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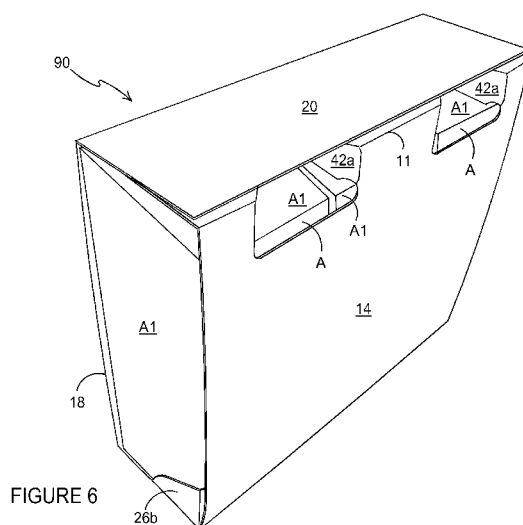
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(54) Title: CARTON AND CARTON BLANK



(57) Abstract: A package includes a carton (90) and one or more articles (A). The carton includes a top panel (20), a base panel (16), a first side wall (14) and a second side wall (18). The first side wall includes at least one tab (42a) hingedly connected thereto. The at least one tab is configured to provide a support structure for facilitating stacking of the carton. The at least one tab has a lower edge in contact with an upper surface of an article and includes an upper edge in contact with an inner surface of the top panel of the carton so as to support the top panel of the carton above the upper surface of the article.

CARTON AND CARTON BLANK**FIELD OF THE INVENTION**

The present invention relates to a carton for packaging articles and a blank for forming a
5 carton more specifically, but not exclusively, to a carton comprising a support device for
protecting an article dispenser.

BACKGROUND OF THE INVENTION

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

It is known to provide brick-shaped packages, such as those made by Tetra PakTM. Such
packages, in particular packages having an inclined or sloping top panel, present problems
when stacking for distribution or display. Such packages may include an access means,
20 which may be in the form of a re-useable closure. These access means further complicate
the problem of stacking packages one upon another. Such closures protrude from a surface
of the package and are vulnerable to damage or tampering. It is an object of the present
invention to provide a carton which protects the closure, allows the packages to be stacked
and additionally may improve the security of the package.

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

SUMMARY OF INVENTION

According to a first aspect of the present invention there is provided a package comprising a
30 carton and one or more articles, the carton comprising a top panel, a base panel, a first side
wall and second a side wall, the first side wall comprising at least one tab hingedly
connected thereto, the at least one tab being configured to provide a support structure for
facilitating stacking of the carton, the at least one tab having a lower edge in contact with an
upper surface of an article and comprising an upper edge in contact with an inner surface of
35 the top panel of the carton so as to support the top panel of the carton above the upper
surface of the article.

Optionally, the at least one tab comprises a first portion hinged to the first side wall and a second portion hinged to the first portion and to the top panel.

5 The carton may comprise a lower end closure panel for at least partially closing an end of the carton, the lower end closure panel being hinged to an anchor panel for holding the lower end closure panel in an erected position.

Optionally, the lower end closure panel is hinged to the anchor panel by a web panel.

10 In some embodiments, the anchor panel comprises a recess for accommodating the at least one tab when folded internally of the carton.

The carton may comprise a first brace panel and a second brace panel configured to form a V-shaped structure between the upper surface of the article and an inner surface of the top panel of the carton.

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Optionally, the one or more articles comprise an inclined top panel.

Optionally, the one or more articles comprise a top panel and a dispenser mounted to an outer surface of the top panel.

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According to a second aspect of the present invention there is provided a carton for packaging one or more articles, the carton comprising a top panel, a base panel, a first side wall and a second side wall, the carton comprising a support structure for facilitating stacking of the carton, the support structure comprising a first tab hinged to the first side wall and a second tab hinged to the first side wall in opposition to the first tab, each of the first and second tabs having a lower edge for being disposed in contact with an upper surface of an article and an upper edge for being disposed in contact with an inner surface of the top panel of the carton for supporting the top panel of the carton above the upper surface of the article.

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Optionally, the first tab comprises a first portion hinged to the first side wall and a second portion hinged to the first portion and hinged to the top panel.

In some embodiments, the second tab comprises a first portion hinged to the first side wall and a second portion hinged to the first portion and hinged to the top panel.

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The carton may comprise a lower end closure panel for at least partially closing an end of the carton, the lower end closure panel being hinged to an anchor panel for holding the lower end closure panel in an erected position.

- 5 Optionally, the lower end closure panel is hinged to the anchor panel by a web panel.

In some embodiments, the anchor panel comprises a recess for accommodating the first tab when folded internally of the carton.

- 10 Optionally, the carton comprises a first brace panel and a second brace panel configured to form a V-shaped structure between the upper surface of the article and an inner surface of the top panel of the carton.

- 15 According to a third aspect of the present invention there is provided a blank for forming a carton comprising a plurality of main panels hinged one to the next in a linear series, the plurality of panels forming a top panel, a base panel, a first side wall and a second side wall in a set-up a carton, the blank comprising a support structure for facilitating stacking of the carton, the support structure comprising a first tab hinged to the first side wall and a second tab hinged to the first side wall in opposition to the first tab, each of the first and second tabs
20 having a lower edge for being disposed in contact with an upper surface of an article and an upper edge for being disposed in contact with an inner surface of the top panel of the carton for supporting the top panel of the carton above the upper surface of the article.

- 25 In some embodiments, the plurality of panels comprises a first top panel and a second top panel for being disposed in at least partially overlapping relationship to form a composite top panel in a set-up carton.

- 30 Optionally, the plurality of panels comprises a first brace panel and a second brace panel for forming a V-shaped bracing structure in a set-up carton.

Optionally, the first brace panel is hinged to the first top panel and the second brace panel is hinged to the first brace panel.

- 35 Within the scope of this application it is envisaged and intended that the various aspects, embodiments, examples, features and alternatives set out in the preceding paragraphs, in the claims and/or in the following description and drawings may be taken independently or in

any combination thereof. For example, features described in connection with one embodiment are applicable to all embodiments unless there is incompatibility of features.

BRIEF DESCRIPTION OF THE DRAWINGS

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

Figure 1 is a perspective view of a first exemplary article to be packaged;

Figure 2 is a plan view from above of a blank for forming a carton according to a first embodiment;

10 Figure 3 is a perspective view, from inside, of a portion of the blank of Figure 1 in a state of partial erection into a carton;

Figure 4 is a perspective view, from inside, of a further portion of the blank of Figure 1 in a state of partial erection into a carton;

Figure 5 is a perspective view, from inside, of a spacer device in an erected state;

15 Figure 6 is a perspective view from above of a carton formed from the blank of Figure 1;

Figure 7 is a perspective view of an end of the carton of Figure 6;

Figure 8 is a side view of the carton of Figure 6;

Figure 9 is an end view of the carton of Figure 6;

20 Figure 10 is an enlarged perspective view of a spacer device when viewed externally;

Figure 11 is a plan view from above of a blank for forming a carton according to a second embodiment;

Figure 12 is a perspective view of a second exemplary article to be packaged;

25 Figure 13 is a plan view from above of a blank for forming a carton according to a third embodiment;

Figure 14 is a perspective view, from inside, of a portion of the blank of Figure 13 in a state of partial erection into a carton;

Figure 15 is a perspective view from one end of a portion of the blank of Figure 13 in a state of partial erection into a carton;

30 Figure 16 is a perspective view from one end of a portion of the blank of Figure 13 in a state of partial erection into a carton;

Figure 17 is a perspective view from above of a carton formed from the blank of Figure 13; and

Figure 18 is an end view of the carton of Figure 17.

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DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

Detailed descriptions of specific embodiments of the package, blanks and cartons are disclosed herein. It will be understood that the disclosed embodiments are merely examples of the way in which certain aspects of the invention can be implemented and do not represent an exhaustive list of all of the ways the invention may be embodied. As used
5 herein, the word “exemplary” is used expansively to refer to embodiments that serve as illustrations, specimens, models, or patterns. Indeed, it will be understood that the packages, blanks and cartons described herein may be embodied in various and alternative forms. The Figures are not necessarily to scale and some features may be exaggerated or minimised to show details of particular components. Well-known components, materials or methods are
10 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.

15 Referring to Figure 2, there is shown a perspective view of a blank 10 capable of forming a carton for a primary product such as, but not limited to, a brick package, hereinafter referred to as articles.

Figure 1 shows a first exemplary primary product container A1, hereinafter referred to as first
20 article A1. The first article A1 takes the form of a brick package having an inclined or sloping top panel T. It will be appreciated that containers having an un-flat, non-planar or inclined top panel present problems when stacking multiple containers.

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

The blank is formed from a sheet of suitable substrate. It is to be understood that, as used herein, the term “suitable substrate” includes all manner of foldable sheet material such as paperboard, corrugated board, cardboard, plastic, combinations thereof, and the like. It
35 should be recognized that one or other numbers of blanks may be employed, where suitable, for example, to provide the carrier structure described in more detail below.

In the exemplary embodiment, the blank is configured to form a carton or carrier for packaging an exemplary arrangement of exemplary articles. In a first illustrated exemplary embodiment, the arrangement is a 3 x 1 matrix or array and the articles are brick packages. The blank can be alternatively configured to form a carrier for packaging other types, number
5 and size of article and/or for packaging articles in a different arrangement or configuration.

The blank 10 comprises a plurality of main panels hinged one to the next in a linear series. A first top panel 12 is hinged to a first side panel 14 by a hinged connection such as a fold line 11. The first side panel 14 is hinged to a base panel 16 by a hinged connection such as a
10 fold line 13. The base panel 16 is hinged to a second side panel 18 by a hinged connection such as a fold line 15. The second side panel 18 is hinged to a second top panel 20 by a hinged connection such as a fold line 17.

The first side panel 14 comprises a first anchor panel 22a hinged to a first end edge thereof
15 by a hinged connection such as a fold line 21a. A first lower end closure panel 26a is hinged to a first end edge of the first base panel 16 by a hinged such as a fold line 27a. A first web panel 24a hingedly connects the first lower end closure panel 26a to the first anchor panel 22a. The first web panel 24a is hinged to the first lower end closure panel 26a by a hinged connection such as a fold line 25a and the first web panel 24a is hinged to the first anchor
20 panel 22a by a hinged connection such as a fold line 23a. The first web panel 24a is separated from the first side panel 14 by an aperture A1a.

The first anchor panel 22a comprises a recess R struck from an upper portion of a free end
25 edge.

The first side panel 14 comprises a second anchor panel 22b hinged to a second end edge thereof by a hinged connection such as a fold line 21b; the second end edge opposes the first end edge. A second lower end closure panel 26b is hinged to a second end edge of the first base panel 16 by a hinged connection such as a fold line 27b. A second web panel 24b
30 hingedly connects the second lower end closure panel 26b to the second anchor panel 22b. The second web panel 24b is hinged to the second lower end closure panel 26b by a hinged connection such as a fold line 25b and the second web panel 24b is hinged to the second anchor panel 22b by a hinged connection such as a fold line 23b. The second web panel 24b is separated from the second side panel 14 by an aperture A1b.

35 The second anchor panel 22b comprises a recess R struck from an upper portion of a free end edge.

The blank 10 comprises a pair of spacer or support structures S. The support structures S each comprise a pair of tabs 40a/42a, 40b/42b. A first tab 40a/42a is hinged to the first side panel 14 and to the first top panel 12. The first tab 40a/42a comprises a hinged connection
5 such as a fold line 45a which defines in part an upper part 40a of the first tab 40a/42a which is hinged to the first top panel 12 by a hinged connection such as a fold line 41a, and defines in part a lower part 42a hinged to the first side panel 14 by a hinged connection such as a fold line 43a. A second tab 40b/42b is hinged to the first side panel 14 and to the first top panel 12. The second tab 40b/42b comprises a hinged connection such as a fold line 45b
10 which defines in part an upper part 40b of the second tab 40b/42b which is hinged to the first top panel 12, by a hinged connection such as a fold line 41b, and defines in part a lower part 42b hinged to the first side panel 14 by a hinged connection such as a fold line 43b. The first tab 40a/42a is separated from the second tab 40b/42b by a cut line 49. An aperture A is struck from the first side panel 14 and defines a lower edge of each of the lower parts 42a,
15 42b of the first and second tabs 40a/42a, 40b/42b.

Turning to the construction of the carton as illustrated in Figures 3 to 10, it is envisaged that the carton can be formed by a series of sequential folding operations in a straight line machine so that the carton is not required to be rotated or inverted to complete its
20 construction. The folding process is not limited to that described below and may be altered according to particular manufacturing requirements.

The base panel 16 is loaded with first articles A1. The first and second anchor panels 22a, 22b are folded about the fold lines 21a, 21b respectively to bring them into face contacting
25 relationship with the first side panel 14. Folding the first and second anchor panels 22a, 22b about the fold lines 21a, 21b automatically folds the first and second lower end closure panels 26a, 26b about the fold lines 27a, 27b respectively.

The first and second tabs 40a/42a, 40b/42b of each of the support structures S are folded
30 about the fold lines 41a, 43a, 41b, 43b respectively. Simultaneously, the first top panel 12 is at least partially folded about the fold line 11.

The first side panel 14 is then folded about fold line 13 to be substantially perpendicular to the base panel 16. The second side panel 18 is folded about fold line 15 to be substantially
35 perpendicular to the base panel 16, either sequentially or simultaneously with the folding of the first side panel 14.

The first top panel 12 is folded about the fold line 11 to be substantially perpendicular to the first side panel 14. The upper parts 40a, 40b of the first and second tabs 40a/42a, 40b/42b are brought into contact with, or at least into close proximity to, the inner surface of the first top panel 12.

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Glue or other adhesive treatment is applied to an inner surface of the second top panel 20 or to a corresponding region of the outer surface of the first top panel 12.

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The second top panel 20 is folded about the fold line 17 to be configured in at least partial overlapping relationship with the first top panel 12. The second top panel 20 is secured to the first top panel 12.

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The carton 90 as shown in Figures 6 to 10 forms a package with the first articles A1. The carton 90 has a composite top panel 20/12 formed by the first and second top panels 12, 20. The composite top panel 20/12 is substantially perpendicular to the first and second side walls 14, 18 and substantially parallel with the base panel 16. The composite top panel 20/12 is therefore substantially horizontal, when the base panel 16 is at rest upon a substantially horizontal surface. This is in contrast to the top panel T of the first article A1 which is inclined to the horizontal plane of the composite top panel 20/12. In this way the carton 90 provides a suitable surface for stacking multiple first articles A1 upon one another.

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The support structures S form a brace between the composite top panel 20/12 and the top panel T of the first articles A1. As best shown in Figures 8, 9 and 10 the lower parts 42a, 42b of the first and second tabs 40a/42a, 40b/42b are arranged to form a brace member between the composite top panel 20/12 and the top panel T of the first articles A1. A lower edge of each of the lower parts 42a, 42b of the first and second tabs 40a/42a, 40b/42b is in contact with the top panel T of the first articles A1. An upper edge of each of the lower parts 42a, 42b of the first and second tabs 40a/42a, 40b/42b, which is hinged to the upper parts of the first and second tabs 40a/42a, 40b/42b, is disposed in contact with, or in close proximity to, the inner surface of the composite top panel 20/12. In this way the lower parts 42a, 42b of the first and second tabs 40a/42a, 40b/42b transfer a load placed upon the composite top panel 20/12 to the first articles A1.

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Referring now to Figures 11 and 13 to 18, there are shown alternative embodiments of the present invention. In the second and third illustrated embodiments, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "100" or "200" and so on to indicate that these features belong to the second embodiment or third

embodiment respectively. The alternative embodiments share many common features with the first embodiment and therefore only the differences from the embodiment illustrated in Figures 2 to 10 will be described in any greater detail.

- 5 In the embodiment shown in Figure 11, the blank 110 comprises only one support structure which is centrally disposed interrupting the fold line 111 between the first top panel 112 and the first side panel 114. The blank 110 may accommodate two first articles A1 in a 2x1 array or matrix. In alternative embodiments the blank 110 may be arranged to accommodate one second article A2 as illustrated in Figure 12, wherein the support structure is arranged such
- 10 that the first tab 140a/142a is disposed upon a first side of the closure device C and the second tab 140b/142b is disposed upon a second side of the closure device C, wherein the closure device C is positioned substantially between the first tab 140a/142a and the second tab 140b/142b.
- 15 The blank 110 comprises a first lower end closure panel 126a disposed on first side edge of the base panel 116 and hinged thereto by a hinged connection such as a fold line 129a. The first lower end closure panel 126a extends along the entire length of the base panel 116 and partially closes a tubular structure formed by the main panels 112, 114, 116, 118, 120. First lower end closure panel 126a is indirectly connected to a first anchor panel 122a via a first
- 20 web panel 124a. First lower end closure panel 126a is hinged to the first web panel 124a by a hinged connection such as fold line 125a. First web panel 124a is hinged to the first anchor panel 122a by a hinged connection such as a fold line 123a. A first aperture A1a separates first web panel 124a from the first side panel 114. First lower end closure panel 126a is indirectly connected to a second anchor panel 130a via a second web panel 128a. First
- 25 lower end closure panel 126a is hinged to the second web panel 128a by a hinged connection such as a fold line 127a. Second web panel 128a is hinged to the second anchor panel 130a by a hinged connection such as a fold line 133a. A second aperture A2a separates second web panel 128a from the second side panel 118.
- 30 The blank 110 comprises a second lower end closure panel 126b disposed on the second side edge of the base panel 116 and hinged thereto by a hinged connection such as a fold line 129b. The second lower end closure panel 126b extends along the entire length of the base panel 116 and partially closes a tubular structure formed by the main panels 112, 114, 116, 118, 120. Second lower end closure panel 126b is indirectly connected to a third
- 35 anchor panel 122b via a third web panel 124b. Second lower end closure panel 126b is hinged to the third web panel 124b by a hinged connection such as a fold line 125b. Third web panel 124b is hinged to the third anchor panel 122b by a hinged connection such as a

fold line 123b. A third aperture A1b separates third web panel 124b from the first side panel 114. Second lower end closure panel 126b is indirectly connected to a fourth anchor panel 130b via a fourth web panel 128b. Second lower end closure panel 126b is hinged to the fourth web panel 128b by a hinged connection such as a fold line 127b. Fourth web panel 128b is hinged to the fourth anchor panel 130b by a hinged connection such as a fold line 133b. A fourth aperture A2b separates fourth web panel 128b from the second side panel 118.

Recesses are struck from each of the first and third anchor panels 122a, 122b. The recesses are configured to accommodate the support structure. In particular, the recesses are arranged such that when the first and third anchor panels 122a, 122b are folded into face contacting relationship with the first side panel 114 the first and second tabs 140a/142a, 140b/142b can be folded internally of the carton. In this way, the first and third anchor panels 122a, 122b do not interfere with erection of the support structure.

Figure 12 illustrates a second exemplary article A2. The second article A2 again takes the form of a brick package having an inclined or sloping top panel T. The second article A2 comprises a closure device or dispenser C which is mounted to the external face of the top panel T. It is envisaged that the dispenser C may be removable to allow dispensing of the primary product contained within the second article A2. The second article A2 may be reclosable or resealable by reattaching the closure device C.

Figures 13 to 18 illustrate a blank 210 for forming a carton 290 for packaging the second article A2.

The blank 210 comprises a plurality of main panels hinged one to the next in a linear series. A first top panel 212 is hinged to a first side panel 214 by a hinged connection such as a fold line 211. The first side panel 214 is hinged to a base panel 216 by a hinged connection such as a fold line 213. The base panel 216 is hinged to a second side panel 218 by a hinged connection such as a fold line 215. The second side panel 218 is hinged to a second top panel 220 by a fold line 217. A first brace panel 208 is hinged to the first top panel 212 by a hinged connection such as a fold line 209. A second brace panel 206 is hinged to the first brace panel 208 by a hinged connection such as a fold line 207.

The blank 210 comprises three spacer or support structures S. The support structures S each comprise a pair of tabs 240a/242a, 240b/242b. A first tab 240a/242a is hinged to the first side panel 214 and to the first top panel 212. The first tab 240a/242a comprises a

hinged connection such as a fold line 245a which defines in part an upper part 240a of the first tab 240a/242a, which is hinged to the first top panel 212 by a hinged connection such as a fold line 241a, and defines in part a lower part 242a hinged to the first side panel 214 by a hinged connection such as a fold line 243a. A second tab 240b/242b is hinged to the first side panel 214 and to the first top panel 212. The second tab 240b/242b comprises a hinged connection such as a fold line 245b which defines in part an upper part 240b of the second tab 240b/242b, which is hinged to the first top panel 212 by a hinged connection such as a fold line 241b, and defines in part a lower part 242b hinged to the first side panel 214 by a hinged connection such as a fold line 243b. The first tab 240a/242a is separated from the second tab 240b/242b by a cut line 249. An aperture A is struck from the first side panel 214 and defines a lower edge of each of the lower parts 242a, 242b of the first and second tabs 240a/242a, 240b/242b.

The first and second anchor panels 222a, 222b each comprise a recess R configured and arranged to accommodate the endmost support structures S. The recesses R are larger and deeper than the previous embodiments since the endmost support structures S are arranged in closer proximity to the end edges of the first side panel 214.

The method of assembling the blank 210 comprises the additional steps of erecting the brace structure formed from the first and second brace panels 208, 206. Once the first top panel 212 is folded about the fold line 211 over the closure devices C the first brace panel 208 is folded about fold line 209 towards the top panel T of the second article A2 as illustrated in Figure 15. The second brace panel 206 is folded about fold line 207 away from the top panel T of the second article A2 as illustrated in Figure 15. The second top panel 220 is then folded about fold line 217, such that a free end edge of the second brace panel 206 is substantially located in the crease formed by folding the second top panel 220 with respect to the second side panel 218. In this way the second top panel 220 is secured to the first top panel 212. The first and second brace panels 208, 206 form a substantially V-shaped structure beneath the second top panel 220, which V-shaped structure supports the second top panel 220 and serves to transfer a load placed upon the second top panel 220 to the top panel T of the second articles A2. The V-shaped structure spreads the load across each of the top panels T of each of the second articles A2 being packaged.

The first and second brace panels 208, 206 and the support structures S prevent or at least reduce the load or force applied to the closure device C when a load is applied to the composite top panel 220/212 of the carton 290, for example when stacking cartons 290 on top of each other as illustrated in Figure 18.

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.

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It will be recognised that as used herein, directional references such as "top", "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.

10

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 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.

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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 cut line, a line of aligned slits, a line of scores and any combination of the aforesaid options.

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

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

CLAIMS

1. A package comprising a carton and one or more articles, the carton comprising a top panel, a base panel, a first side wall and a second side wall, the first side wall comprising at least one tab hingedly connected thereto, the at least one tab being configured to provide a support structure for facilitating stacking of the carton, the at least one tab having a lower edge in contact with an upper surface of an article and comprising an upper edge in contact with an inner surface of the top panel of the carton so as to support the top panel of the carton above the upper surface of the article.
2. A package according to claim 1 wherein the at least one tab comprises a first portion hinged to the first side wall and a second portion hinged to the first portion and to the top panel.
3. A package according to claim 1 wherein the carton comprises a lower end closure panel for at least partially closing an end of the carton, the lower end closure panel being hinged to an anchor panel for holding the lower end closure panel in an erected position.
4. A package according to claim 3 wherein the lower end closure panel is hinged to the anchor panel by a web panel.
5. A package according to either claim 3 or 4 wherein the anchor panel comprises a recess for accommodating the at least one tab when folded internally of the carton.
6. A package according to claim 1 wherein the carton comprises a first brace panel and a second brace panel configured to form a V-shaped structure between the upper surface of the article and an inner surface of the top panel of the carton.
7. A package according to claim 1 wherein the one or more articles comprise an inclined top panel.
8. A package according to claim 1 wherein the one or more articles comprise a top panel and a dispenser mounted to an outer surface of the top panel.
9. A carton for packaging one or more articles, the carton comprising a top panel, a base panel, a first side wall and a second side wall, the carton comprising a support structure for facilitating stacking of the carton, the support structure comprising a first tab hinged to the first side wall and a second tab hinged to the first side wall in opposition to the first tab, each of the first and second tabs having a lower edge for being disposed in contact

with an upper surface of an article and an upper edge for being disposed in contact with an inner surface of the top panel of the carton for supporting the top panel of the carton above the upper surface of the article.

10. A carton according to claim 9 wherein the first tab comprises a first portion hinged to the first side wall and a second portion hinged to the first portion and hinged to the top panel.
11. A carton according to claim 9 wherein the second tab comprises a first portion hinged to the first side wall and a second portion hinged to the first portion and hinged to the top panel.
12. A carton according to claim 9 wherein the carton comprises a lower end closure panel for at least partially closing an end of the carton, the lower end closure panel being hinged to an anchor panel for holding the lower end closure panel in an erected position.
13. A carton according to claim 12 wherein the lower end closure panel is hinged to the anchor panel by a web panel.
14. A carton according to either claim 12 or 13 wherein the anchor panel comprises a recess for accommodating the first tab when folded internally of the carton.
15. A carton according to claim 9 wherein the carton comprises a first brace panel and a second brace panel configured to form a V-shaped structure between the upper surface of the article and an inner surface of the top panel of the carton.
16. A blank for forming a carton comprising a plurality of main panels hinged one to the next in a linear series, the plurality of panels forming a top panel, a base panel, a first side wall and a second side wall in a set-up carton, the blank comprising a support structure for facilitating stacking of the carton, the support structure comprising a first tab hinged to the first side wall and a second tab hinged to the first side wall in opposition to the first tab, each of the first and second tabs having a lower edge for being disposed in contact with an upper surface of an article and an upper edge for being disposed in contact with an inner surface of the top panel of the carton for supporting the top panel of the carton above the upper surface of the article.
17. A blank according to claim 16 wherein the plurality of panels comprises a first top panel and a second top panel for being disposed in at least partially overlapping relationship to form a composite top panel in a set-up carton.

18. A blank according to claim 16 wherein the plurality of panels comprises a first brace panel and a second brace panel for forming a V-shaped bracing structure in a set-up carton.
19. A blank according to claims 17 and 18 wherein the first brace panel is hinged to the first top panel and the second brace panel is hinged to the first brace panel.
20. A package substantially as described herein with reference to and/or as illustrated by the accompanying Figures.
21. A carton for packaging articles substantially as described herein with reference to and/or as illustrated by the accompanying Figures.
22. A blank for forming a carton substantially as described herein with reference to and/or as illustrated by the accompanying Figures.

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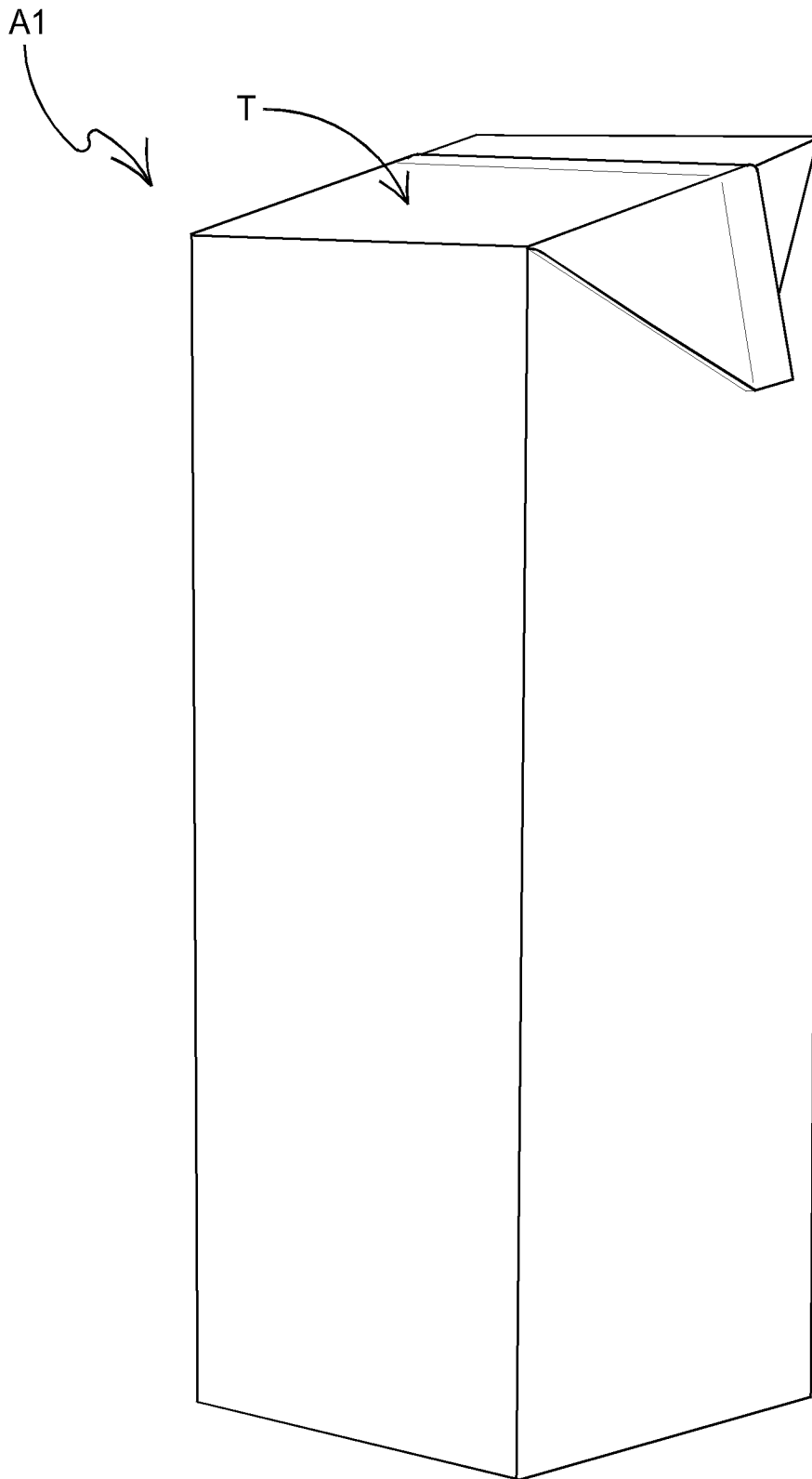


FIGURE 1

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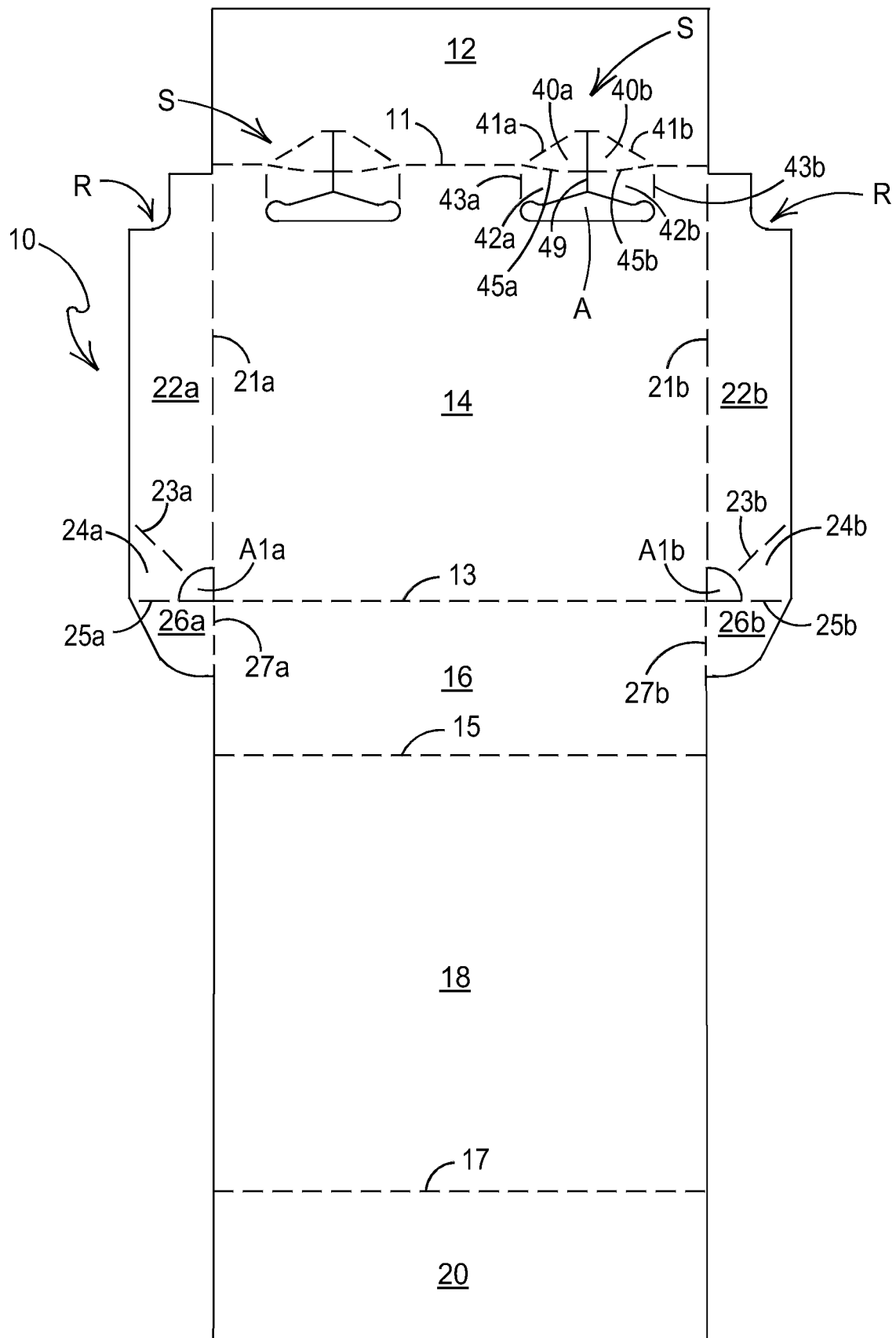
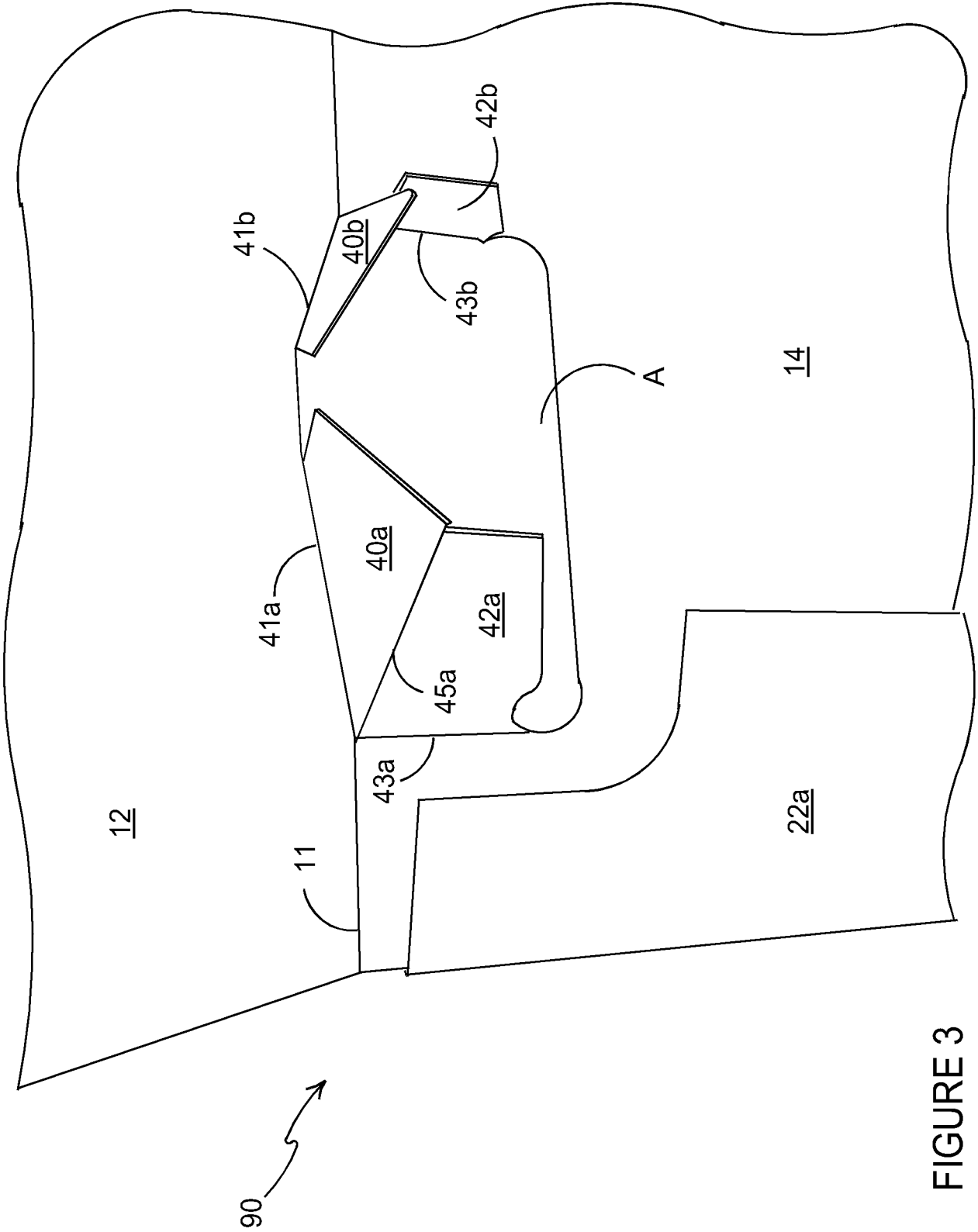


FIGURE 2



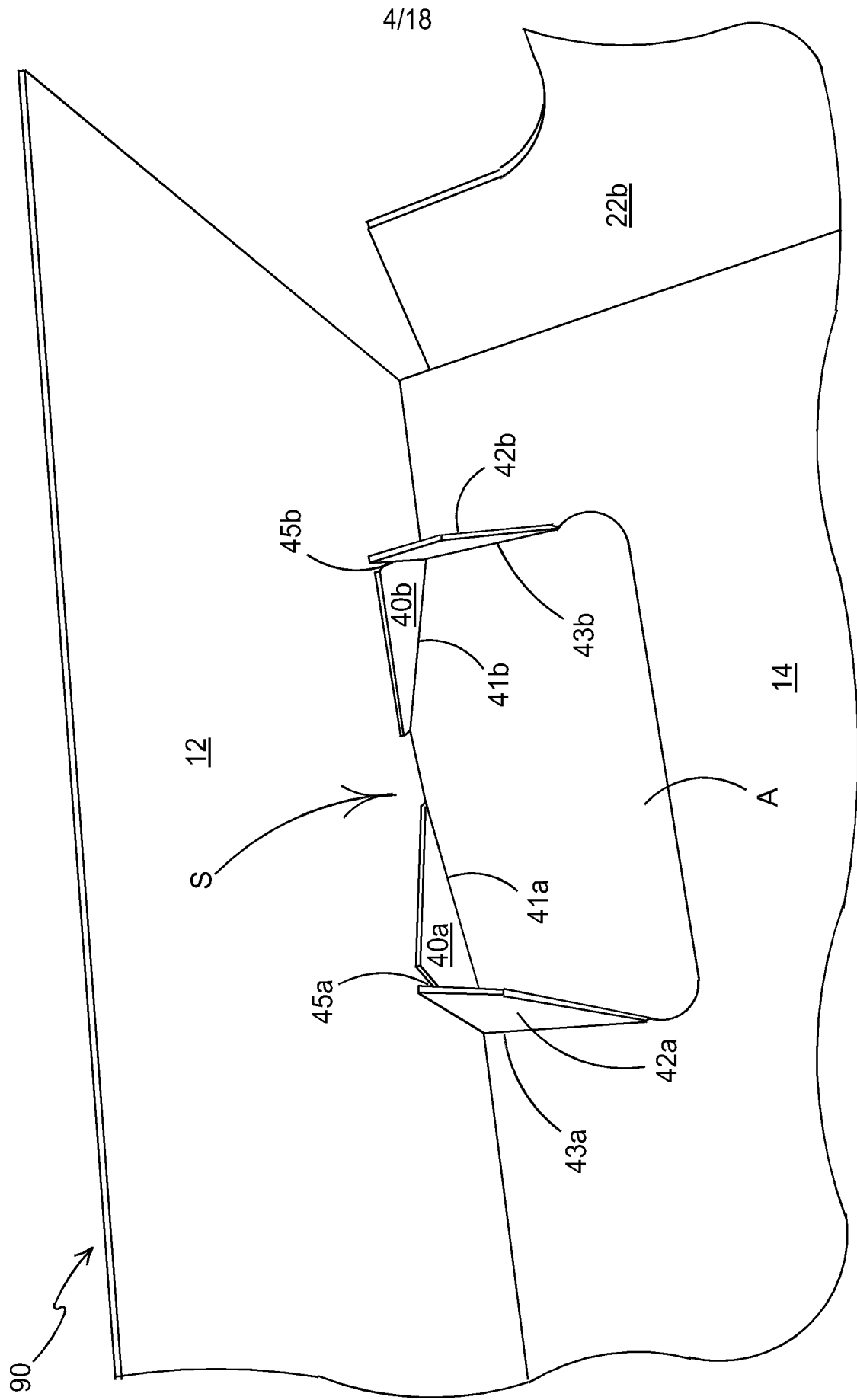


FIGURE 4

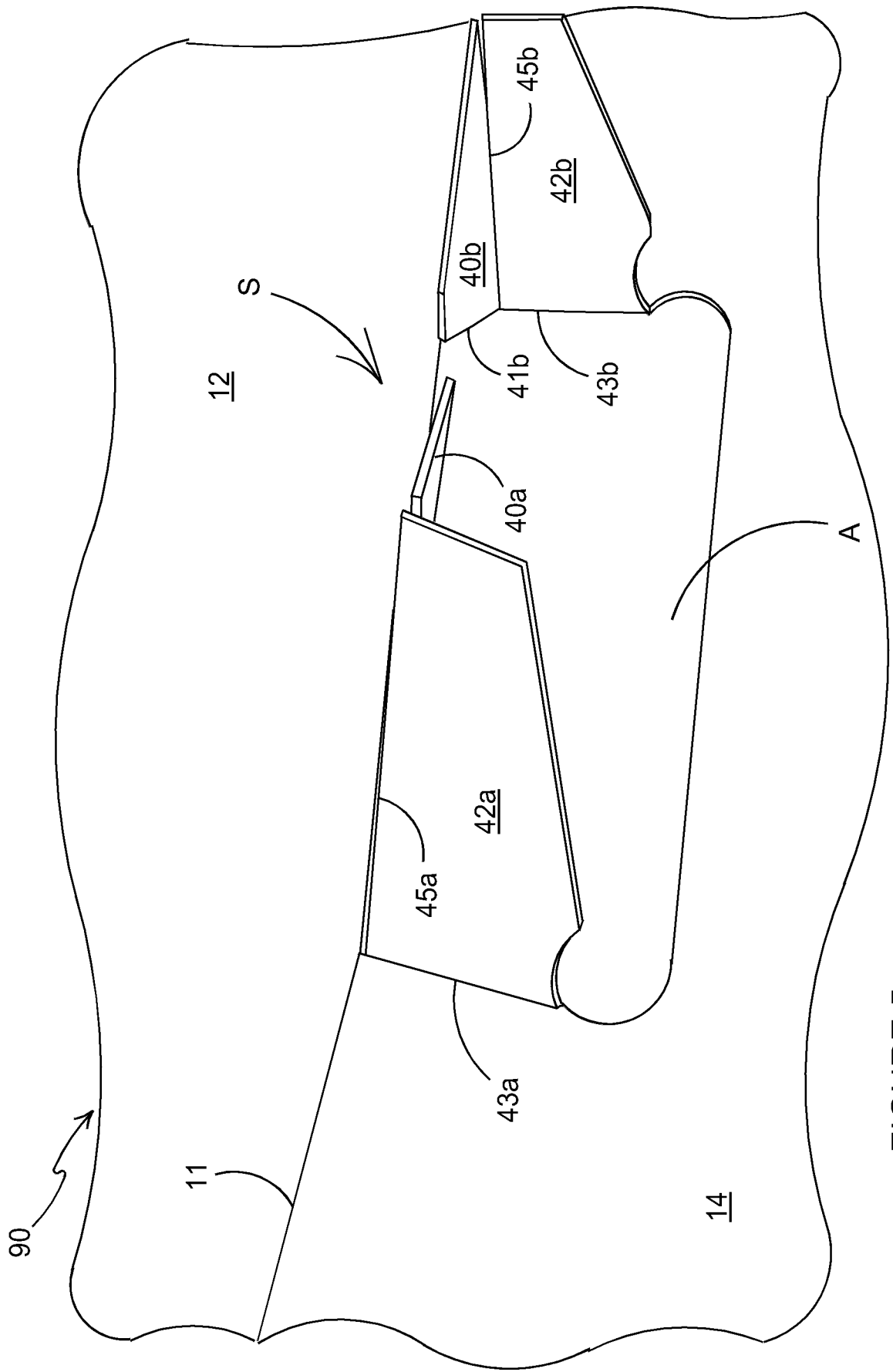
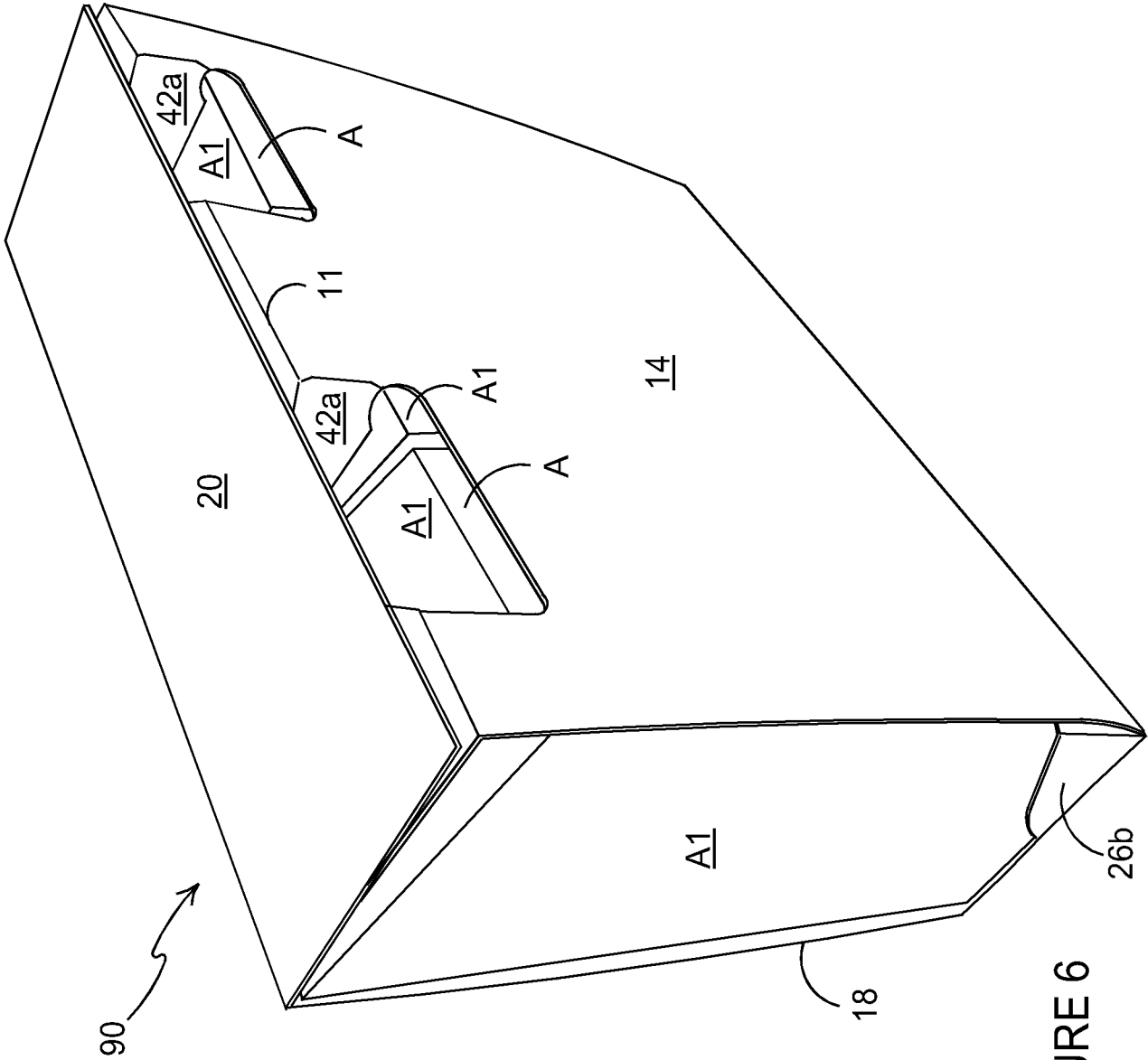
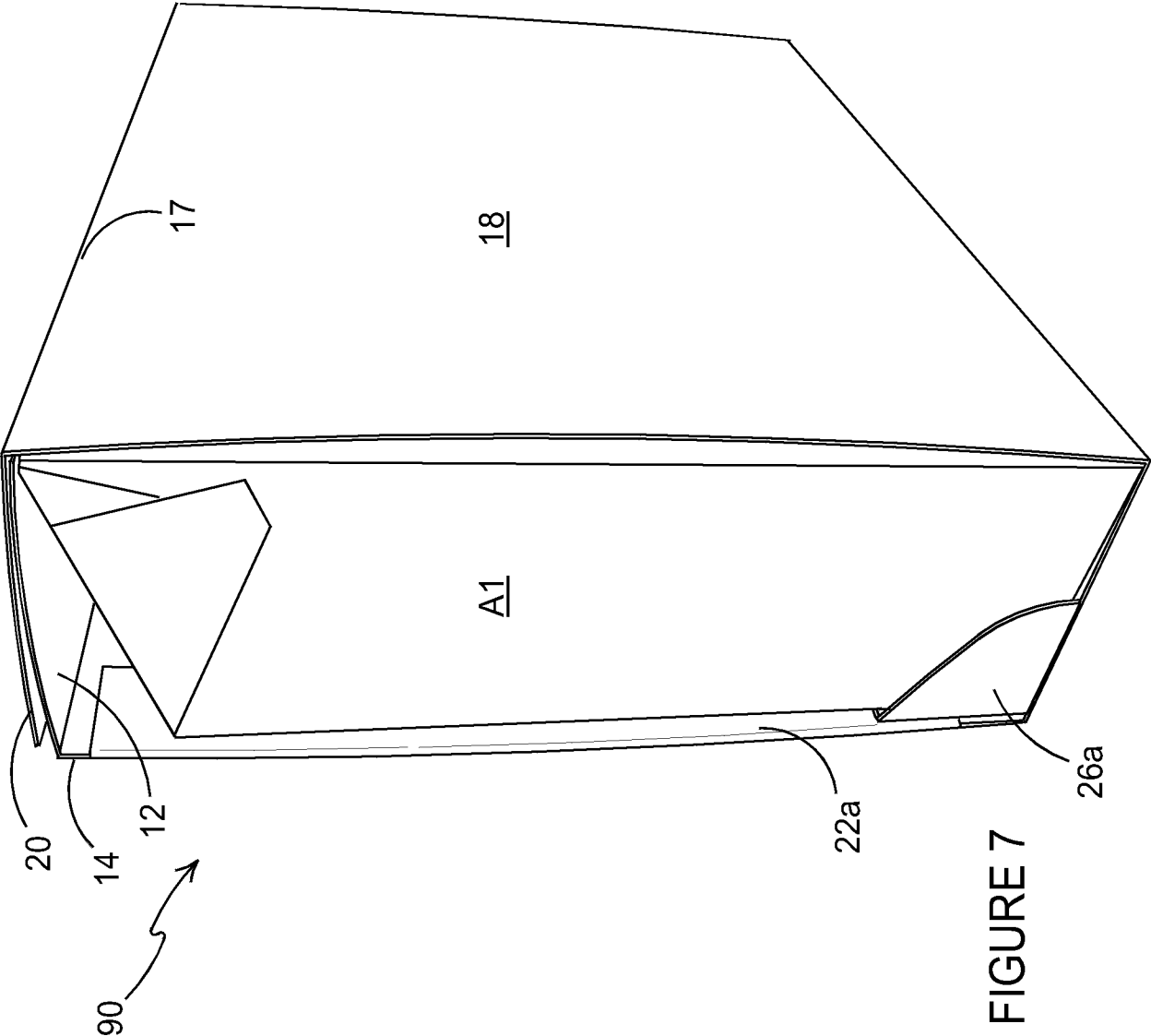


FIGURE 5





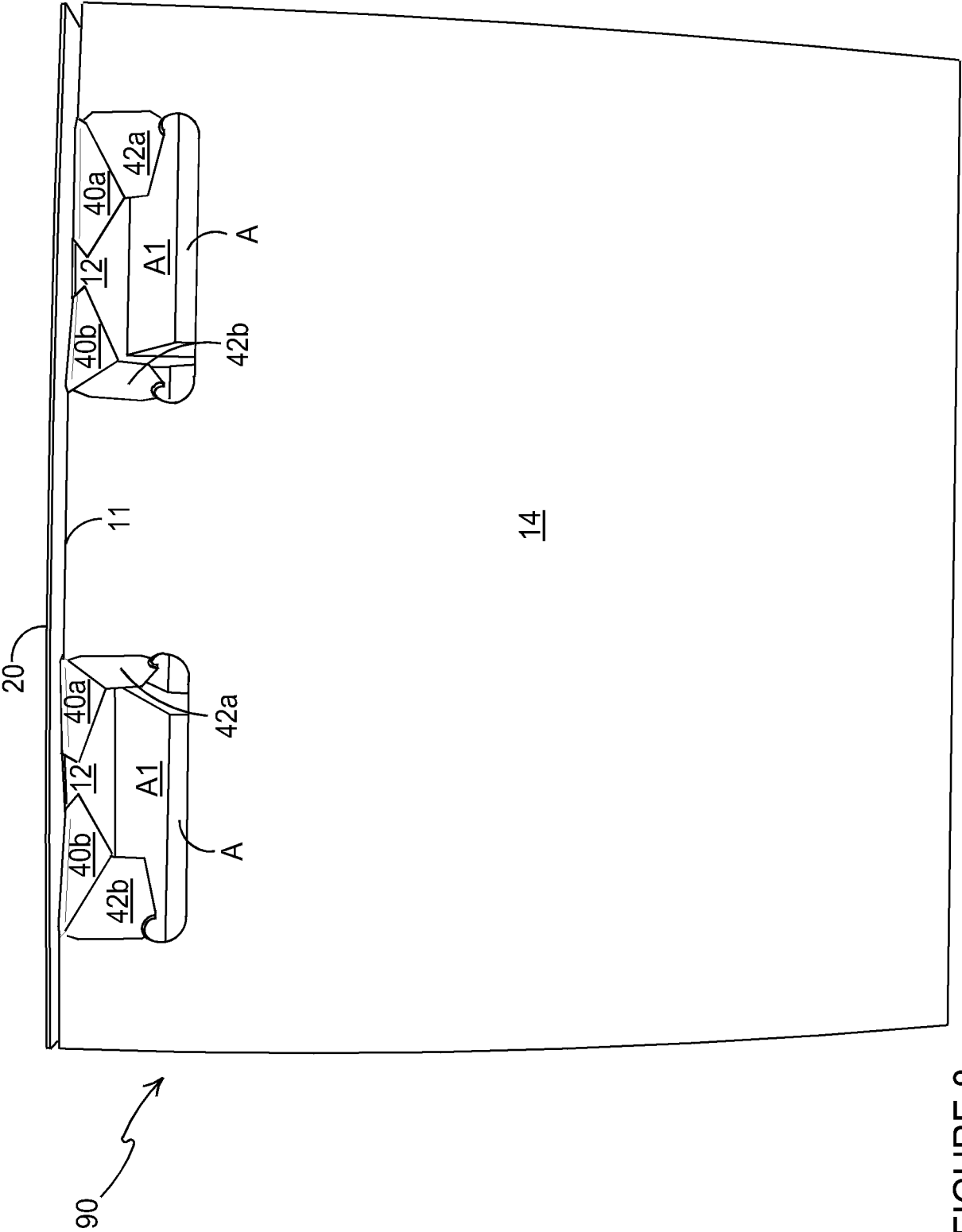


FIGURE 8

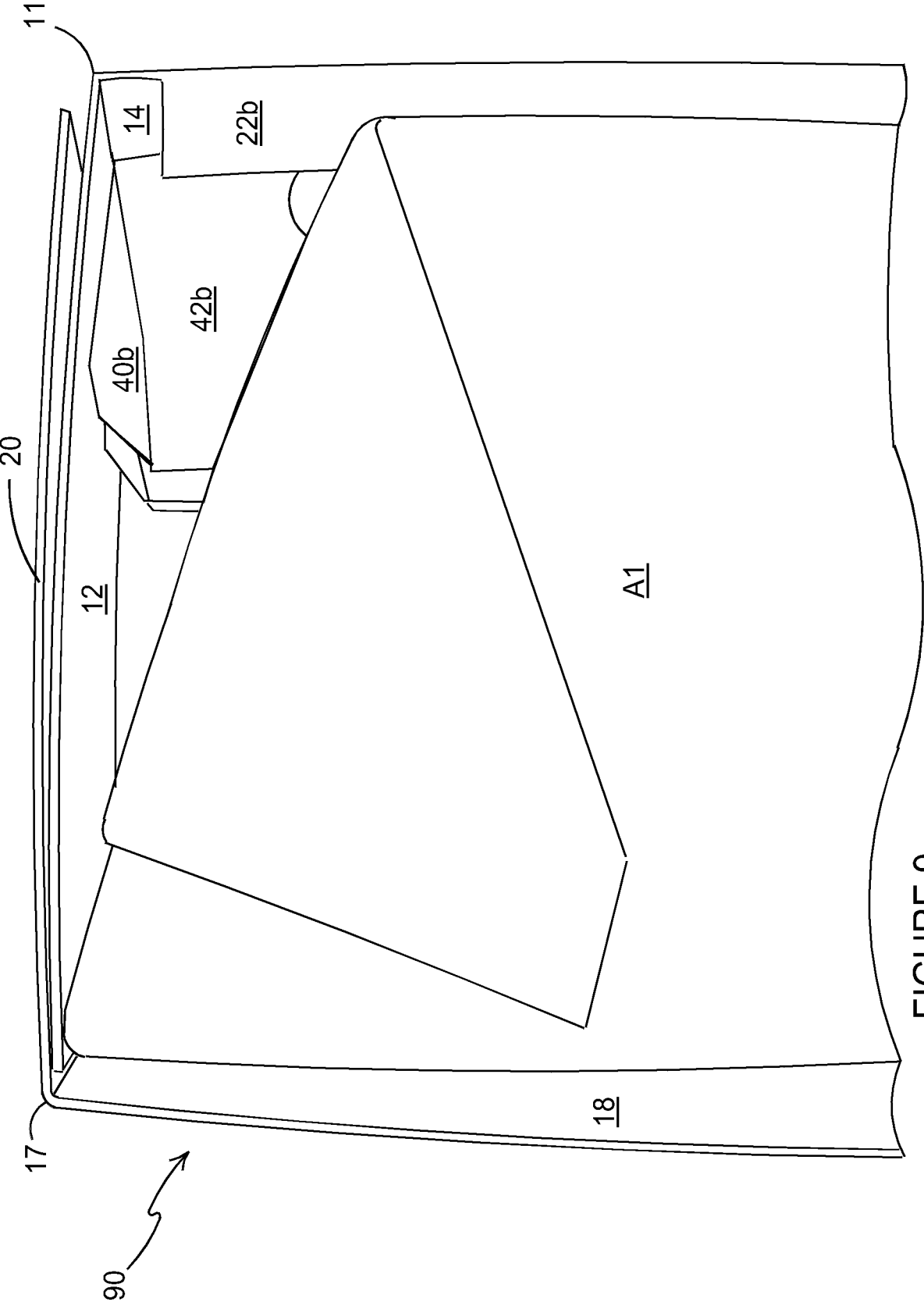


FIGURE 9

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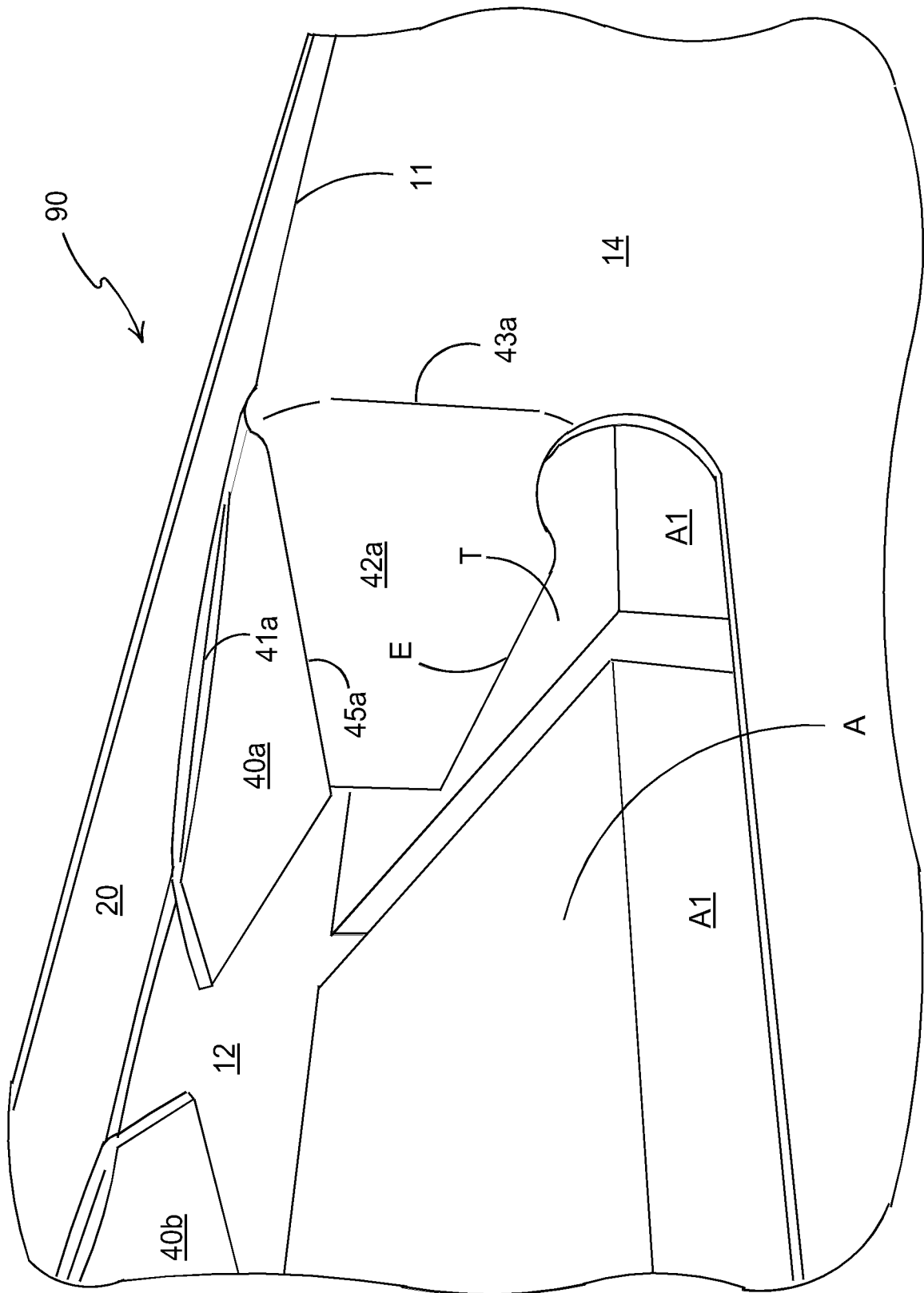


FIGURE 10

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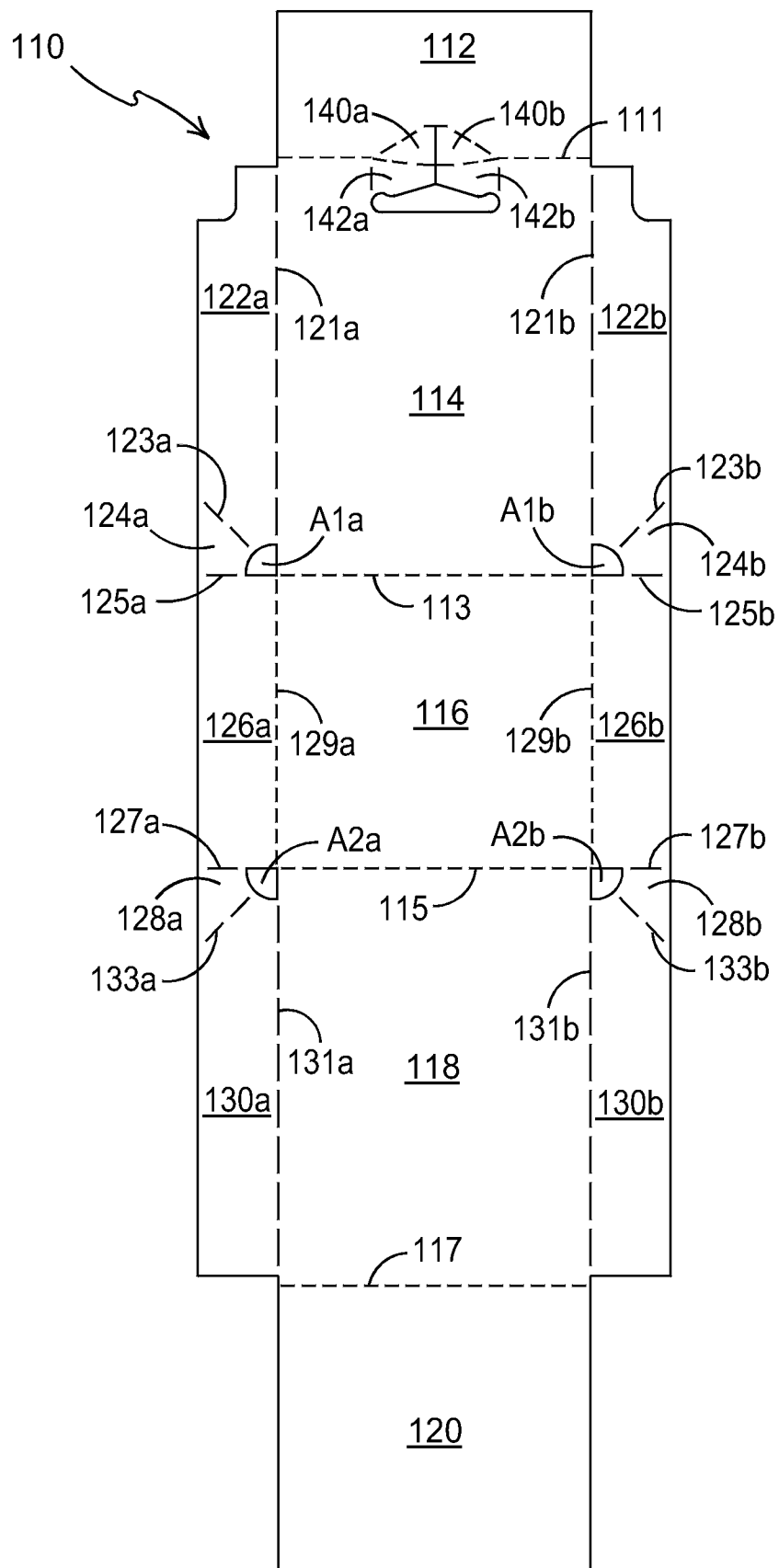


FIGURE 11

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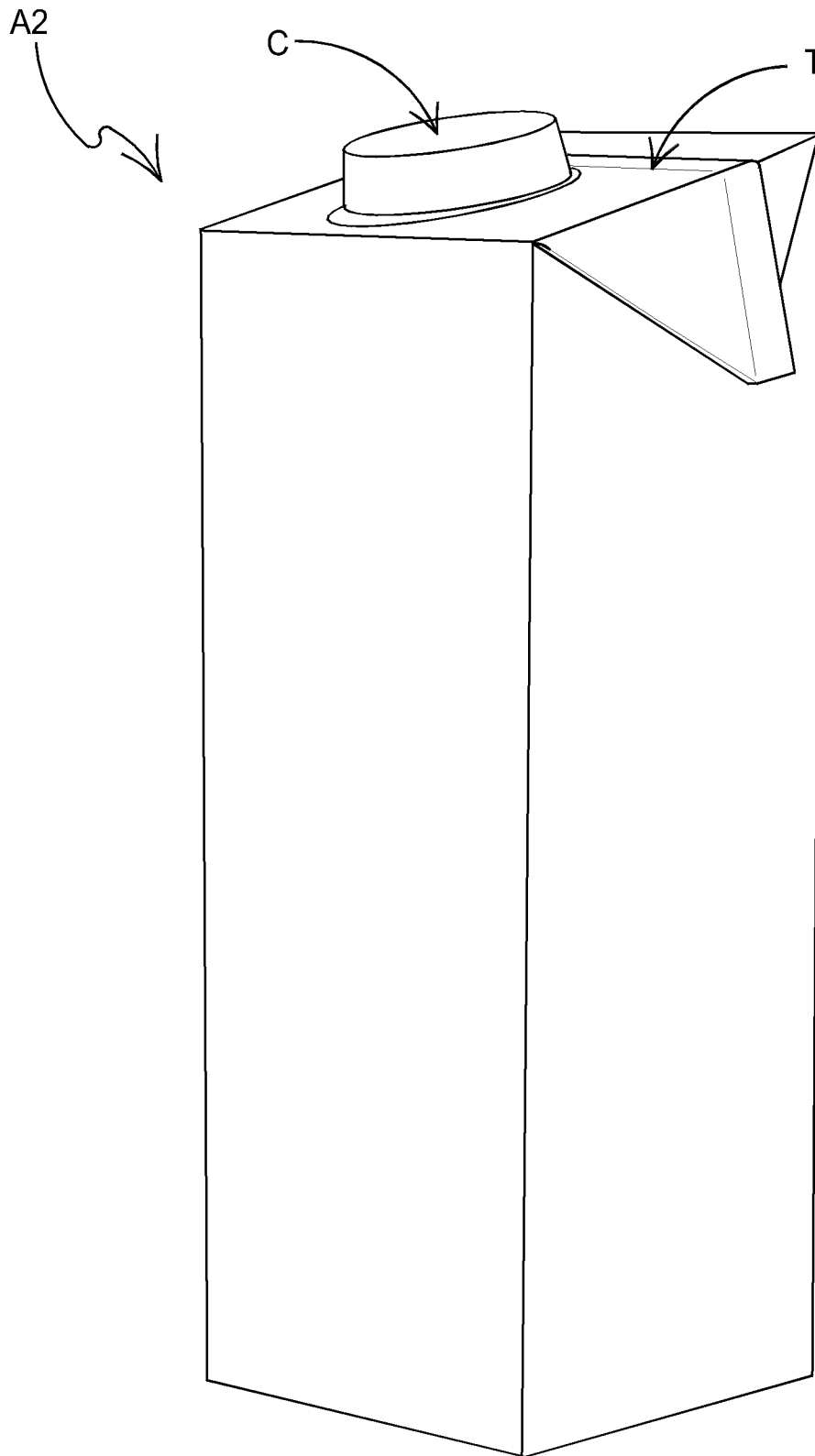


FIGURE 12

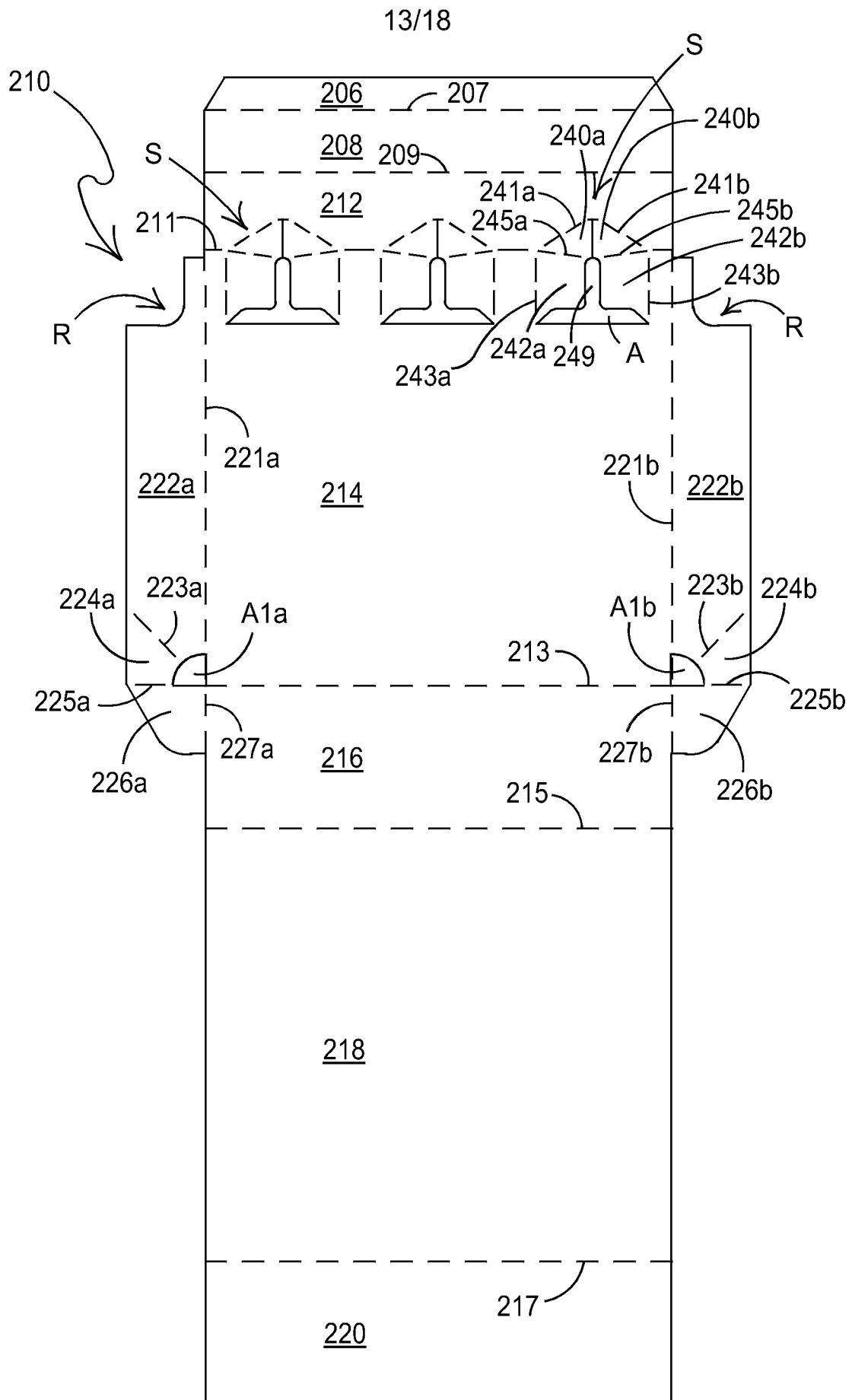


FIGURE 13

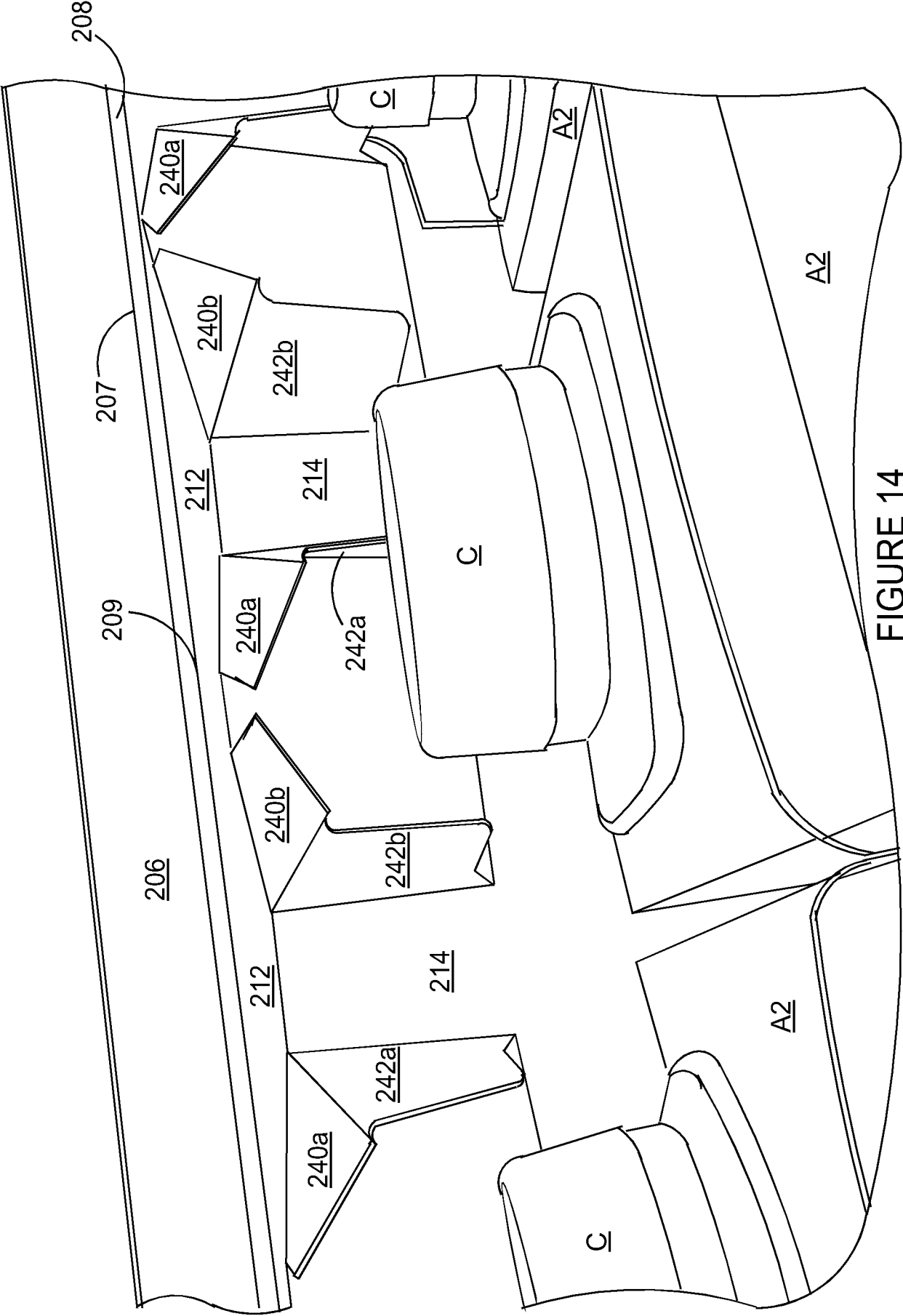


FIGURE 14

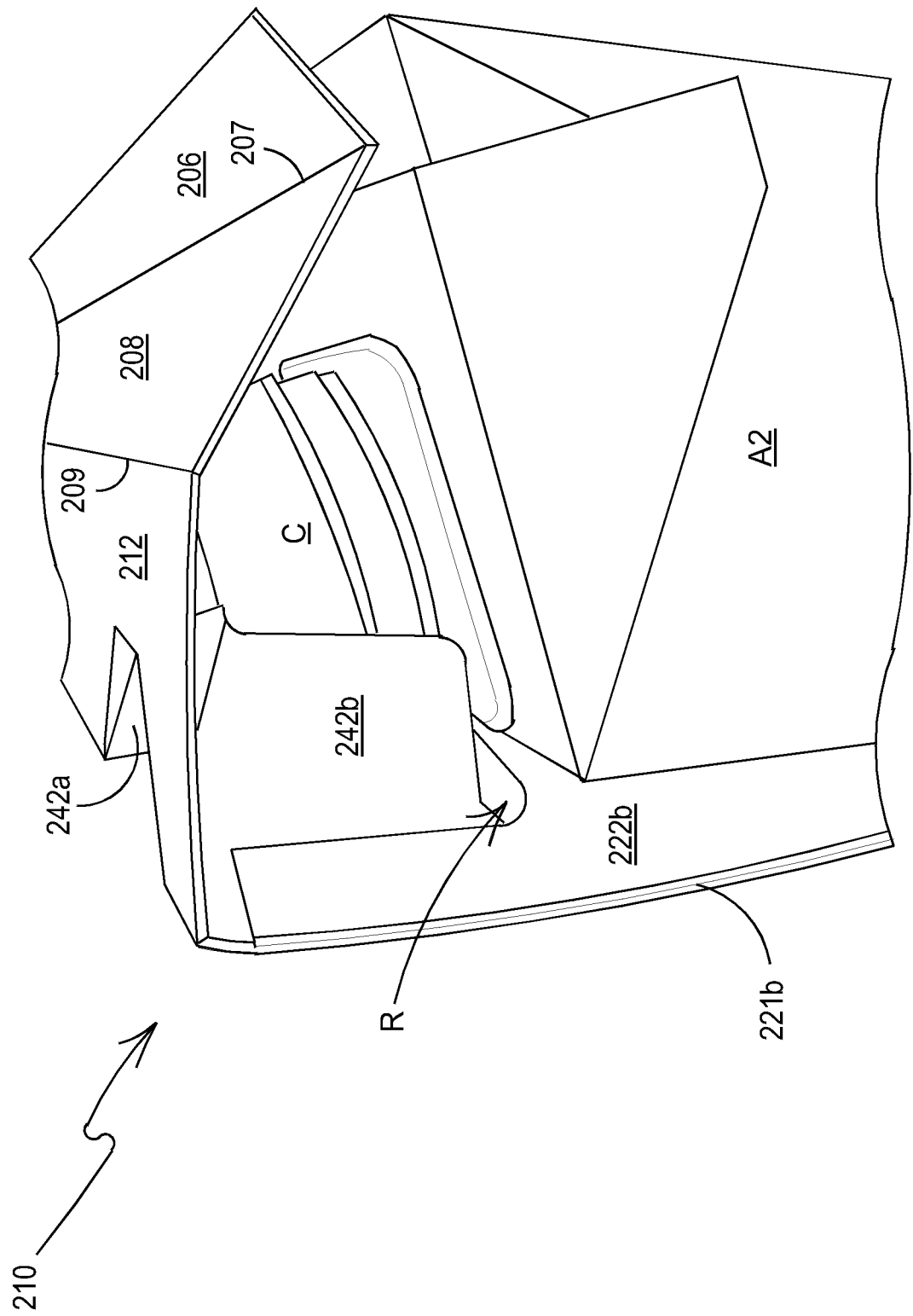
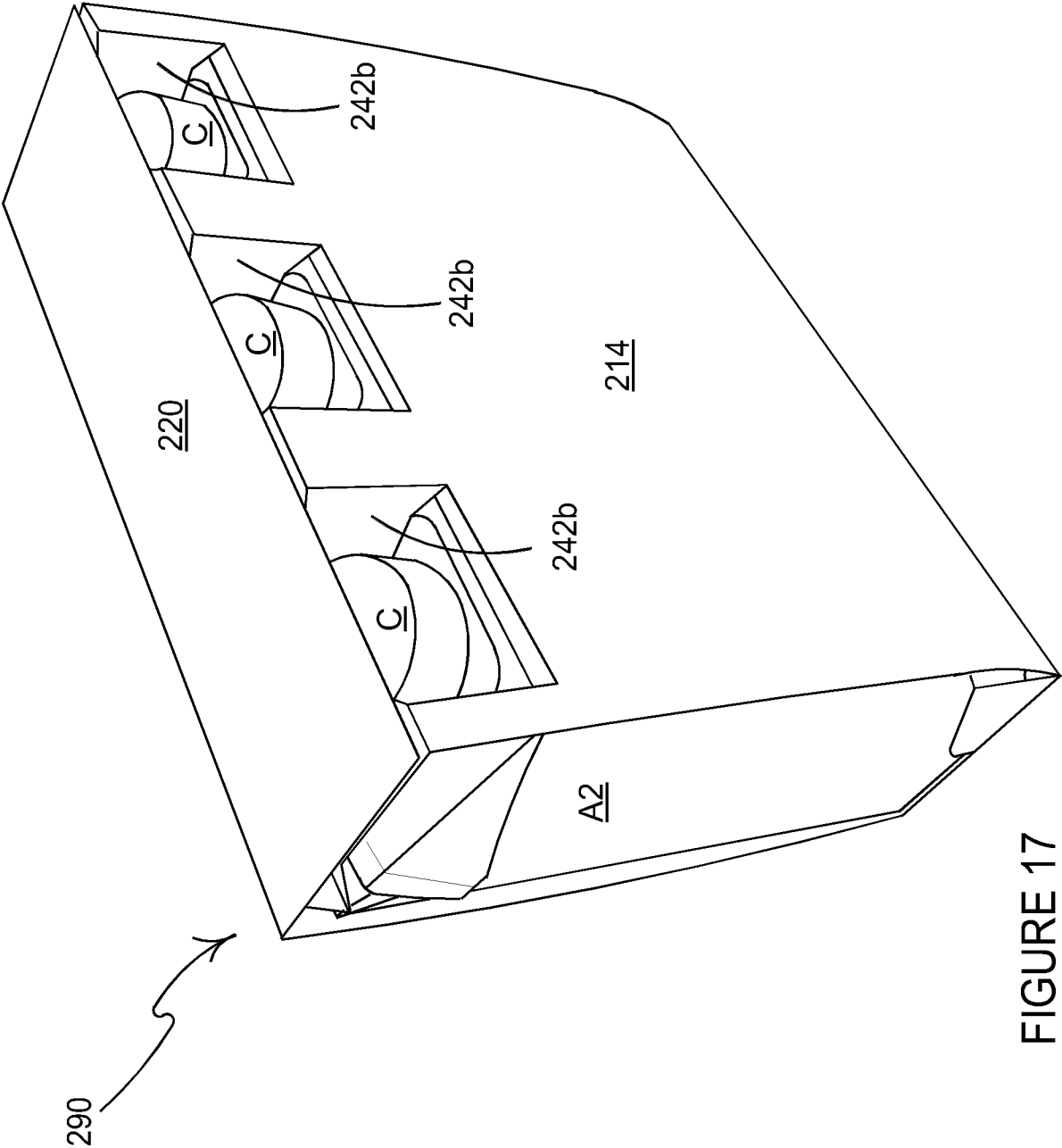


FIGURE 15



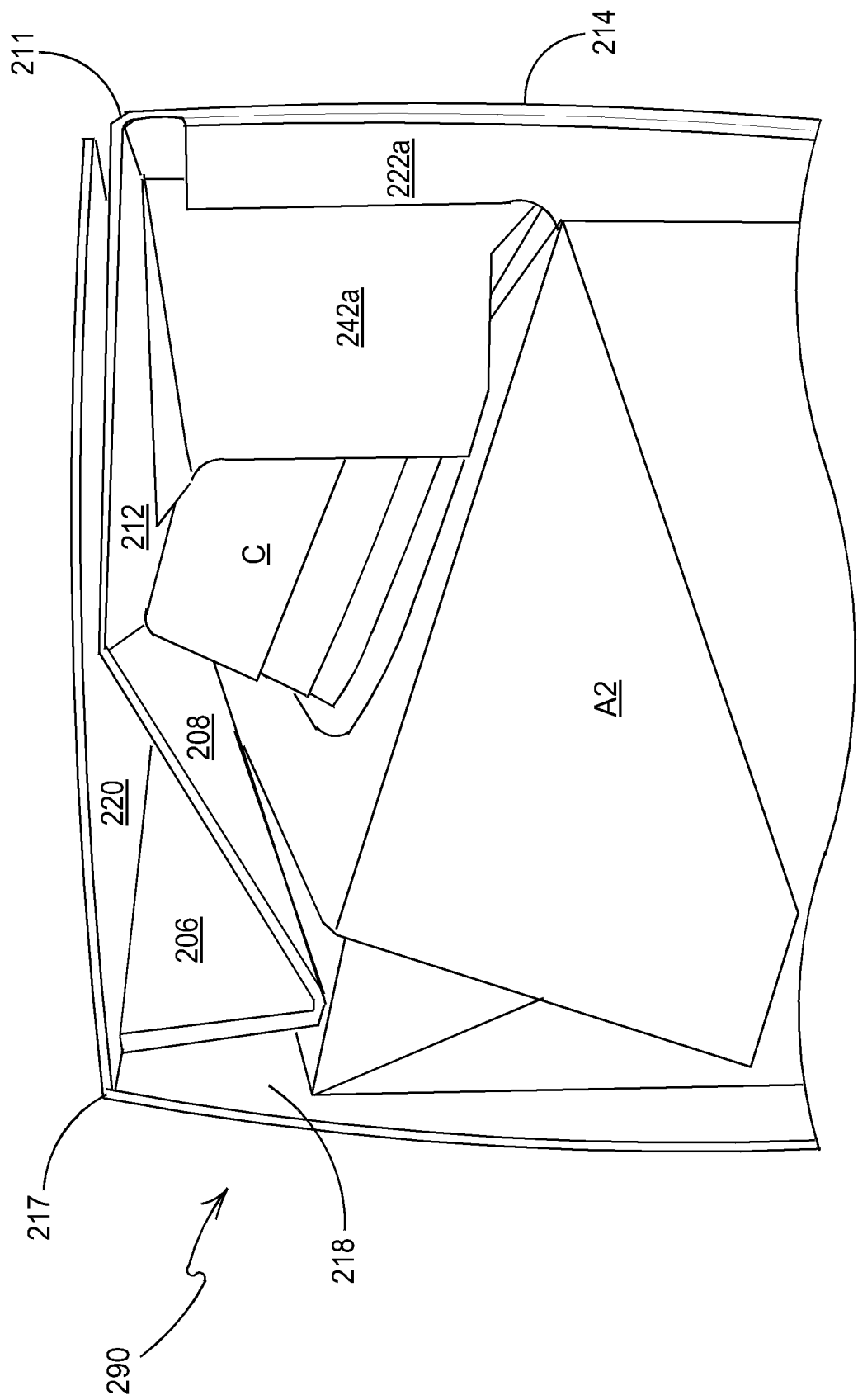


FIGURE 18

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2015/037357

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D71/18 B65D71/22
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 593 849 A (HELMS CHARLES R ET AL) 20 July 1971 (1971-07-20) abstract; figures column 1, line 55 - column 2, line 29 -----	1-19
A	EP 0 887 280 A1 (TETRA LAVAL HOLDINGS & FINANCE [CH]) 30 December 1998 (1998-12-30) abstract; figures the whole document -----	1-9
A	US 4 545 485 A (OLIFF JAMES R [US]) 8 October 1985 (1985-10-08) abstract; figures -----	1-19



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

18 August 2015

Date of mailing of the international search report

01/09/2015

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Serrano Galarraga, J

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2015/037357

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 20-22
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 20-22

The subject matter of claims 20-22 is defined by reference to the description and drawings which is not allowed by the PCT (see rule 6.2 PCT). The claim does not define any clear structural features or limitations, consequently the scope of the claim is not clear (Art. 6 PCT) and a meaningful search is not possible (Art 17 PCT).

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guidelines C-IV, 7.2), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2015/037357

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3593849	A	20-07-1971	NONE
EP 0887280	A1	30-12-1998	EP 0887280 A1 30-12-1998
		NO 982459 A	01-12-1998
US 4545485	A	08-10-1985	AU 576122 B2 11-08-1988
		AU 4512585 A	06-02-1986
		BR 8503357 A	08-04-1986
		CA 1232238 A1	02-02-1988
		DE 3577686 D1	21-06-1990
		EP 0170490 A2	05-02-1986
		ES 288504 U	01-01-1986
		JP H0534230 B2	21-05-1993
		JP S6147356 A	07-03-1986
		MX 162983 B	29-07-1991
		US 4545485 A	08-10-1985
		ZA 8504441 A	26-03-1986