**.

[0172] The flaps **170**A, **170**B of the bottom locking arrangements BL**1**, BL**2** are folded out of the plane of the bevel panels **114**, **122**, internally of the strap **190**. A lower portion of an article B of the first article carrier **90** is received in a first one of the first bottom locking arrangements BL**1**. A lower portion of another article B of the first article carrier **90** is received in a first one of the second bottom locking

arrangements BL2. A lower portion of an article B of the second article carrier **90** is received in a second one of the first bottom locking arrangements BL1. A lower portion of another article B of the second article carrier **90** is received in a second one of the second bottom locking arrangements BL2. The flaps **170**A, **170**B are disposed about a lower or heel portion of the articles B and engage generally opposing sides of the articles B to restrict or inhibit movement of the article carriers **90** laterally of the strap **190**.

[0173] The second base panel **124** is folded about the bases of the groups of articles B in each article carrier **90**. The first base panel **112** is folded about the bases of the groups of articles B in each article carrier **90**. The first base panel **112** is brought into at least partial overlapping relationship with the second base panel **124**. The first base panel **112** is secured to the second base panel **124** by the complementary locking mechanism. In this way the strap **190** combines two carriers **90** into a single tertiary package P, as shown in FIG. **3**.

[0174] In the illustrated embodiment, the first base panel **112** is larger in dimension, length, than the second base panel **124**. The male locking tabs M are disposed adjacent an end edge of the first base panel **112** and the female locking tabs F are disposed adjacent an end edge of the second base panel **124**. The complementary locking mechanism is arranged to be off-center with respect to the composite base panel **112**/**124** formed by the first and second base panels **112**, **124**. The male and female tabs M, F are arranged to be in vertical registry with a void between articles B in an outer row of articles B and the center row of articles B. In other embodiments, having an even number of rows of articles B the arrangement of the first and second base panels **112**, **124** may be generally symmetrical, that is to say the first and second base panels **112**, **124** may be substantially equal in length.

[0175] Referring now to FIG. **4**, an alternative blank is shown for forming a handle or binding strap which may be used in a packaging system of the present disclosure. The blank of FIG. **4** is a modified form of the blank of FIG. **2**. In FIG. **4**, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "1000" to indicate that these features belong to the blank of the modified form of the handle strap. FIG. **4** shares many common features with the strap of FIG. **2**, therefore only the differences from the strap of FIG. **2** will be described in any greater detail.

[0176] FIG. **4** shows a blank **1110** comprising a plurality of panels **1112**, **1114**, **1116**, **1118**, **1120**, **1122**, **1124**. The blank **1110** comprises a top panel **1118**. The reinforcement flaps **118**A, **118**B of the embodiment of FIG. **2** have been omitted. The top panel **1118** comprises a pair of handle flaps **1160** hingedly connected, by hinged connections in the form of fold lines **1161**, to opposing sides of the top panel **1118** and extending along a substantial portion—greater than half—of the side edge of the top panel **1118**. The handle flaps **1160** may, in addition to providing a comfortable cushioning flap, reinforce the top panel **1118** by providing a two-ply structure over a substantial portion of the top panel **1118**.

[0177] The blank **1110** may be employed with carriers **90** formed form blanks **10** in accordance with FIG. **1**.

[0178] Referring now to FIG. **5** there is shown an alternative blank for forming a top-engaging carton or carrier which may be used in the unitary package or packaging system of the present disclosure. In the illustrated embodiment, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "1000" to indicate that these features belong to the article carrier or secondary package of FIG. **5**. The embodiment of FIG. **5** shares many common features with the embodiment of FIG. **1**, therefore only the differences from the embodiment of FIG. **1** will be described in any greater detail.

[0179] FIG. **5** shows a blank **1010** comprising a plurality of main panels **1012**, **1014**, **1016**, **1018**, **1020**. The plurality of main panels **1012**, **1014**, **1016**, **1018**, **1020** includes a first main or top panel **1012** for forming an engaging panel of a carrier **1090** (see FIG. **7**).

[0180] The engaging panel **1012** comprises at least one article retention structure RT1, RT2. The engaging panel **1012** comprises a plurality of article retention structures RT1, RT2, specifically six article retention structures RT1, RT2 arranged in 2×3 matrix or array. Each of the article retention structures RT1, RT2 comprises an opening or aperture A1, A2.

[0181] The first and second article retention structures RT1, RT2 may comprise an annular series of engaging teeth **1052**A, **1052**B disposed about an aperture A1, A2. The annular series of engaging teeth **1052**A, **1052**B may comprises sixteen teeth each having an engaging edge and defining a portion of a polygon, a hexadecagon. The engaging teeth **1052**A, **1052**B may be hinged to the engaging panel **1012** by hinged connections or fold lines. The hinged connection may be defined by at least a first circumferential cut line **1057** aligned with a radial cut line **1053**. Some of the engaging teeth, particularly those disposed in marginal regions of the engaging panel **1012**, may also comprise a second circumferential cut line **1055** disposed between a pair of first circumferential cut lines **1057**.

[0182] A first side panel **1018** is hingedly connected to a first side of the engaging panel **1012** by a hinged connection in the form of a fold line **1017**.

[0183] A second side panel **1020** is hingedly connected to a second, opposing, side of the engaging panel **1012** by a hinged connection in the form of a fold line **1019**.

[0184] The blank **1010** comprises an end structure at each end of the engaging panel **1012**, the end structures are substantially the same in construction and will be described with reference to a first end structure shown in FIG. **5**. The first end structure comprises a first end panel **1022**T hingedly connected to a first end of the engaging panel **1012** by a hinged connection in the form of a fold line **1011**.

[0185] The first end structure comprises a first corner panel **1022**A connected to a first end of the first end panel **1022**T and integral therewith. Optionally, a fold line (not shown) may hingedly connect the first corner panel **1022**A to the first end panel **1022**T.

[0186] The first end structure comprises a first securing panel **1024**A hingedly connected to the first corner panel **1022**A by a hinged connection in the form of a fold line **1023**A. The fold line **1023**A is optionally and may be omitted, in such embodiments the first securing panel **1024**A is integral with the first corner panel **1022**A.

[0187] The first end structure comprises a second corner panel **1022**B connected to a second end of the first end panel **1022**T and integral therewith. Optionally, a fold line (not shown) may hingedly connect the second corner panel **1022**B to the first end panel **1022**T.

[0188] A second securing panel **1024**B is hingedly connected to the second corner panel **1022**B by a hinged connection in the form of a fold line **1023**B. The fold line **1023**B is optionally and may be omitted, in such embodiments the second securing panel **1024**B is integral with the second corner panel **1022**B.

[0189] A first web panel **1030**A is hingedly connected at one end to the first securing panel **1024**A by a hinged connection in the form of a fold line **1025**A and is hingedly connected at a second end to the first side panel **1018** by a hinged connection in the form of a fold line **1027**A.

[0190] A second web panel **1030**B is hingedly connected at one end to the second securing panel **1024**B by a hinged connection in the form of a fold line **1025**B and is hingedly connected at a second end to the second side panel **1020** by a hinged connection in the form of a fold line **1027**B.

[0191] The first web panel **1030**A is separated from the first corner panel **1032**A by an aperture A**9**, the aperture A**9** separates the first corner panel **1022**A from the engaging panel **1012**. The second web panel **1030**B is separated from the second corner panel **1022**B by an aperture A**9**, the aperture A**9** separates the second corner panel **1030**B from the engaging panel **1012**.

[0192] The first end structure comprises a handle panel **1014**, the handle panel **1014** is hingedly connected at one end to the first corner panel **1022**A by a hinged connection in the form of a fold line **1021**A and is hingedly connected at a second end to the second corner panel **1022**B by a hinged connection in the form of a fold line **1021**B. The fold line **1021**A and the fold line **1021**B are optional, in embodiments where the fold lines **1021**A, **1021**B are omitted the handle panel **1014** is integral with the first and second corner panels **1022**A, **1022**B.

[0193] The handle panel **1014** is defined at least in part by a cut line or frangible line **1013**. The frangible line **1013** separates the handle panel **1014** from the first end panel **1022**T. The frangible line **1013** extends between the first corner panel **1022**A and the second corner panel **1022**B. The frangible line **1013** may comprise end portions in the form of "J" or "C" shaped cuts, in some embodiments the end portions may extend into each of the first and second corner panels **1022**A, **1022**B. The frangible line **1013** may be nonlinear in shape, and may comprise a medial portion **1013** and a pair of divergently arranged marginal portions **1013**A, **1013**B. The medial portion **1013** may be arranged to interrupt the hinged connection between the first end panel **1022**T and the engaging panel **1012** and may be collinear with the fold line **1011**. In this way the first end panel **1022**T may take the form of a pair of substantially triangular shaped panels spaced apart from each other. The handle panel **1014** may be considered to be formed from material which would otherwise form the first end panel **1022**T. This may be advantageous in that the strength of the handle panel is increased without requiring additional material to be provided, without increasing the size of the blank **1010**.

[0194] It will be appreciated that the first end panel **1022**T, the first corner panel **1022**A, the first securing panel **1024**A, the second corner panel **1022**B, the second securing panel **1024**B, and the handle panel **1014** form a strap **1024**A/**1022**A/**1022**T/**1014**/**1022**B/**1024**B along a first end of the engaging panel **1012**.

[0195] The blank **1010** may comprise at least one stabilisation device T. In the illustrated embodiment, the blank **1010** comprises two stabilisation devices T. The stabilization device T takes the form of an opening struck from the blank **1010**. A first stabilisation device T is disposed between first group of four article retention structures RT**1**, RT**2** located proximate a first or leading end edge of the blank **1010** and may be disposed centrally between said group of article retention structures RT**1**, RT**2**. A second stabilisation device T is disposed between a second group of four article retention structures RT**1**, RT**2** located proximate a second or trailing end edge of the blank **1010** and may be disposed centrally between said group of article retention structures RT**1**, RT**2**. The stabilisation devices T are configured to receive an abutment peg or dog of a packaging machine during assembly of the carrier **1090**.

[0196] The opening of the stabilisation devices T may be non-circular in shape, and may be substantially square or diamond shaped. The opening may be defined by at least one tab **1064** struck from the engaging panel **1012** and hingedly connected thereto. In the illustrated embodiment, the opening is defined by a pair of tabs **1064** each struck from the engaging panel **1012** and hingedly connected to the engaging panel **1012** in opposition to each other. The pair of tabs **1064** may be separated from each other by a cut or severable line.

[0197] Turning to the construction of the carrier **1090** from the blank **1010**, the blank **1010** may be formed into an assembled carrier **1090**, as shown in FIG. **7**.

[0198] The engaging panel **1012** is lowered with respect to a group of articles B. The article retention structures RT**1**, RT**2** engage with respective articles B. The engaging teeth **1052**A, **1052**B fold out of the plane of the engaging panel **1012** and engage beneath a flange or projection of the articles B.

[0199] The first end panel **1022**T and the handle panel **1014** are folded about fold line **1011** and frangible line portion **1013**. The first and second corner panels **1022**A, **1022**B are folded about respective corners of the article group and the first and second securing panels **1024**A, **1024**B are folded about respective sides of the article group.

[0200] Second end panel **1026**T and second handle panel **1016** are folded, about fold line **1009** and frangible line portion **1015**, downwardly about the end of the article group. Corner panels **1026**A, **1026**B are folded about respective corners of the article group and securing panels **1028**A, **1028**B are folded about respective sides of the article group.

[0201] Glue or other adhesive treatment is applied to an outward facing surface of the securing panels **1024**A, **1024**B, **1028**A, **1028**B. Alternatively, glue or other adhesive treatment is applied to an inner surface of the first and second side panels **1018**, **1020**.

[0202] The first side panel **1018** is folded about fold line **1017** to be brought into face-to-face relationship with the securing panels **1024**A, **1028**A. The first side panel **1018** is secured to the securing panels **1024**A, **1028**A.

[0203] The second side panel **1020** is folded about fold line **1019** to be brought into face-to-face relationship with the securing panels **1024**B, **1028**B. The second side panel **1020** is secured to the securing panels **1024**B, **1028**B.

[0204] Referring now to FIG. **6** there is shown an alternative blank for forming a handle or binding strap which may be used in the unitary package or packaging system of the present disclosure. In the illustrated embodiment, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "2000" to indicate that these features belong to the strap of FIG. **6**. The

alternative embodiment shares many common features with the embodiment of FIGS. **1** and **4**, therefore only the differences from the embodiment illustrated in FIGS. **1** and **4** will be described in any greater detail.

[0205] FIG. **6** shows a blank **2110** comprising a plurality of panels **2112**, **2114**, **2116**, **2118**, **2120**, **2122**, **2124**. The blank **2110** comprises a top panel **2118**. The top panel **2118** comprises a pair of handle flaps **2160** hingedly connected, by hinged connections in the form of fold lines **2161**, to opposing sides of the top panel **2118** and extending along a substantial portion-greater than half-of the side edge of the top panel **2118**. The handle flaps **2160** may, in addition to providing a comfortable cushioning flap, reinforce the top panel **2118** by providing a two-ply structure over a substantial portion of the top panel **2118**.

[0206] The top panel **2118** is generally "I" shaped and comprises a pair of recesses along opposing side edge thereof. The handle flaps **2160** are provided in said recesses and are hingedly connected to opposed side of a medial portion of the top panel **2118**.

[0207] The blank **2110** comprises a first upper bevel or corner panel **2116**A hingedly connected to a first side panel **2116**A by a hinged connection in the form of a fold line **2117**B and hingedly connected to the top panel **2118** by a hinged connection in the form of a fold line **2117**A.

[0208] The blank **2110** comprises a second upper bevel or corner panel **2118**A hingedly connected to a second side panel **2120**B by a hinged connection in the form of a fold line **2119**B and hingedly connected to the top panel **2118** by a hinged connection in the form of a fold line **2119**A.

[0209] The blank **2110** comprises at least one article engaging tab **2166** struck from, or hingedly connected to, the top panel **2118**. The illustrated embodiment comprises a plurality of article engaging tab **2166**, specifically, but not exclusively, four article engaging tab **2166**. Each article engaging tab **2166** is hinged to an end portion of the top panel **2118**. The article engaging tabs **2166** are disposed in, or define, a portion of one of the pair of recesses along opposing side edges of the top panel **2118**. Each article engaging tab **2166** is hingedly connected to the top panel **2118** by a hinged connection in the form of a fold line **2165**, the fold line **2165** may be divergently arranged with respect to a fold line **2117**A, **2119**A between an upper bevel panel **2118**A, **2120**A and the top panel **2118**, additionally or alternatively, the fold line **2165** may be divergently arranged with respect to the fold line **2161** hinging a respective one of the pair of handle flaps **2160** to the top panel **2118**.

[0210] The fold line **2165** may be obliquely oriented with respect to the fold line **2161** hinging a respective one of the pair of handle flaps **2160** to the top panel **2118**.

[0211] Each article engaging tab **2166** may be separated from one of the pair of handle flaps **2160** by a cutline, slot or other cutaway.

[0212] A free edge of each article engaging tab **2166** may be defined, at least in part, by a non-linear cutline, optionally an arcuate cutline. In embodiments, where an arcuate cutline is employed the radius of curvature of the cutline may be substantially equal to the radius of curvature of an internal wall of a rim, ridge or recess of an article B being packaged.

[0213] The blank **2110** may be employed with carriers **1090** formed form blanks **1010** in accordance with FIG. **5** to form a tertiary package as shown in FIG. **7**. The handle strap **2190** inhibits or prevents access to or use of the handle structure of the article carrier **1090** provided by the handle flaps **1014**, **1016**.

[0214] The article engaging tabs **2166** engage with upper ends of articles B received in the article retention structures RT**1** of the article carriers **90**, in this way the security of the article carriers **90** within the handle strap is improved.

[0215] Referring now to FIG. **8** there is shown an alternative blank for use in the packaging system of the present disclosure. In the illustrated embodiment, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "2000" to indicate that these features belong to the article carrier or secondary package of FIG. **8**. The alternative embodiment shares many common features with the embodiments of FIGS. **1** and **5**, therefore only the differences from the embodiment illustrated in FIGS. **1** and **5** will be described in any greater detail.

[0216] FIG. **8** shows a blank **2010** comprising an engaging panel **2012** forming part of a carrier **2090** shown in FIG. **9**.

[0217] The blank **2010** includes a first end panel **2014** hingedly connected to a first end of the main panel **2012** by a hinged connection in the form of a fold line **2013**. The fold line **2013** is linear. The blank **2010** includes a second end panel **2016** hingedly connected to a second end of the main panel **2012** by a hinged connection in the form of a fold line **2015**. The fold line **2015** is linear.

[0218] The blank **2010** includes a first side panel **2018** hingedly connected to a first side of the main panel **2012** by a hinged connection in the form of a fold line **2017**. The fold line **2017** is linear. The blank **2010** includes a second side panel **2020** hingedly connected to a second side of the main panel **2012** by a hinged connection in the form of a fold line **2019**. The fold line **2019** is linear.

[0219] The main panel **2012** comprises four corner regions **2012**A each substantially the same in construction. The corner regions **2012**A will be described in further detail with reference to a first corner region **2012**A. The first corner region **2012**A is defined, at least in part, by a divergently arranged pair of fold lines **2013**A, **2017**A. The pair of fold lines **2013**A, **2017**A comprises a first fold line **2013**A oriented substantially perpendicularly to a second fold line **2017**A.

[0220] Each of the pair of fold lines **2013**A, **2017**A is substantially colinear with a respective one of the fold lines **2013**, **2017** hinging the first side panel and first end panel **2014**, **2016** to the main panel **2012**.

[0221] The first corner region **2012**A may comprise a bevel, chamfered or filleted corner defining a free edge of the main panel **2012**-that is to say, the free edge is not hinged to any other panel.

[0222] The blank **2010** comprises four first article retention structures RT**1** which are substantially similar in construction to the first article retention structures RT**1** of the embodiment shown in FIG. **1** albeit the tabs **2050**A, **2050**B have been widened so as to occupy a larger portion of the circumference of an article receiving opening defined in part by an aperture A**1**. A partial tab or tooth **2050**C is provided on each side of each abutment tab **2050**A, **2050**B. An abutment tab **2050**A, **2050**B and the associated pair of partial teeth **2050**C occupy an angular width equivalent to three full teeth **2052**A, **2050**B, said angular width may be 67.5°. The abutment tabs **2050**A, **2050**B may occupy approximately 39.5°, each partial tooth **2050**C may occupy approximately 14°.

[0223] Each of the pair of radial cutlines **2051** of the abutment tabs **2050**A, **2050**B extends to a fold line **2013**, **2015**, **2017**, **2019** hinging a side or end panel **2018**, **2020**, **2014**, **2016** to the engaging panel **2012**.

[0224] The abutment tab **2050**A, **2050**B interrupts the respective one of the fold lines **2013**, **2015**, **2017**, **2019** hinging the engaging panel **2012** to the side or end panel **2018**, **2020**, **2014**, **2016** to, or from, which it extends, that is to say, the abutment tab **2050**A, **2050**B is integral with one of the side or end panels **2018**, **2020**, **2014**, **2016**.

[0225] The fold lines **2013**, **2015**, **2017**, **2019** hinging the side or end panel **2018**, **2020**, **2014**, **2016** to the engaging panel **2012** may comprise a plurality of spaced apart cutlines arranged collinearly with each other. The plurality of spaced apart cutlines may comprise two, three or more discrete cutlines. The plurality of spaced apart cutlines may comprise two, three or more discrete cutlines each having a different length.

[0226] The first article retention structures RT**1** comprises a plurality of engaging teeth **2052**A, **2052**C are hinged to the engaging panel **2012** by a fold line. The fold line may be defined by a plurality of cut lines **2055**, **2057**. The plurality of cut lines **2055**, **2057** may define or approximate a circle.

[0227] The hinged connection between the plurality of engaging teeth **2052**A, **2052**C and the engaging panel **2012** is spaced apart from respective ones of the fold lines **2013**, **2015**, **2017**, **2019** hinging the side or end panels **2018**, **2020**, **2014**, **2016** to the engaging panel **2012**. In this way the circumferential fold defining the plurality of engaging teeth **2052**A, **2052**C is spaced apart from a linear fold hinging a side or end panel **2018**, **2020**, **2014**, **2016** to the engaging panel **2012**.

[0228] The abutment tabs **2050**A, **2050**B are defined by a pair of radial cutlines **2051**, the radial cutlines **2051** of the abutment tabs **2050**A, **2050**B are longer in length than at least one of the radial cutlines **2053** defining the first teeth **2052**A. The pair of radial cutlines **2051** extend beyond a perimeter of the engaging teeth **2052**A, **2052**C, that is to say, beyond the circumferential fold defining outer edges of the plurality of engaging teeth **2052**A, **2052**C, the circumferential fold being defined by the plurality of cut lines **2055**, **2057**.

[0229] The blank **2010** comprises two second article retention structures RT**2** which are substantially similar in construction to the first article retention structures RT**1** albeit one of the abutment tabs **2050**B is omitted along with its two associated partial teeth **2052**C, and replaced with three full teeth **2052**A.

[0230] The blank **2010** forms an article carrier **2090** for use with the handle strap **2190** formed form the blank **2110** of FIG. **6**, FIG. **9** shows a pair of article carriers **2090** forming a tertiary package P with a handle strap **2190**.

[0231] The abutment tabs **2050**A, **2050**B fold out of the plane of the main panel **2012** when an article B is received in the article retention structures RT**1**, RT**2**, the abutment tabs **2050**A, **2050**B being integral with one of the side or end panels **2018**, **2020**, **2014**, **2016** may encourage or initiate folding of the side or end panels **2018**, **2020**, **2014**, **2016** with respect to the main panel **2012**.

[0232] Referring now to FIG. **10**, an alternative unitary package or packaging system of the present disclosure is shown. In FIG. **10**, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "3000" to indicate that these features belong to the embodiment of FIG. **10**. This alternative embodiment shares many common features with the embodiment of FIG. **1**, therefore only the differences from the embodiment illustrated in FIG. **1** will be described in any greater detail.

[0233] FIG. **10** illustrates a stack of sub-packages each formed from a group of articles B which are clustered together by a top-engaging carrier **90** which is formed from the blank **10** of FIG. **1**. The sub-packages of FIG. **10** are shown as stacked one on top of the other such that the articles B of the upper sub-package are disposed or placed on the carrier **90** of the lower sub-package. The details of the top-engaging carrier **90** and its blank **10** are described earlier and illustrated in FIGS. **1** and **3**.

[0234] FIG. **10** further illustrates a handle or binding strap **3190** which is wrapped or folded about the stack of sub-packages. The handle strap **3190** comprises a tubular structure having opposed open ends and disposed around the stack such that a part of each of the upper and lower sub-packages extends outwards from one of the opposed open ends of the tubular structure and another part of each of the upper and lower sub-packages extends outwards from the other one of the opposed open ends of the tubular structure Each sub-package is formed from a group of substantially cylindrical articles B and a top-engaging carrier **90** which is in engagement with the upper portion of each of the articles.

[0235] The handle or binding strap **3190** comprising a top panel **3118** and a side panel **3120**. The other panels of the strap **3190** are not shown in FIG. **10**; however, the strap **3190** includes another side panel at the position opposing the side panel **3120** and a pair of mutually secured base panels at the position opposing the top panel **3118**. The base panels of the strap **3190** each has a single bottom-receiving opening which is defined by a pair of bottom-engaging flaps such as denoted by the numeral "**3170**B" in FIG. **10**. The single bottom-receiving opening in FIG. **10** is used to receive part of the bottom of an intermediate article B of the lower sub-package. The engaging flaps **3170**B are in engagement with the bottom of the respective intermediate article B. The other parts of the strap **3190** may be similar to those shown in FIG. **2** if not identical thereto.

[0236] Referring now to FIG. **11**, an alternative blank is shown for forming a handle or binding strap which may be used in a packaging system of the present disclosure. The blank of FIG. **11** is a modified form of the blank of FIG. **6**. In FIG. **11**, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "4000" to indicate that these features belong to the blank of the modified form of the handle strap. FIG. **11** shares many common features with the strap of FIG. **6**, therefore only the differences from the strap of FIG. **6** will be described in any greater detail.

[0237] FIG. **11** shows a blank **4110** comprising a plurality of panels **4112**, **4114**, **4116**, **4118**, **4120**, **4122**, **4124**. The blank **4110** comprises a top panel **4118**. The top panel **4118** comprises a pair of handle flaps **4160** hingedly connected, by hinged connections in the form of fold lines **4161**, to opposing sides of the top panel **4118** and extending along a substantial portion-greater than half-of the side edge of the top panel **4118**. The handle flaps **4160** may, in addition to providing a comfortable cushioning flap, reinforce the top panel **4118** by providing a two-ply structure over a substantial portion of the top panel **4118**.

[0238] FIG. **12** shows a packaging system comprising a pair of sub-packages each formed from a group of articles B which are clustered together by a top-engaging carrier **1090** which is formed from the blank **1010** of FIG. **5**. The sub-packages are combined together by a binding strap **4190** formed from the blank of FIG. **11**.

[0239] The blank **4110** comprises a pair of base panels **4112**, **4124**, the pair of base panels **4112**, **4124** are configured to form a complete or full base wall **4112**/**4124**, that is to say all of the articles B in the top-engaging carriers **1090**, being secured together, rest upon the base wall **4112**/**4124**.

[0240] The blank **4110**, similar to the blank **2110** of FIG. **6**, comprises article engaging tabs **4166**; the article engaging tabs **4166** are hinged to the top panel **4118** by hinged connections **4165**. The article engaging tabs **4166** engage upper ends of articles B in the top-engaging carriers **1090**. Each article engaging tab **4166** engages an internal surface of a wall, upstand to recess in the upper end of a respective article B. The article engaging tabs **4166** are configured to engage inner articles B disposed proximate to the handle or binding strap **4190**. Upper ends of the outermost or endmost articles B are fully exposed or visible. The lower ends of the outermost or endmost articles B proximate the first and second side walls **4116**B, **4120**B, are received or engaged by respective bottom locking arrangements BL**1**, BL**2**.

[0241] Referring now to FIG. **13**, an alternative blank is shown for forming a handle or binding strap which may be used in a packaging system of the present disclosure. The blank of FIG. **13** is a modified form of the blank of FIGS. **6** and **11**. In FIG. **13**, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "5000" to indicate that these features belong to the blank of the modified form of the handle strap. FIG. **13** shares many common features with the strap of FIGS. **6** and **11**, therefore only the differences from the straps of FIGS. **6** and **11** will be described in any greater detail.

[0242] FIG. **13** shows a blank **5110** comprising a plurality of panels **5112**, **5114**, **5116**, **5118**, **5120**, **5122**, **5124**. The blank **5110** comprises a top panel **5118**. The top panel **5118** comprises a pair of handle flaps **5160** hingedly connected, by hinged connections in the form of fold lines **5161**, to opposing sides of the top panel **5118** and extending along a substantial portion-greater than half-of the side edge of the top panel **5118**. The handle flaps **5160** may, in addition to providing a comfortable cushioning flap, reinforce the top panel **5118** by providing a two-ply structure over a substantial portion of the top panel **5118**.

[0243] FIG. **14** shows a packaging system comprising a pair of sub-packages each formed from a group of articles B which are clustered together by a top-engaging carrier **1090** which is formed from the blank **1010** of FIG. **5**. The sub-packages are combined together by a binding strap **5190** formed from the blank of FIG. **13**.

[0244] Similarly, to the blank **4110** of FIG. **11**, the blank **5110** comprises a complete or full base wall **5112**/**5124**, that is to say all of the articles B in the top-engaging carriers **1090**, being secured together, rest upon the base wall **5112**/**5124**.

[0245] The top panel **5118** comprises marginal portion which extend fully between opposed ends of the package P, that is to say the marginal portions are equal in length to the base panels **5112**, **5124**.

[0246] The first and second sidewalls **5115**B, **5120**B also extend fully between opposed ends of the package P, they are equal in length to the base panels **5112**, **5124** and the marginal portions of the top panel **5118**. In this way a side of the outermost or endmost articles B proximate the first and second side walls **5116**B, **5120**B is covered or concealed by the first and second sidewalls **5115**B, **5120**B.

[0247] The blank **5110** comprises at least one article engaging tab **5166**; the article engaging tabs **5166** are hinged to the top panel **5118** by hinged connections **5165**. The article engaging tabs **5166** engage upper ends of articles B in the top-engaging carriers **1090**. Each article engaging tab **5166** engages an internal surface of a wall, upstand to recess in the upper end of a respective article B. The article engaging tabs **5166** are configured to engage outer or endmost articles B disposed distally from a handle or grip portion H of the binding strap **5190**. Upper ends of the outermost or endmost articles B may be partially exposed or visible. The lower ends of the outermost or endmost articles B proximate the first and second side walls **5116**B, **5120**B, are received or engaged by respective bottom locking arrangements BL**1**, BL**2**.

[0248] In alternative embodiments, the inner articles B disposed proximate to the handle of the binding strap **5190** may additionally be secured by means of an additional article engaging tab. The additional article engaging tab may be provided by material which is cut or removed to form the recess in the top panel **5118**, or may be struck from within a marginal portion of the top panel **5118** coupling the handle H to one of the side panels **5116**B, **5120**B.

[0249] Referring now to FIG. **15**, an alternative blank is shown for forming a handle or binding strap which may be used in a packaging system of the present disclosure. The blank of FIG. **15** is a modified form of the blank of FIG. **13**. In FIG. **15**, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "6000" to indicate that these features belong to the blank of the modified form of the handle strap. FIG. **15** shares many common features with the strap of FIG. **13**, therefore only the differences from the straps of FIG. **13** will be described in any greater detail.

[0250] FIG. **15** shows a blank **6110** comprising a plurality of panels **6112**, **6114**, **6116**, **6118**, **1120**, **1122**, **1124**. The blank **6110** comprises a top panel **6118**. The top panel **6118** comprises a pair of handle flaps **6160** hingedly connected, by hinged connections in the form of fold lines **6161**, to opposing sides of the top panel **6118** and extending along a substantial portion-greater than half-of the side edge of the top panel **6118**. The handle flaps **6160** may, in addition to providing a comfortable cushioning flap, reinforce the top panel **6118** by providing a two-ply structure over a substantial portion of the top panel **6118**.

[0251] FIG. **17** shows a packaging system comprising a pair of sub-packages each formed from a group of articles B which are clustered together by a top-engaging carrier **3090** which is formed from the blank **3010** of FIG. **16**. The sub-packages are combined together by a binding strap **6190** formed from the blank of FIG. **15**.

[0252] The blank **3010** is adapted to accommodate or bind three top-engaging carrier **3090** together. The top-engaging carriers **3090** are substantially similar to that of FIG. **8**, albeit they are configured and arranged to each accommodate eight articles B in a 2×4 matrix or array configuration.

[0253] The blank **6110** is similar in construction to the previous blanks, albeit modified to accommodate three top-engaging carriers **3090** each accommodating eight

articles B. A central top-engaging carriers **3090** is disposed entirely within the binding strap **6190**, such that all of its articles B rest upon a base wall **6112/6124**. The endmost or outer top-engaging carriers **3090** are each partially disposed within the binding strap **6190**. Each outer top-engaging carriers **3090** comprises an inner row or column of articles B disposed upon the base wall **6112/6124** of the binding strap **6190** and an outer row or column of articles B disposed outside of the binding strap **6190**. The

[0254] The blank **6110** comprises at least one article engaging tab **6166**; the article engaging tabs **6166** are hinged to the top panel **6118** by hinged connections **6165**. The article engaging tabs **6166** engage upper ends of articles B in the top-engaging carriers **3090**. Each article engaging tab **6166** engages an internal surface of a wall, upstand to recess in the upper end of a respective article B. The article engaging tabs **6166** are configured to engage articles B of the outer top-engaging carriers **3090** disposed in the inner row or column of articles B, that is to say those disposed in closest proximity to the handle or grip strap portion H of the binding strap **6190**. Upper ends of articles B disposed in the outer row or column of articles B of the outer top-engaging carriers **3090** are fully exposed or visible. The lower ends articles B disposed in the outer row or column of articles B of the outer top-engaging carriers **3090** are free from engagement with the binding strap **6190**, and are unsupported by the base wall **6112/6124** of the binding strap **6190**.

[0255] Referring now to FIG. **18** there is shown an alternative blank for use in the packaging system of the present disclosure. In the illustrated embodiment, like numerals have, where possible, been used to denote like parts, albeit with the addition of the suffix '. The alternative embodiment shares many common features with the embodiment of FIG. **1**, therefore only the differences from the embodiment illustrated in FIG. **1** will be described in any greater detail.

[0256] FIG. **18** shows a blank **10'** comprising a plurality of panels **12'**, **14'**, **16'**, **18'**, **20'**, including a main panel **12'** for forming a bottom wall or an engaging panel of a carrier **90'** (see FIG. **20**).

[0257] A first side panel **14'** is hingedly connected to a first side of the main panel **12'** by a hinged connection in the form of a fold line **13'**. A first top or cover panel **18'** is hingedly connected to the first side panel **14'** by a hinged connection in the form of a fold line **17'**.

[0258] A second side panel **16'** is hingedly connected to a second side of the main panel **12'** by a hinged connection in the form of a fold line **15'**. A second top or cover panel **20'** is hingedly connected to the second side panel **16'** by a hinged connection in the form of a fold line **19'**.

[0259] The main panel **12'** of the blank **10'** includes at least one article retention structure RT**1'**, RT**2'**. The main panel **12'** comprises a plurality of article retention structures RT**1'**, RT**2'**, specifically six article retention structures RT**1'**, RT**2'** arranged in 2×3 matrix or array. Each of the article retention structures RT**1'**, RT**2'** comprises an opening or aperture A**1'**, A**2'**.

[0260] The blank **10'** comprises four first article retention structures RT**1'**. The first article retention structures RT**1'** are located adjacent to ends of the main panel **12'**. The blank **10'** comprises two second article retention structures RT**2'**. The second article retention structures RT**2'** are located between a first pair of first article retention structures RT**1'** disposed proximate a first end of the main panel **12'** and a second pair of first article retention structures RT **1'** disposed proximate a second end of the main panel **12'**. The second article retention structures RT**2'** are also referred to herein as intermediate article retention structures RT**2'**. The first article retention structures RT**1'** are also referred to herein as end article retention structures RT**1'**.

[0261] Each of the first article retention structures RT**1'** is substantially similar in construction and will therefore be described in detail with reference to a first one of the first article retention structures RT**1'** located adjacent to a first end of the blank **10'** as shown in FIG. **1**.

[0262] The first article retention structure RT**1'** comprises an article receiving opening defined in part by an aperture A**1**.

[0263] The first article retention structure RT**1'** comprises a plurality of engaging teeth **52**A', **52**B', **52**C' disposed about the aperture A**1'**.

[0264] The plurality of teeth **52**A', **52**B', **52**C' is hinged to the main panel **12'** by a fold line.

[0265] The plurality of teeth **50**A, **50**B, **52**A, **52**B, **52**C includes first, second, and third teeth **52**A', **52**B', **52**C' hingedly connected to the main panel **12'** by a fold line. The fold line may be defined by a plurality of cut lines. The plurality of cut lines may define or approximate a circle.

[0266] The plurality of teeth **52**A', **52**B', **52**C' is interrupted by at least one cutaway in the form of a recess C**1'**, C**2'**, C**3'**, C**4'**. The first article retention structure RT**1'** of the illustrated embodiment comprises four cutaways or recesses C**1'**, C**2'**, C**3'**, C**4'**. A first major cutaway C**1'** is disposed adjacent and proximate to one of the first and second side panels **14'**, **16'**. A second major cutaway C**2'** is disposed adjacent and proximate to one of a first and second end panel **34'**, **24'**. A first minor cutaway C**3'** is disposed opposite the first major cutaway C**1'**. A second minor cutaway C**4'** is disposed opposite the second major cutaway C**2'**. The minor cutaways C**3'**, C**4'** occupy a smaller angular width than the major cutaways C**1'**, C**2'**.

[0267] Groups of engaging teeth **52**A', **52**B', **52**C' are provided between adjacent pairs of the cutaways or recesses C**1'**, C**2'**, C**3'**, C**4'** about the periphery of the aperture A**1'**. A first group of teeth **52**A', **52**C' is provided between the first and second major cutaways C**1'**, C**2'**, and comprises one first engaging tooth **52**A' and a pair of third engaging teeth **52**C' disposed on opposing side thereof; the third engaging teeth **52**C' occupy a smaller angular width than the first tooth **52**A'. A second group of teeth **52**A', **52**B' is provided between the first and second minor cutaways C**3'**, C**4'**, and comprises one first engaging tooth **52**A' and a pair of second engaging teeth **52**B' disposed on opposing side thereof; the second engaging teeth **52**B' may be tapered in shape so as to narrow or reduce in height towards a respective one of the first and second minor cutaways C**3'**, C**4'**. A third group of teeth **52**A', **52**B', **52**C' is provided between the first major cutaway C**1'** and the second minor cutaway C**4'**; a third engaging tooth **52**C' is disposed adjacent the first major cutaway C**1'**, a second engaging tooth **52**B' is disposed adjacent the second minor cutaway C**4'** and a first tooth **52**A' is disposed therebetween.

[0268] A fourth group of teeth **52**A', **52**B', **52**C' is provided between the second major cutaway C**2'** and the first minor cutaway C**3'**; a third engaging tooth **52**C' is disposed adjacent the second major cutaway C**2'**, a second engaging tooth **52**B' is disposed adjacent the first minor cutaway C**3'** and a first tooth **52**A' is disposed therebetween.

[0269] In this way a third engaging tooth **52**C' is disposed on opposing sides of each of the first and second major cutaways C**1**', C**2**' and a second engaging tooth **52**B' is disposed on opposing sides of each of the first and second minor cutaways C**3**', C**4**'.

[0270] Each of the second article retention structures RT**2**' is substantially similar in construction to each other and is similar to the first article retention structures RT**1**' and only the differences between the second article retention structures RT**2**' and the first article retention structures RT**1**' will be described in further detail.

[0271] The second article retention structures RT**2**' comprise three minor cutaways C**3**', C**4**', C**5**' and a single major cutaway C**1**'. The major cutaway C**1**' is disposed adjacent and proximate to one of the first and second side panels **14**', **16**'. A first minor cutaway C**3**' is disposed opposite the major cutaway C**1**'. A pair of minor cutaways C**4**', C**5**' are disposed opposite each other, the pair of minor cutaways C**4**', C**5**' being oriented orthogonally to the first minor cutaway C**3**' and. the major cutaway C**1**'.

[0272] The first and second top panels **18**', **20**' are arranged to be disposed in at least partially overlapping relationship with each other. The overlapping portions of the first and second top panels **18**', **20**' are provided with a locking structure for locking the first and second top panels **18**', **20**'. The locking structure may cooperate with the main panel **12**' to secure the first and second top panels **18**', **20**' to the main panel **12**'. The locking structure comprises at least one first locking element L**1**' for being received in a receiver element RC' in the main panel **12**'. The first locking element L**1**' comprises a tab **80**' struck from the first top panel **18**', the illustrated embodiment comprises two tabs **80**' each arranged to be engageable with one of the receiver elements RC'. The receiver elements RC' each comprising a receiver opening. The first locking element L**1**' also passes through an opening in the second top panel **20**'. The opening in the second top panel **20**' may be defined by a second tab **82**'. Each tab **80**' is hinged to the first top panel **18**' by a hinged connection in the form of first fold line **81**' having a first fold strength or resistance. The first fold line **81**' may be defined by a single perforation or weakening element disposed between ends of a cutline defining the tab **80**'. In the illustrated embodiment, the perforation or weakening element is omitted.

[0273] The locking structure comprises at least one second locking element L**2**' in the form of an opening in the second top panel **20**'. The second locking element L**2**' comprises a tab **82**' struck from the second top panel **20**', the illustrated embodiment comprises two tabs **82**' each arranged to be engageable with one of the receiver openings in the main panel **12**'. Each tab **82**' is hinged to the second top panel **20**' by a hinged connection in the form of second fold line **83**' having a second fold strength or resistance, the second fold resistance may be equal to or lower than the first fold resistance, that is to say, the second tabs **82**' may be more easily folded. The second fold line **83**' may be defined by one, two or more perforations or weakening elements disposed between ends of a cutline defining the tab **82**', in the illustrated embodiment a single perforation or weakening element is provided. The second fold line **83**' may comprise at least one more perforation than the first fold line **81**', alternatively a greater proportion of the hinged connection between the second top panel **20**' and the second tabs **82**' may be defined by, or comprise, a cut line, perforation, or other weakening element than the hinged connection between the first top panel **18**' and the first tabs **80**'.

[0274] The second tab **82**' should be at least equal in size to the first tab **80**'. The second tab **82**' may be larger in dimension, in length and/or in width, than the first tab **80**' so as to facilitate the first tab **80**' readily passing through the second top panel **20**'. The first tab **80**' and the second tab **82**' are generally "L" shaped and comprises a lobe or projection for engaging with the main panel **12**'.

[0275] The first tab **80**' and the second tab **82**' engage with a receiver element RC' in the main panel **12**'. The receiver element RC' comprises a receiver opening, in the illustrated embodiment the receiver opening is defined by a pair of tabs **70**', **72**' struck from the main panel **12**' and hingedly connected thereto by respective fold lines **71**', **73**'. The receiver opening may be generally rectangular in shape, and the tabs **70**'. **72** of the pair of tabs **70**', **72**' may have an unequal length. A longer one of the pair of tabs **70**', **72**' may be hinged in opposition to the locking tabs **80**', **82**' which are received in the receiver opening it defines a portion of.

[0276] The first top panel **18**' and the second top panel **20**' comprise tab T' extending from opposing side edges thereof. The tabs T' are disposed proximate or adjacent to a hinged connection **17**', **19**' between the first top panel **18**' and the first side panel **14**' or between the second top panel **20**' and the second side panel **16**'. The tab T' may be defined in part by a cutline CT' extending from an aperture A**3** separating each of a pair of hinged panels **28**A'/**30**A', **28**B'/**30**B', **38**A'/**40**A', **38**B'/**40**B' from a respective one of the first and second side panels **14**, **16**. The cutline CT' may extend to a fold line **23**A', **23**B', **33**A', **33**B' between one of the first and second top panels **18**', **20**' and an anchor flap **22**A', **22**B' **32**A', **32**B'. In this way the tab T' may be considered to extend into the aperture A**3**. The tab T' provides a portion of a respective one of the first and second top panels **18**', **20**' which extends beyond an end edge of the main panel **12**' defined by a fold line **25**', **35**'; that is to say the first and second top panels **18**', **20**' in the region of the tabs T' is longer in dimension than the main panel **12**'.

[0277] Referring now to FIG. **19**, an alternative blank **7110** is shown for forming a handle or binding strap which may be used in a packaging system of the present disclosure. The blank **7110** of FIG. **19** is a modified form of the blank of FIG. **2**. In FIG. **2**, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "7000" to indicate that these features belong to the blank of the modified form of the handle strap. FIG. **19** shares many common features with the strap of FIG. **2**, therefore only the differences from the straps of FIG. **2** will be described in any greater detail.

[0278] FIG. **19** shows a blank **7110** comprising a plurality of panels **7112**, **7114**, **7116**, **7118**, **7120**, **7122**, **7124** for forming a handle strap and/or binding device for coupling two or more carriers **90**' together.

[0279] The blank **7110** includes a first bottom panel **7112** hingedly connected to a first corner or bevel panel **7114** by a hinged connection in the form of a fold line **7113**. A first side panel **7116** is hingedly connected to the first bevel panel **7114** by a hinged connection in the form of a fold line **7115**. A top panel **7118** is hingedly connected to the first side panel **7116** by a hinged connection in the form of a fold line **7117**. A second side panel **7120** is hingedly connected to the top panel **7118** by a hinged connection in the form of a fold line **7119**. A second corner or bevel panel **7122** is hingedly

connected to the second side panel **7120** by a hinged connection in the form of a fold line **7121**. A first bottom panel **7124** is hingedly connected to a second bevel panel **7122** by a hinged connection in the form of a fold line **7123**.

[0280] The blank **7110** is foldable to form a carrier **7190** as illustrated in FIG. **20**. The first and second base panels **7112**, **7124** are engageable with one another in an overlapping relationship to form a composite base wall **7112**/**7124** of the carrier **7190**.

[0281] The top panel **7118** comprises a first reinforcement flap **7118**A hingedly connected along a first side edge of the top panel **7118** by a hinged connection in the form of a fold line **7125**A. The top panel **7118** comprises a second reinforcement flap **7118**B hingedly connected along a second side edge of the top panel **7118**, the second side edge opposes the first side edge, by a hinged connection in the form of a fold line **7125**B.

[0282] The first reinforcement flap **7118**A may extend into the first and/or second side panels **7116**, **7120**, a first extension **7116**A may be hingedly connected to the first side panel **7116** by a hinged connection in the form of a fold line **7127**A. A second extension **7120**A may be hingedly connected to the second side panel **7120** by a hinged connection in the form of a fold line **7129**A. The first extension **7116**A may be hingedly connected to the first reinforcement flap **7118**A by a hinged connection in the form of a fold line **7117**A. The second extension **7120**A may be hingedly connected to the first reinforcement flap **7118**A by a hinged connection in the form of a fold line **7119**A.

[0283] The second reinforcement flap **7118**B may extend into the first and/or second side panels **7116**, **7120**, a first extension **7116**B may be hingedly connected to the first side panel **7116** by a hinged connection in the form of a fold line **7127**B. A second extension **7120**B may be hingedly connected to the second side panel **7120** by a hinged connection in the form of a fold line **7129**B. The first extension **7116**B may be hingedly connected to the first reinforcement flap **7118**B by a hinged connection in the form of a fold line **7117**B. The second extension **7120**B may be hingedly connected to the first reinforcement flap **7118**B by a hinged connection in the form of a fold line **7119**B.

[0284] Each of the reinforcement flap extensions **7116**A, **7116**B, **7120**A, **7120**B may comprise an optional fold line extending thereacross. The fold line may extend from the hinged connection **7127**A, **7127**B, **7129**A, **7129**B to an opposing free edge of the reinforcement flap extension **7116**A, **7116**B, **7120**A, **7120**B. The fold line may be parallel to the hinged connection **7117**A, **7117**B, **7119**A, **7119**B between the reinforcement flap extension **7116**A, **7116**B, **7120**A, **7120**B and the respective one of the first and second reinforcement flaps **7118**A, **7118**B from which it depends.

[0285] Optionally, the first side panel **7116** may comprise a first recess R**1** struck from a first side edge thereof. The first recess R**1** may define an end or lower (in normal use) edge of the first extension **7116**B of the second reinforcement flap **7118**B. Optionally, the first side panel **7116** may comprise a second recess R**2** struck from a second, opposing, side edge thereof. The second recess R**2** may define an end or lower (in normal use) edge of the first extension **7116**A of the first reinforcement flap **7118**A.

[0286] Optionally, the second side panel **7120** may comprise a first recess R**1** struck from a first side edge thereof. The first recess R**1** may define an end, or lower (in normal use), edge of the second extension **7120**B of the second reinforcement flap **7118**B. Optionally, the second side panel **7120** may comprise a second recess R**2** struck from a second, opposing, side edge thereof. The second recess R**2** may define an end, or lower (in normal use), edge of the second extension **7120**A of the first reinforcement flap **7118**A.

[0287] The blank **7110** may comprise a first handle flap **7160** struck from the top panel **7118**, disposed adjacent to a first side edge of the top panel **7118**, and hingedly connected thereto by a hinged connection in the form of a fold line **7161**. An aperture A**5** may be struck in part from the second reinforcement flap **7118**B adjacent to the first handle flap **7160** and in part from the top panel **7118** and is configured and arranged to accommodate the first handle flap **7160** in an operative condition.

[0288] The blank **7110** may comprise a second handle flap **7160** struck from the top panel **7118**, disposed adjacent to a second, opposing, side edge of the top panel **7118**, and hingedly connected thereto by a hinged connection in the form of a fold line **7161**. An aperture A**5** may be struck in part from the first reinforcement flap **7118**A adjacent to the first handle flap **7160** and in part from the top panel **7118** and is configured and arranged to accommodate the first handle flap **7160** in an operative condition.

[0289] The blank **7110** may comprises a carrier tab receiver TR, see FIG. **20**, which may take the form, for example, of one or more selected from the group of an opening, a slot, a slit, a cutline, an aperture, an indentation, a debossment, a rib, and an embossment, formed at least in part in/on one of the first and second side panels **7116**, **7120**. Any of the indentation, debossment and embossment may be provided on the inside surface of the blank **7110** in the form of a score line or two or more parallel score lines. FIG. **19** shows a tab receiver in the form of a cutline TC; the cutline TC may interrupt the hinged connection **7117**, **7119** between said one of the first and second side panels **7116**, **7120** and the top panel **7118**. The cutline TC may be substantially "U" or "C" shaped so as to define a tongue or projection extending from the top panel **7118** and integral therewith. Optionally, a tab receiver may be one or more indentations or debossments provided, for example, by one or more score lines formed along the inside surface of the blank **7110** such that each score line extends alongside, if not colinearly with, the hinged connection **7117**, **7119**. Optionally, a tab receiver may be one or more ribs or embossments provided, for example, by one or more score lines formed along the inside surface of the blank **7110** such that each score line extends transversely, if not perpendicularly, across the hinged connection **7117**, **7119**. Such ribs or embossments will be described later in more details.

[0290] FIG. **20** shows a pair of article carriers **90'** coupled together by a strap **7190** formed from the blank **7110** of FIG. **19**. The blank **7110** is wrapped or folded about the pair of article carriers **90'**.

[0291] The first and second reinforcement flaps **7118**A, **7118**B together with the extensions **7116**A, **7116**B, **7120**A, **7120**B are folded about respective fold lines into substantial face to face relationship with the panel to which they are hinged.

[0292] The blank **7110** is placed over a pair of article carriers **90'**, in part over a first article carrier **90'** and in part over a second article carrier **90'**. The first and second reinforcement flaps **7118**A, **7118**B are disposed between the top panel **7118** and the upper ends of the article carriers **90'**.

The first and second side panels **7116**, **7120** are folded about fold lines **7117**, **7119** respectively to be brought into face-to-face relationship with ends of the article carriers **90'**.

[0293] The flaps **7170**A, **7170**B of the bottom locking arrangements BL**1**, BL**2** are folded out of the plane of the bevel panels **7114**, **7122**, internally of the strap **7190**. A lower portion of an article B of the first article carrier **90'** is received in a first one of the first bottom locking arrangements BL**1**. A lower portion of another article B of the first article carrier **90'** is received in a first one of the second bottom locking arrangements BL**2**. A lower portion of an article B of the second article carrier **90'** is received in a second one of the first bottom locking arrangements BL**1**. A lower portion of another article B of the second article carrier **90'** is received in a second one of the second bottom locking arrangements BL**2**. The flaps **7170**A, **7170**B are disposed about a lower or heel portion of the articles B and engage generally opposing sides of the articles B to restrict or inhibit movement of the article carriers **90'** laterally of the strap **7190**.

[0294] The second base panel **7124** is folded about the bases of the groups of articles B in each article carrier **90'**. The first base panel **7112** is folded about the bases of the groups of articles B in each article carrier **90'**. The first base panel **7112** is brought into at least partial overlapping relationship with the second base panel **7124**. The first base panel **7112** is secured to the second base panel **7124** by the complementary locking mechanism. In this way the strap **7190** combines two carriers **90'** into a single tertiary package P, as shown in FIG. **20**.

[0295] Each tab T' of an opposed pair of tabs T' of each article carrier **90'** is received in a respective carrier tab receiver TR. Each carrier tab receiver TR receives a tab T' from each of the pair of article carriers **90'** being packaged. In this way the article carriers **90'** are locked or secured to the strap **7190** at upper ends thereof.

[0296] Referring now to FIGS. **21** and **22**, an alternative blank **8110** is shown for forming a handle or binding strap which may be used in a packaging system P of the present disclosure. The packaging system P combines a pair of alternative packages **90"** of the top-engaging style wherein a lower panel has article retention devices and an upper panel or pair of upper panels provide a cover panel CP" above the lower engaging panel. The top-engaging carrier **90"** may comprises a keel or divider structure K extending downwardly from the lower panel between pairs of adjacently disposed articles B. The blank of FIG. **21** is a modified form of the blank of FIG. **19**. In FIG. **21**, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "8000" to indicate that these features belong to the blank of the modified form of the handle strap. FIG. **21** shares many common features with the strap of FIG. **19**, therefore only the differences from the straps of FIG. **19** will be described in any greater detail.

[0297] The blank **8110** differs from the blank **7110** of FIG. **19** in that the carrier tab receiver TR has been omitted; the packages **90"** do not comprise tabs T' extending from the cover panel CP". In alternative embodiments, the packages **90"** may comprise tabs T' and the packages **90"** may be combined into a single tertiary package P using the blank **7110** of FIG. **19**.

[0298] FIG. **23** illustrates a further alternative packaging system P, in the embodiment of FIG. **23** a pair of article carriers **90"** similar to those of the embodiment of FIG. **22** are combined by a strap **9190**. The strap **9190** comprises a top wall, opposed side walls and a base wall. One of the top wall, opposed side walls, and the base wall may be formed by a pair of panels in at least partial overlapping relationship to form a composite panel.

[0299] In some embodiments, the strap **9190** may have a width dimension sufficient to extend between the centre or middle of the articles B in a row of articles B in a first one of the pair of article carriers **90"** and an adjacent row of articles in a second one of the pair of article carriers **90"**.

[0300] In some embodiments, the strap **9190** may have a width dimension sufficient to extend between the keel or divider structure K in the first one of the pair of article carriers **90"** and an adjacent row of articles in the second one of the pair of article carriers **90"**. Interaction between the keel structures K and the strap **9190** may stabilise the article carriers **90"** therein; end edges of the keel structures K may engage or contact inner surface of the opposed end walls. In some such embodiments the strap **9190** may comprise a tab receiver in one or both of the opposed side walls and the keel structures K of each of the pair of article carriers **90"** may comprise tab extend outwardly therefrom to engage or be received in the tab receiver.

[0301] The article carriers **90"** comprise a tubular structure having a first tubular axis T_a**1**, as shown in FIG. **23**, the strap **8190**; **9190** comprises a tubular structure having a second tubular axis T_a**2**, see FIG. **23**, The first tubular axis T_a**1** is perpendicular to the second tubular axis T_a**2** and define a plane parallel to the top wall of the strap **8190**, **9190** and the cover panel CP" of the article carriers **90"**.

[0302] The top wall of the strap **8190**; **9190** may overlie or cover half, or less than half, of the width of the cover panel CP" of each of the article carriers **90"**, and may cover a quarter, or less, of the width of the cover panel CP" of each of the article carriers **90"**.

[0303] Referring now to FIG. **24**, an alternative blank **10110** is shown for forming a handle or binding strap which may be used in a packaging system of the present disclosure. In FIG. **24**, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "10000" to indicate that these features belong to the blank of the modified form of the handle strap. FIG. **24** shares many common features with the strap of previous embodiments, therefore only the differences will be described in any greater detail.

[0304] The blank **10110** comprising a plurality of panels **10112**, **10114**, **10116**, **10118**, **10120**, **10122**, **10124** for forming a handle strap and/or binding device **10190** for coupling two or more carriers **90"** together.

[0305] The blank **10110** includes a first bottom panel **10112** hingedly connected to a first corner or bevel panel **10114** by a hinged connection in the form of a fold line **10113**. A first side panel **10116** is hingedly connected to the first bevel panel **10114** by a hinged connection in the form of a fold line **10115**. A top panel **10118** is hingedly connected to the first side panel **10116** by a hinged connection in the form of a fold line **10117**. A second side panel **10120** is hingedly connected to the top panel **10118** by a hinged connection in the form of a fold line **10119**. A second corner or bevel panel **10122** is hingedly connected to the second side panel **10120** by a hinged connection in the form of a fold line **10121**. A first bottom panel **10124** is hingedly connected to a second bevel panel **10122** by a hinged connection in the form of a fold line **10123**.

[0306] The blank **10110** is foldable to form a carrier **10190** as illustrated in FIG. **25**. The first and second base panels **10112**, **10124** are engageable with one another in an overlapping relationship to form a composite base wall **10112**/**10124** of the carrier **190**. The blank **10110** may comprise a complementary locking mechanism for securing the second base panel **10124** to the first base panel **10112**. The first base panel **10112** may comprise at least one first part M of the complementary locking mechanism. The second base panel **10124** may comprise at least one second part F of the complementary locking mechanism. In the illustrated embodiment, the second base panel **10124** comprises a plurality of female tabs F defining openings in the first base panel **10112**. The first base panel **10112** comprises a plurality of male tabs M, the openings in the second base panel **10124** being configured to receive a respective one of the male tabs M. The female tabs F are arranged to be displaced out of the second base panel **10124** to form the opening and to bear against the male tabs M when received therein. In some embodiments, the complementary locking mechanism M/F may be omitted, the first and second base panels **10112**, **10124** may be secured to each other by other means such as but not limited to adhesive or staples.

[0307] Optionally, the first base panel **10112** may comprise at least one first handling aperture A**4**; in alternative embodiments, the first handling aperture A**4** may be defined at least in part by a tab foldably or severably connected to the first base panel **10112**. In the illustrated embodiment, the first base panel **10112** comprises two first handling apertures A**4**. The first handling apertures A**4** may be employed to facilitate construction of the carrier **190**. A packaging machine component may engage with the first handling apertures A**4** to enable the plurality of panels **10112**, **10114**, **10116**, **10118**, **10120**, **10122**, **10124** to be tightened about a group of secondary packages or carriers **90"**. The first handling apertures A**4** may also be employed to facilitate alignment of the first and second base panels **10112**, **10124** with respect to each other or to align the first part of the complementary locking mechanism with the second part of the complementary locking mechanism. The complementary locking mechanism illustrated and described is entirely optional.

[0308] The first handling apertures A**4** may be substantially triangular in shape.

[0309] In some embodiments, the binding device **10190** is secured to the secondary packages or carriers **90"**, the binding device **10190** may be adhered to the secondary packages or carriers **90"** or to the articles B therein. FIG. **24** shows a pair of glue locations G on each of the first and second side panels **10116**, **10120**. A glue, such as but not limited to a fugitive glue may be applied to the first and second side panels **10116**, **10120**, for securing each of the first and second side panels **10116**, **10120** to an article B in each of the secondary packages or carriers **90"** it is binding together.

[0310] FIG. **25** shows the handle strap or binding device **10190** comprising a mechanical locking feature M/F which secures the opposed ends of the handle strap or binding device **10190** together to form a tubular structure. In the illustrated embodiment, the locking feature M/F is located at, or in, the bottom of the package P formed from the strap **10190** and the other components **90"**, B of the package P. The locking feature M/F may comprise one or more pairs of male and female locking tabs M, F.

[0311] The present disclosure provides a package P comprising at least a pair of sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090**, including a first sub-package or secondary package and a second sub-package or secondary package disposed next to each other, and a joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190** in the form of a handle strap, connecting the pair of sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090** together into a unitary tertiary package P. The joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190** comprises a tubular structure disposed around each of the pair of sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090** such that part of the first sub-package extends outwards from one of the opposite ends of the tubular structure and part of the second sub-package extends outwards from the other end of the tubular structure. The tubular structure comprises first and second engaging openings BL**1**, BL**2** or first and second engaging tabs **2166** or both first and second engaging openings BL**1**, BL**2** and first and second engaging tabs **2166** in engagement with respective ones of the first and second sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090**.

[0312] In embodiments having first and second engaging tabs **2166**, the first and second engaging tabs **2166** may be hinged to the top panel **2118** along respective first and second fold lines **2165**. The first and second fold lines **2165** may be divergently arranged with respect to each other to encourage the first and second sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090** towards each other. The first and second fold lines **2165** may encourage the first and second sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090** towards the middle of the top panel **2118**.

[0313] The engaging tabs **2166** may be configured to engage an article B in a first row or column of articles B within the sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090** which is disposed proximate to the joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**. The first row or column of articles B extending transversely with respect to a tubular axis of the joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190**.

[0314] The engaging tabs **2166** may be configured to an engage article B in a second row or column of articles B within the sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090** which is disposed distally or remotely the from the joint member **190**; **2190**; **3190**. The second row or column of articles B may be disposed adjacent to first row or column of articles B within the sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090**.

[0315] The engaging tabs **2166** may be configured to engage an article B in each of a first and second row or column of articles B within the sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090**.

[0316] The joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190** comprises a base panel **112**/**124**; **1112**/**1124**; **2112**/**2124** which may be smaller in dimension, in a lateral direction, to the combined footprint of the pair of sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090** or to the footprint of a single sub-package **90**; **90'**; **90"**; **1090**; **2090**; **3090**.

[0317] Each of the pair or stack of sub-packages **90**; **90'**; **90"**; **1090**; **2090**; **3090** may comprise two or more rows of articles or primary product containers B, the joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190** may engage endmost articles B in one row of the articles B in each of the first and second sub-packages **90**;

90'; 90"; 1090; 2090; 3090 or may otherwise engage intermediate articles B in rows of the articles B in each of the sub-packages 90; 90'; 90"; 1090; 2090; 3090.

[0318] Each of the pair of sub-packages 90; 90'; 90"; 1090; 2090; 3090 may comprise two or more rows of articles or primary product containers B, the joint member 190; 2190; 3190; 4190; 5190; 6190; 7190; 8190; 9190; 10190 may engage endmost articles B in a single row of the articles B in each of the first and second sub-packages 90; 90'; 90"; 1090; 2090; 3090-that is to say, only one or two of the two or more rows of articles B.

[0319] The joint member 190; 2190; 3190; 4190; 5190; 6190; 7190; 8190; 9190; 10190 may form a handle strap and may be reinforced by at least one reinforcement flap 118A, 118B; 1160 disposed in face-to-face relationship with a top panel 118, 1118. The at least one reinforcement flap 118A, 118B may comprise at least one extension 116A, 116B, 120A, 120B disposed in face-to-face relationship with one of a pair of opposing side panels 116, 120; 1116, 1120. The at least one reinforcement flap 118A, 118B; 1160 may be hingedly connected to a side edge of the top panel 118; 1118. The at least one extension 116A, 116B, 120A, 120B may be hingedly connected to a side edge of said one of a pair of opposing side panels 116, 120. The at least one extension 116A, 116B, 120A, 120B may be hingedly connected to the at least one reinforcement flap 118A, 118B.

[0320] The joint member 190; 2190; 3190; 4190; 5190; 6190; 7190; 8190; 9190 may comprise a handle flap 160 struck from the top panel 118, the at least one reinforcement flap 118A, 118B may comprise a cutaway in the form of an aperture A5. The cutaway defining a recess disposed in registry with the handle flap 160 and configured to receive at least a portion of the handle flap 160 therein.

[0321] The base panel 112/124; 1112/1124; 2112/2124 may comprise at least two handling apertures A4, A7, one of the at least two handling apertures A4, A7 may be provided by a portion or extension of one of the first and second engaging openings BL1, BL2. The other one of the at least two handling apertures A4, A7 may be provided by an aperture A4 disposed in a spaced apart relationship from the other one of the first and second engaging openings BL1, BL2.

[0322] The present disclosure provides a package P comprising a plurality of sub-packages 90; 90'; 90"; 1090; 2090; 3090 disposed next to one another, and a joint member 190; 2190; 3190; 4190; 5190; 6190; 7190; 8190; 9190; 10190 connecting the sub-packages 90; 90'; 90"; 1090; 2090; 3090 together into a unitary package P. The joint member 190; 2190; 3190; 4190; 5190; 6190; 7190; 8190; 9190; 10190 comprises a plurality of panels connected together to form a tubular structure. The plurality of panels includes a pair of opposed side panels 116, 120; 1116, 1120; 2116B, 2120B; 3120; 4116B, 4120B; 5116B, 5120B; 6116B, 6120B each having a pair of first and second opposed end edges ED1, ED2 (see FIG. 12). One of opposed open ends of the tubular structure is defined in part by the first end edges ED1 of the side panels 116, 120; 1116, 1120; 2116B, 2120B; 3120; 4116B, 4120B; 5116B, 5120B; 6116B, 6120B. The other of the opposed open ends of the tubular structure is defined in part by the second end edges ED2 of the side panels 116, 120; 1116, 1120; 2116B, 2120B; 3120; 4116B, 4120B; 5116B, 5120B; 6116B, 6120B. The joint member 190; 2190; 3190; 4190; 5190; 6190 is disposed around each of the sub-packages 90; 90'; 90"; 1090; 2090; 3090 such that part of a first one of the sub-packages 90; 90'; 90"; 1090; 2090; 3090 extends outwards from said first end edges ED1 and part of a second one of the sub-packages 90; 90'; 90"; 1090; 2090; 3090 extends outwards from said second end edges ED2. Each of the sub-packages 90; 90'; 90"; 1090; 2090; 3090 comprises a plurality of articles B and a top-engaging carrier 90; 90'; 90"; 1090; 2090; 3090 in engagement with an upper portion of each of the articles B. In some embodiments, part of the first one of the sub-packages 90; 90'; 90"; 1090; 2090; 3090 extends outwards from a first end edge of a base wall 112/124; 1112/1124; 2112/2124; 4112/41224; 5112/5124; 6112/6124 and part of the second one of the sub-packages 90; 90'; 90"; 1090; 2090; 3090 extends outwards from a second end edge of the base wall 112/124; 1112/1124; 2112/2124; 4112/41224; 5112/5124; 6112/6124.

[0323] The present disclosure also provides a package P comprising a plurality of sub-packages 90; 90'; 90"; 1090; 2090; 3090 disposed next to one another, and a joint member 190; 2190; 3190; 4190; 5190; 6190; 7190; 8190; 9190; 10190 connecting the sub-packages 90; 1090; 2090; 3090 together into a unitary package. The joint member 190; 2190; 3190; 4190; 5190; 6190; 7190; 8190; 9190; 10190 comprising a plurality of panels connected together to form a tubular structure. The plurality of panels including a handle panel 118; 1118; 2118, 3118; 4118, 5118; 6118 comprising a gripping strap or handle H extending transversely with respect to a tubular axis of the tubular structure. The gripping strap H having a pair of first and second opposed transversely extending edges ED3, ED4. One of opposed open ends of the tubular structure is defined in part by the first transversely extending edge ED3 of the gripping strap H. The other of the opposed open ends is defined in part by the second transversely extending edge ED4 of the gripping strap H. The joint member 190; 2190; 3190; 4190; 5190; 6190; 7190; 8190; 9190 is disposed around each of the sub-packages 90; 1090; 2090; 3090 such that part of a first one of the sub-packages 90; 90'; 90"; 1090; 2090; 3090 extends outwards from the first transversely extending edge ED3 of the gripping strap H and part of a second one of the sub-packages 90; 90'; 90"; 1090; 2090; 3090 extends outwards from the second transversely extending edge ED4 of the gripping strap H. Each of the sub-packages 90; 90'; 90"; 1090; 2090; 3090 comprises a plurality of articles B and a top-engaging carrier 90; 90'; 90"; 1090; 2090; 3090 in engagement with an upper portion of each of the articles B.

[0324] The present disclosure also provides a package P' comprising a plurality of sub-packages 90' disposed next to one another, and a joint member 7190 connecting the sub-packages 90' together into a unitary package P'. The joint member 7190 comprises a plurality of panels 7112, 7114, 7116, 7118, 7120, 7122, 7124 connected together to form a tubular structure having opposed open ends. The joint member 7190 is disposed around each of the sub-packages 90' such that part of a first one of the sub-packages 90' extends outwards from one of the opposed open ends of the tubular structure and part of a second one of the sub-packages 90' extends outwards from the other one of the opposed open ends of the tubular structure. Each of at least the first and second ones of the sub-packages 90' comprises an engaging projection T'. The joint member 7190 comprises at least one receiving feature or tab receiver TR in which the engaging projection T' of each of the at least first and second sub-packages 90' is received.

[0325] Each of the at least first and second sub-packages **90'** may comprise a plurality of articles B and a top-engaging carrier **90'** in engagement with an upper portion of each of the articles B. The engaging projection T' is provided by the top-engaging carrier **90'** of the each of the at least first and second sub-packages **90'**. The engaging projection T' may be provided by top or cover panel **18'/20'** disposed over the upper portions of the articles B. In FIG. **18**, each of the cover panels **18"**, **20"** comprises two engaging projections T' at the opposing side edges thereof. Each engaging tab T' projects into the adjacent aperture A**3'** when the carrier is in the blank form as illustrated in FIGS. **18** and **18**B. FIG. **20** shows a package formed from two sub-packages **90'**, **90'** and a joint member **7190** which has two tab receivers TR at (or adjacent to) the opposite ends of the top wall **7118**. Each tab receiver TR is shared by the two sub-packages **90'**, **90'** such that each tab receiver TR receives one of the engaging projections T' of one of the sub-packages **90'**, **90'** and one of the engaging projections T' of the other sub-package **90'**. Optionally, two separate tab receivers TR may be provided adjacent to each end of the top wall **7118** such that each tab receiver TR receives only one engaging projection. In the embodiment where the tab receiver takes the form of a rib or embossment, such a tab-receiver may be positioned next to one of the opposed longitudinal edges of the blank **7110** or joint member **7190** in such a manner that the rib or embossment interrupts the hinged connection **7117**, **7119**. Such a rib or embossment provides an engaging bump with which part of a respective engaging projection T' such that the respective sub-package **90"** is prevented from slipping out of the joint member **7190**. Optionally, a joint member may be free of any tab receiver.

[0326] In such an embodiment, an engaging projection of each sub-package may be pressed against the inside surface of the joint member to achieve frictional engagement. Optionally, such frictional engagement may be gained without engaging projection. Such an embodiment is illustrated in FIG. **22**.

[0327] The present disclosure also provides a package P; P' comprising a plurality of sub-packages **90**; **90'**; **90"** disposed next to one another, and a joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190** connecting the sub-packages **90**; **90'**; **90"** together into a unitary package P; P'. The joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190** comprises a plurality of panels **112**, **114**, **116**, **118**, **120**, **122**, **124**; **1112**, **1114**, **1116**, **1118**, **1120**, **1122**, **1124**; **2112**, **2114**, **2116**, **2118**, **2120**, **2122**, **2124**; **3118**, **3120**; **7112**, **7114**, **7116**, **7118**, **7120**, **7122**, **7124**; **8112**, **8114**, **8116**, **8118**, **8120**, **8122**, **8124** connected together to form a tubular structure having opposed open ends and tubular axis T_a**1**. The joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190** is disposed around each of the sub-packages **90**; **90'**; **90"** such that part of a first one of the sub-packages **90**; **90'**; **90"** extends outwards from one of the opposed open ends of the tubular structure and part of a second one of the sub-packages **90**; **90'**; **90"** extends outwards from the other one of the opposed open ends of the tubular structure. Each of at least the first and second ones of the sub-packages **90**; **90'**; **90"** comprises a tubular structure having opposed ends and tubular axis T_a**2**. The tubular axis T_a**2** of the sub-packages **90**; **90'**; **90"** is perpendicular to the tubular axis T_a**1** of the joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190**. The tubular axis T_a**2** of the sub-packages **90**; **90'**; **90"** and the tubular axis T_a**1** of the joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190** define a plane which is parallel to the plane of a top wall **118**; **1118**; **2118**; **3118**; **7118**; **8118** of the joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190** and to a top or cover panel **18/20**; **18'/20'**; CP" of the sub-packages **90**; **90'**; **90"**. The top wall **118**; **1118**; **2118**; **3118**; **7118**; **8118** of the joint member **190**; **2190**; **3190**; **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190** is disposed in face-to-face relationship, and may be in contacting relationship, with the top or cover panel **18/20**; **18'/20'**; CP" of the sub-packages **90**; **90'**; **90"**.

[0328] The blanks **10**; **10'**; **110**; **1010**; **1110**; **2010**; **2110**; **3010**; **4110**; **5110**; **6110**; **7110**; **8110**; **10110** include at least a paperboard substrate. The material of the paperboard substrate may be selected from any conventional paperboard, for example, ranging in weight upwardly from about 10 pt., preferably from about 16 pt. to about 28 pt. (0.028"/~0.7 mm). An example of such a substrate is a 27 point (pt.) SBS board (solid bleached sulphate paperboard coated on one side, trade name PrintKote®) or CNK® board (Coated Natural Kraft®—an unbleached kraft paperboard having a clay coating on one side, trade name CarrierKote™) manufactured by WestRock® Company. The paperboard substrate may be a bleached or unbleached board. The board may be coated on at least one side, optionally the side opposite the lamination, with a conventional coating selected for compatibility with the printing method and board composition. The blanks **10**; **10'**; **1010**; **2010**; **3010** forming the secondary packages **90**; **90'**; **90"**; **1090**; **2090**; **3090** may be formed from a paperboard substrate having a different, heavier or lighter, weight than the blanks **110**; **1110**; **2110**; **4110**; **5110**; **6110**; **7110**; **8110**; **10110** forming the joint member **190**; **2190**; **3190**, **4190**; **5190**; **6190**; **7190**; **8190**; **9190**; **10190** for example the first blanks **10**; **10'**; **1010**; **2010**; **3010** may be formed from paperboard having a weight or caliper of 20 pt. (0.020"/~0.5 mm) whereas the second blanks **110**; **1110**; **2110**; **4110**; **5110**; **6110**; **7110**; **8110**; **10110** may be formed from paperboard having a weight or caliper of 27 pt. (0.027"/~0.69 mm).

[0329] The blanks **10**; **10'**; **110**; **1010**; **1110**; **2010**; **2110**; **3010**; **4110**; **5110**; **6110**; **7110**; **8110**; **10110** may include a tear resistant layer laminated to the paperboard layer. It optionally includes an adhesive layer between the paperboard substrate and the tear resistant layer. The tear resistant layer may be disposed over the uncoated side of the paperboard substrate and may be formed of polymeric material and secured to the substrate. The tear resistant layer imparts toughness to the laminate structure. Suitable tear resistant materials may include, but not be limited to, tear resistant laminated sheet material, e.g., NATRALOCK®, which may include a layer of an n-axially oriented film, e.g., MYLAR®, which is a bi-axially oriented polyester, oriented nylon, cross-laminated polyolefin or high-density polyolefin. The orientation and cross-laminated structure of these materials contribute to the tear resistant characteristic. Also, tear resistance may be attributed to the chemical nature of the tear resistant material such as extruded metallocene-catalysed polyethylene (mPE).

[0330] Alternatively, the tear resistant layer may be a layer of linear low-density polyethylene (LLDPE). In embodiments where linear low-density polyethylene (LLDPE) or

mPE is used, it is not necessary to incorporate an adhesive layer. Other suitable materials having a high level of tear resistance may also be used.

[0331] The adhesive layer may be formed of polyolefin material such as a low-density polyethylene (LDPE). The adhesive layer may be placed between the substrate and the tear resistant layer to secure the tear resistant layer to the substrate.

[0332] 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. The shoulder panels may be omitted. The present invention is not limited to cartons of the top-engaging type, the invention may be employed with other carton styles such as, but not limited to, open top crates, lidded or closed top crates.

[0333] It will be recognised that as used herein, directional references such as "top", "bottom", "base", "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.

[0334] 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. Any reference to "hinged connection" should not be construed as necessarily referring to a single fold line only; indeed, a hinged connection can be formed from two or more fold lines wherein each of the two or more fold lines may be either straight/linear or curved/curvilinear in shape. When linear fold lines form a hinged connection, they may be disposed parallel with each other or be slightly angled with respect to each other. When curvilinear fold lines form a hinged connection, they may intersect each other to define a shaped panel within the area surrounded by the curvilinear fold lines. A typical example of such a hinged connection may comprise a pair of arched or arcuate fold lines intersecting at two points such that they define an elliptical panel therebetween. A hinged connection may be formed from one or more linear fold lines and one or more curvilinear fold lines. A typical example of such a hinged connection may comprise a combination of a linear fold line and an arched or arcuate fold line which intersect at two points such that they define a half moon-shaped panel therebetween.

[0335] As used herein, the term "fold line" may refer to one of the following: a scored line, an embossed line, a debossed line, a line of perforations, a line of short slits, a line of half-cuts, a single half-cut, an interrupted cutline, a line of aligned slits, a line of scores and any combination of the aforesaid options.

[0336] It should be understood that hinged connections 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 cutline, an interrupted cutline, slits, scores, embossed lines, debossed lines, 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.

[0337] The phrase "in registry with" as used herein refers to the alignment of two or more elements in an erected carton, such as an aperture formed in a first of two overlapping panels and a second 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 an aperture in a first panel is "in registry with" a second aperture in a second panel that is placed in an overlapping arrangement with the first panel, an edge of the aperture may extend along at least a portion of an edge of the second aperture and may be aligned, in the direction of the thickness of the first and second panels, with the second aperture.

1. A package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package, the joint member comprising a tubular structure having opposed open ends and disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwards from one of the opposed open ends of the tubular structure and part of a second one of the sub-packages extends outwards from the other one of the opposed open ends of the tubular structure, wherein the tubular structure comprises first and second engaging openings or tabs in engagement with the first and second sub-packages respectively.

2. An article carrier according to claim **1**, wherein the joint member provides a handle strap.

3. An article carrier according to claim **2**, wherein the first and second engaging tabs are hinged to a top panel of the tubular structure by first and second fold lines, respectively.

4. An article carrier according to claim **3**, wherein the first and second fold lines are divergently arranged with respect to each other to encourage the first and second sub-packages towards a middle of the top panel.

5. An article carrier according to claim **3**, wherein the first and second engaging tabs each is configured to engage an article in a first row or column of articles within a respective one of the first and second sub-packages, the first row or column of articles being disposed proximate to a middle of the top panel and extending transversely with respect to a tubular axis of the joint member.

6. An article carrier according to claim **3**, wherein the first and second engaging tabs each is configured to engage an article in a second row or column of articles within a respective one of the first and second sub-packages, the second row or column of articles being disposed distally from a middle of the top panel.

7. An article carrier according to claim **6**, wherein the second row or column of articles is disposed adjacent to a first row or column of articles within the respective one of the first and second sub-packages disposed proximate to the middle of the top panel and extending transversely with respect to a tubular axis of the joint member.

8. An article carrier according to claim **3**, wherein the tubular structure further comprises third and fourth engaging tabs hinged to the top panel of the tubular structure by third and fourth fold lines, respectively.

9. An article carrier according to claim **1**, wherein the joint member comprises a base panel that is smaller in dimension, in a lateral direction, than the combined footprint of the plurality of sub-packages.

10. An article carrier according to claim **1**, wherein each of the plurality of sub-packages comprise two or more rows of articles, and the joint member engages endmost articles in one row of the articles in the first sub-package and endmost articles in one row of the articles in the second sub-package, said one row of the articles in the second sub-package being disposed adjacent the one row of the articles in the first sub-package.

11. An article carrier according to claim **1**, wherein each of the first and second sub-packages comprise two or more rows of articles, the joint member engages endmost articles in a single row of the articles in each of the first and second sub-packages.

12. An article carrier according to claim **2**, wherein the joint member is reinforced by at least one reinforcement flap.

13. An article carrier according to claim **12**, wherein the at least one reinforcement flap comprises at least one extension hingedly connected to one of a pair of opposing side panels of the tubular structure.

14. An article carrier according to claim **13**, wherein the at least one reinforcement flap is hingedly connected to a side edge of a top panel of the tubular structure.

15. An article carrier according to claim **13**, wherein the at least one extension is hingedly connected to the at least one reinforcement flap.

16. An article carrier according to claim **12**, wherein the joint member comprises a handle flap struck from a top panel of the tubular structure.

17. An article carrier according to claim **1**, wherein the first and second engaging openings each engages a heel of an article in a respective one of the first and second sub-packages and is struck at least in part from a base panel of the tubular structure.

18. An article carrier according to claim **17**, wherein the first and second engaging openings each is struck in part from one of a pair of opposing side panels of the tubular structure.

19. An article carrier according to claim **17**, wherein the first and second engaging openings each is defined in part by a pair of flaps hingedly connected to the tubular structure.

20. An article carrier according to claim **17**, wherein the base panel of the tubular structure comprises at least two handling apertures, one of the at least two handling apertures is provided by a portion of one of the first and second engaging openings in the base panel, the other one of the at least two handling apertures is provided by an aperture disposed in a spaced apart relationship from the other one of the first and second engaging openings.

21. A package comprising a pair of sub-packages, including a first sub-package and a second sub-package disposed next to each other, and a joint member connecting the pair of sub-packages together into a unitary package, the joint member comprising a tubular structure having opposed open ends and disposed around each of the pair of sub-packages such that part of the first sub-package extends outwards from one of the opposed open ends of the tubular structure and part of the second sub-package extends outwards from the other one of the opposed open ends of the tubular structure, wherein the tubular structure comprises first and second engaging openings in engagement with respective ones of the first and second sub-packages.

22. A package comprising a pair of sub-packages, including a first sub-package and a second sub-package disposed next to each other, and a joint member connecting the pair of sub-packages together into a unitary package, the joint member comprising a tubular structure having opposed open ends and disposed around each of the pair of sub-packages such that part of the first sub-package extends outwards from one of the opposed open ends of the tubular structure and part of the second sub-package extends outwards from the other one of the opposed open ends of the tubular structure, wherein the tubular structure comprises first and second engaging tabs in engagement with respective ones of the first and second sub-packages.

23. A package comprising a pair of sub-packages, including a first sub-package and a second sub-package disposed next to each other, and a joint member connecting the pair of sub-packages together into a unitary package, the joint member comprising a tubular structure having opposed open ends and disposed around each of the pair of sub-packages such that part of the first sub-package extends outwards from one of the opposed open ends of the tubular structure and part of the second sub-package extends outwards from the other one of the opposed open ends of the tubular structure, wherein the tubular structure comprises first and second engaging openings and first and second engaging tabs in engagement with respective ones of the first and second sub-packages.

24. Blanks for forming a package, including at least two first blanks for forming sub-packages each first blank comprising a main panel having a plurality of article retention structures for engaging respective articles, and a second blank for forming a joint member for being disposed around the sub-packages, the second blank comprising a plurality of panels for forming an open ended tubular structure, wherein the second blank comprises first and second engaging openings or first and second engaging tabs for engagement with respective ones of the first and second sub-packages, the second blank being dimensioned such that in a set up condition part of a first sub-package extends outward from one of the open ends of the tubular structure and part of a second sub-package extends outward from the other one of the open ends of the tubular structure.

25. A blank for forming a joint member for being disposed around at least two sub-packages, the blank comprising a plurality of panels for forming an open ended tubular structure, wherein the blank comprises first and second engaging openings or first and second engaging tabs for engagement with respective ones of the at least two sub-packages, the blank being dimensioned such that in a set up condition part of a first sub-package extends outward from one of the open ends of the tubular structure and part of a second sub-package extends outward from the other one of the open ends of the tubular structure.

26. A package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package, the joint member comprising a tubular structure having opposed open ends and disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwards from one of the opposed open ends of the tubular structure and part of a second one of the sub-packages extends outwards from the other one of the opposed open ends of the tubular structure, wherein each of the sub-packages comprises a plurality of articles and a top-engaging carrier in engagement with an upper portion of each of the articles.

27. A package comprising a stack of sub-packages disposed one on top of another, and a joint member connecting the sub-packages together into a unitary package, the joint member comprising a tubular structure having opposed open ends and disposed around the stack such that a part of each of the sub-packages of the stack extends outwards from one of the opposed open ends of the tubular structure and another part of each of the sub-packages of the stack extends outwards from the other one of the opposed open ends of the tubular structure, wherein each of the sub-packages comprises a plurality of articles and a top-engaging carrier in engagement with an upper portion of each of the articles.

28. A package comprising a stack of sub-packages disposed one on top of another, and a joint member connecting the sub-packages together into a unitary package, the joint member comprising a tubular structure having opposed open ends and disposed around the stack such that a part of each of the sub-packages of the stack extends outwards from one of the opposed open ends of the tubular structure and another part of each of the sub-packages of the stack extends outwards from the other one of the opposed open ends of the tubular structure, wherein the tubular structure comprises at least one engaging opening or tab in engagement with at least one of the sub-packages of the stack.

29. A package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package, the joint member comprising a plurality of panels connected together to form a tubular structure having opposed open ends, the plurality of panels including a pair of opposed side panels each having first and second opposed end edges, wherein one of the opposed open ends is defined, in part, by the first end edges of the pair of opposed side panels, the other one of the opposed open ends of the tubular structure is defined, in part, by the second end edges of the pair of opposed side panels, the joint member is disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwardly from said first end edges and part of a second one of the sub-packages extends outwardly from said second end edges, and wherein each of the sub-packages comprises a plurality of articles and a top-engaging carrier in engagement with an upper portion of each of the articles.

30. A package according to claim **31**, wherein part of the first one of the sub-packages extends outwardly from a first end edge of a base wall of the joint member and part of the second one of the sub-packages extends outwardly from a second, opposing, end edge of the base wall.

31. A package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package, the joint member comprising a plurality of panels connected together to form a tubular structure having opposed open ends, the plurality of panels including a handle panel comprising a gripping portion extending transversely with respect to a tubular axis of the tubular structure, the gripping portion having a first transversely extending edge and a second opposing transversely extending edge, wherein one of the opposed open ends of the tubular structure is defined in part by the first transversely extending edge of the gripping portion, the other one of the opposed open ends is defined in part by the second transversely extending edge of the gripping portion, the joint member is disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwardly from the first transversely extending edge of the gripping portion and part of a second one of the sub-packages extends outwards from the second transversely extending edge of the gripping portion, and wherein each of the sub-packages comprises a plurality of articles and a top-engaging carrier in engagement with an upper portion of each of the articles.

32. A package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package, the joint member comprising a plurality of panels connected together to form a tubular structure having opposed open ends, the joint member being disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwards from one of the opposed open ends of the tubular structure and part of a second one of the sub-packages extends outwards from the other one of the opposed open ends of the tubular structure, wherein each of the first and second ones of the sub-packages comprises an engaging projection, and wherein the joint member comprises at least one receiving feature in which the engaging projection of each of the first and second ones of the sub-packages is received.

33. A package according to claim **32**, wherein each of the at least first and second sub-packages comprises a plurality of articles and a top-engaging carrier in engagement with an upper portion of each of the articles, and wherein the engaging projection is provided by the top-engaging carrier of the each of the first and second ones of the sub-packages.

34. A package according to claim **33**, wherein the engaging projection is provided by a cover panel disposed over the upper portions of the articles.

35. A package comprising a plurality of sub-packages disposed next to one another, and a joint member connecting the sub-packages together into a unitary package, the joint member comprising a plurality of panels connected together to form a tubular structure having opposed open ends and first tubular axis, the joint member being disposed around each of the sub-packages such that part of a first one of the sub-packages extends outwards from one of the opposed open ends of the tubular structure and part of a second one of the sub-packages extends outwards from the other one of the opposed open ends of the tubular structure, each of the first and second ones of the sub-packages comprising a tubular structure having opposed ends and second tubular axis, wherein the second tubular axis is perpendicular to the first tubular axis and wherein the first and second tubular axis define a plane which is parallel to the plane of a top wall of the joint member and to the plane of a cover panel of the sub-packages.

36. A package according to claim **35**, wherein the top wall of the joint member is disposed in face-to-face relationship with the cover panel of the sub-packages.

37. A package according to claim **35**, wherein the top wall of the joint member is disposed in face contacting relationship with the cover panel of the sub-packages.

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