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**LITTLE**

(54) **MATERIALS FOR AND METHOD FOR MANUFACTURING CONTAINER WITH STACKING SHOULDERS AND RESULTING CONTAINER**

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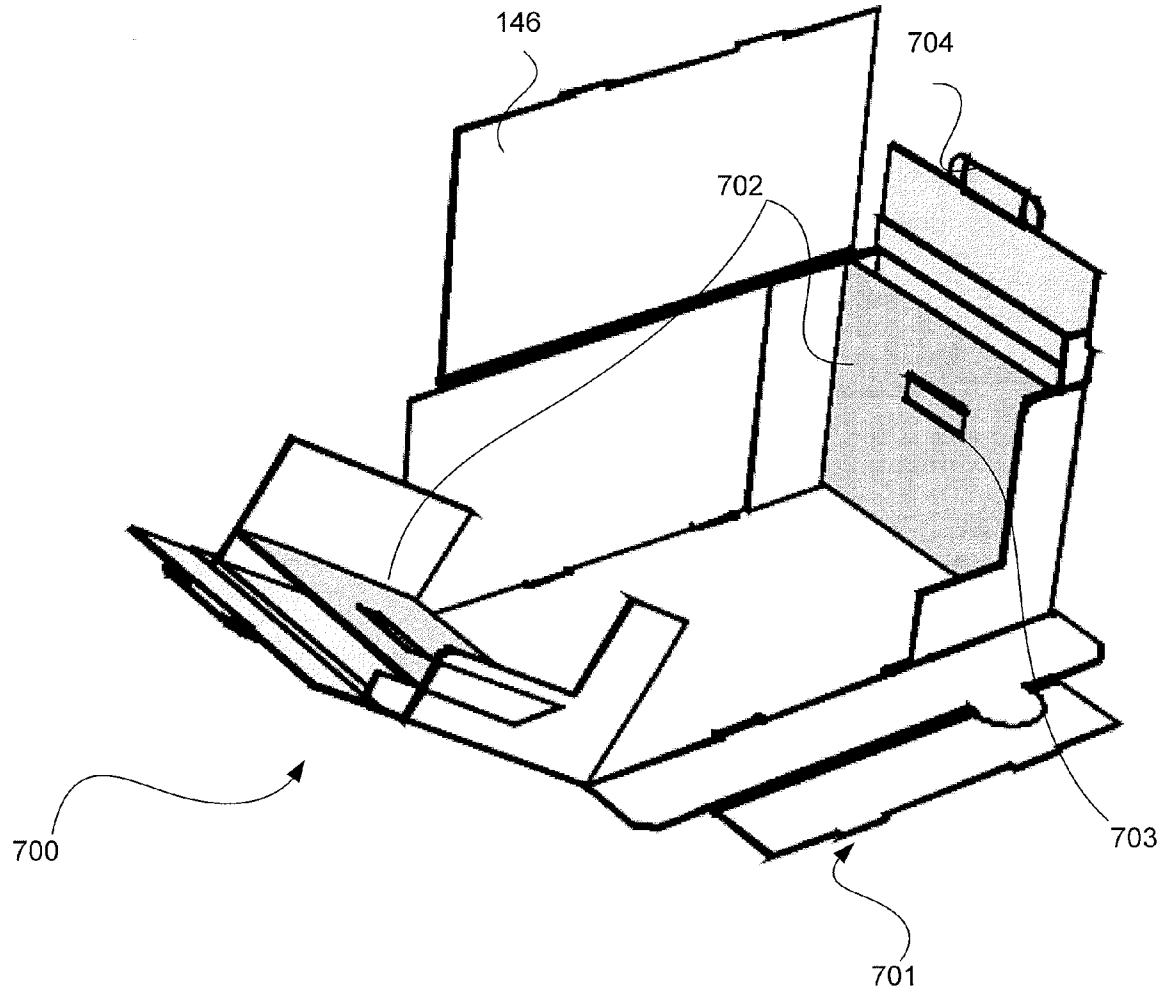
(52) **U.S. Cl.** ..... **53/450**; 229/122.32; 206/784

(57) **ABSTRACT**

In accordance with the invention, a method of manufacturing containers such as shipping, display and display ready packaging, for example, and resulting containers and associated preassemblies and blanks are provided, which, when utilized, result in preassemblies that are more easily and quickly assembled into fully assembled containers.



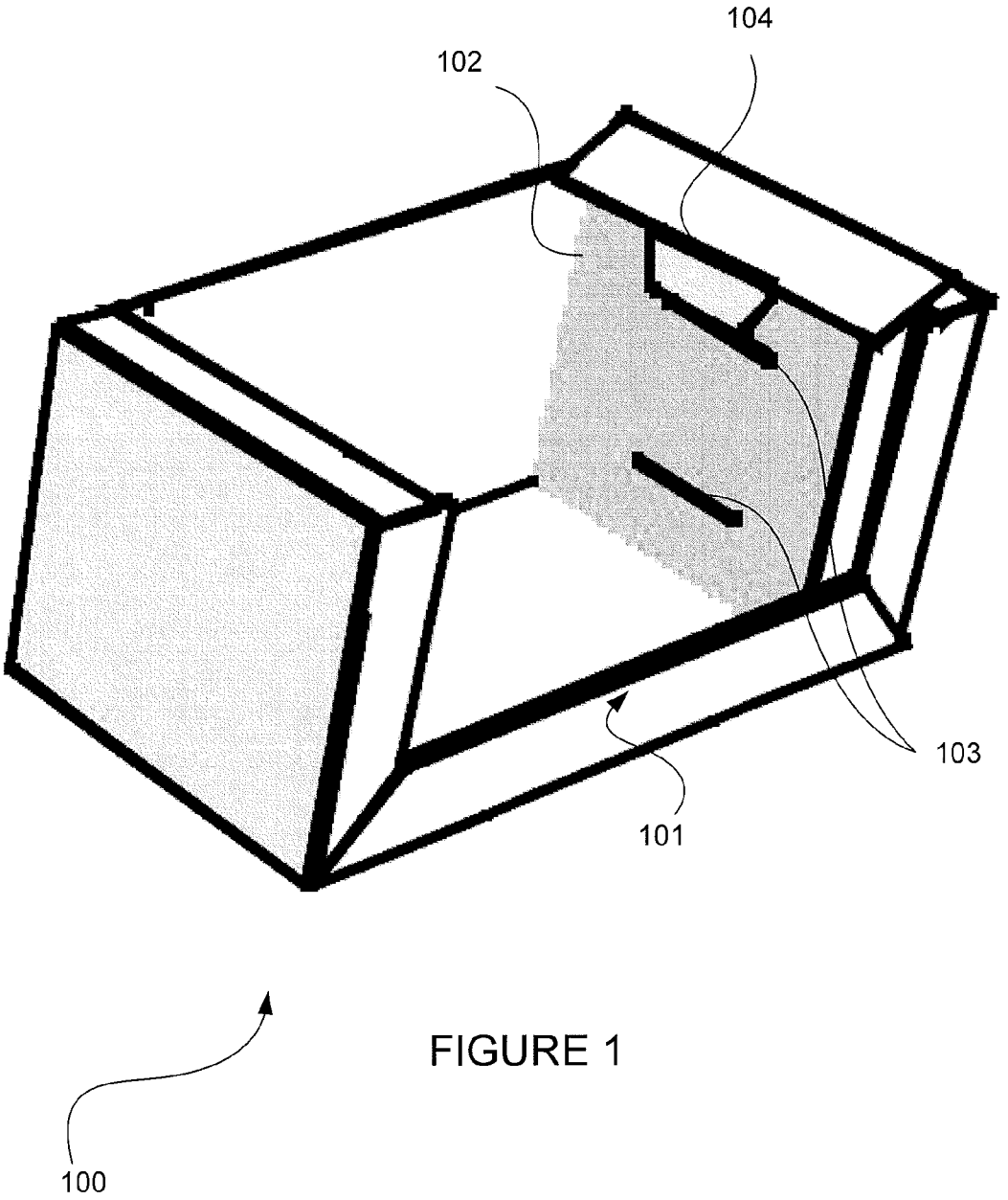
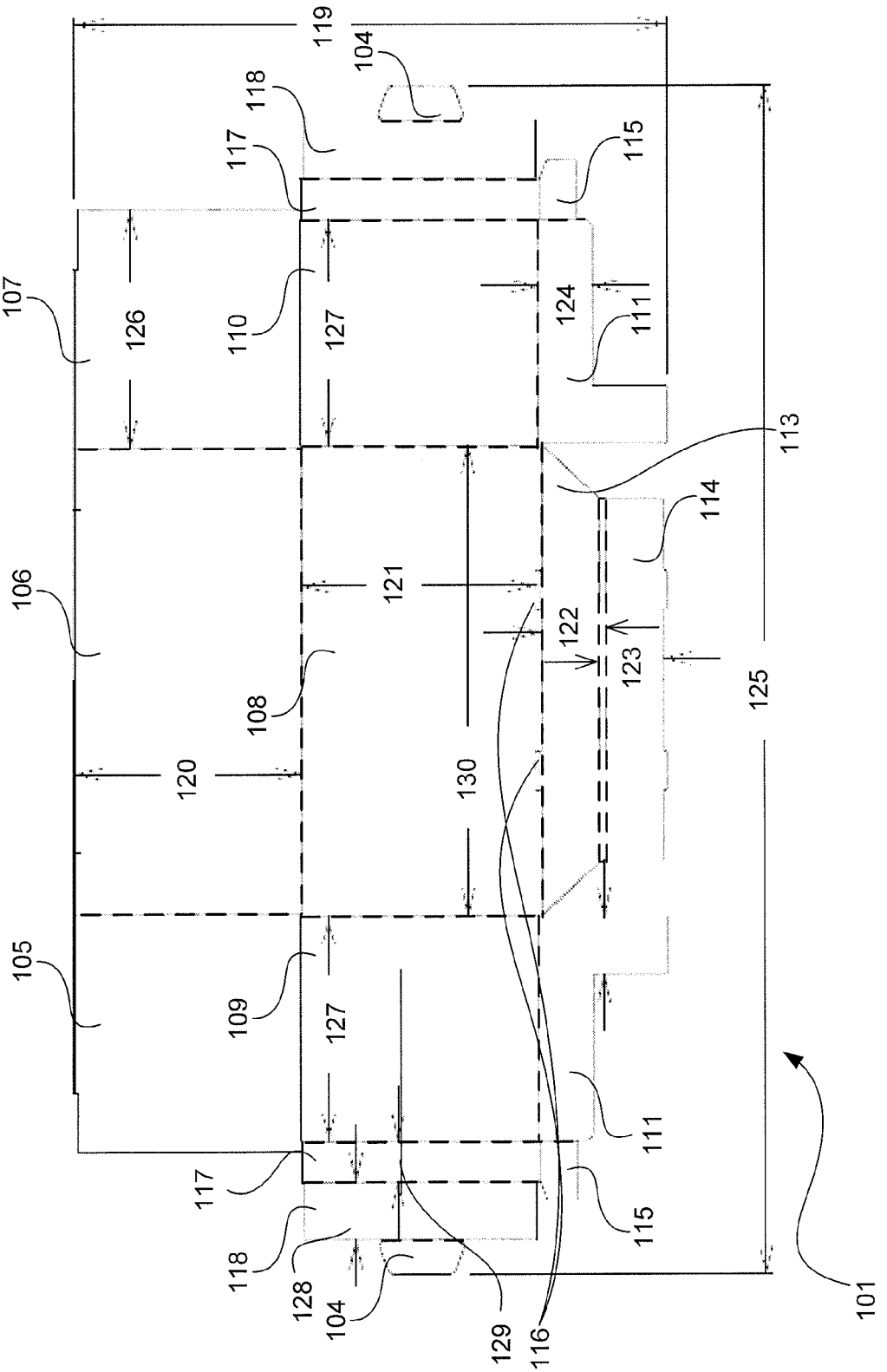



FIGURE 1

FIGURE 2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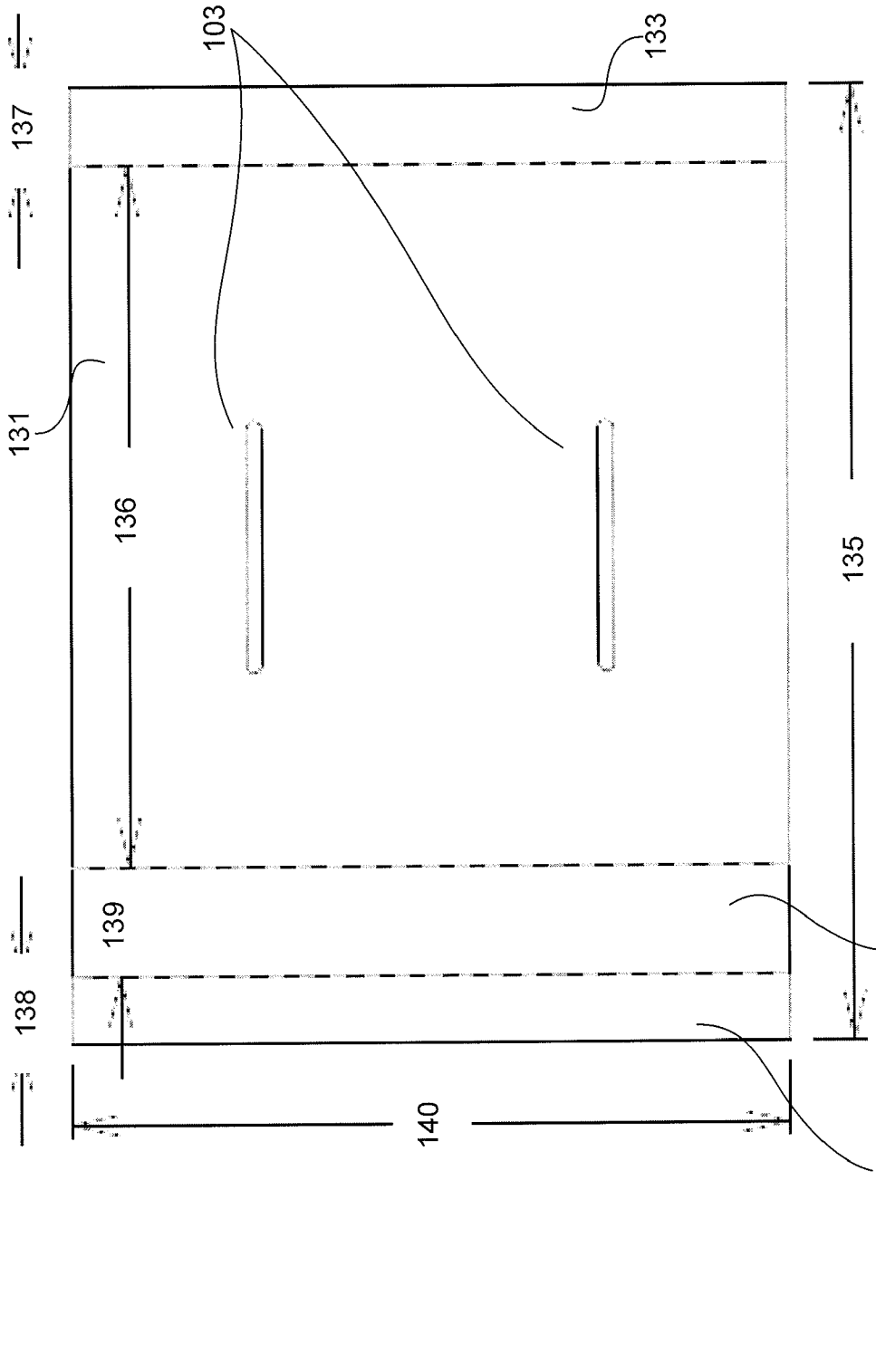



FIGURE 3

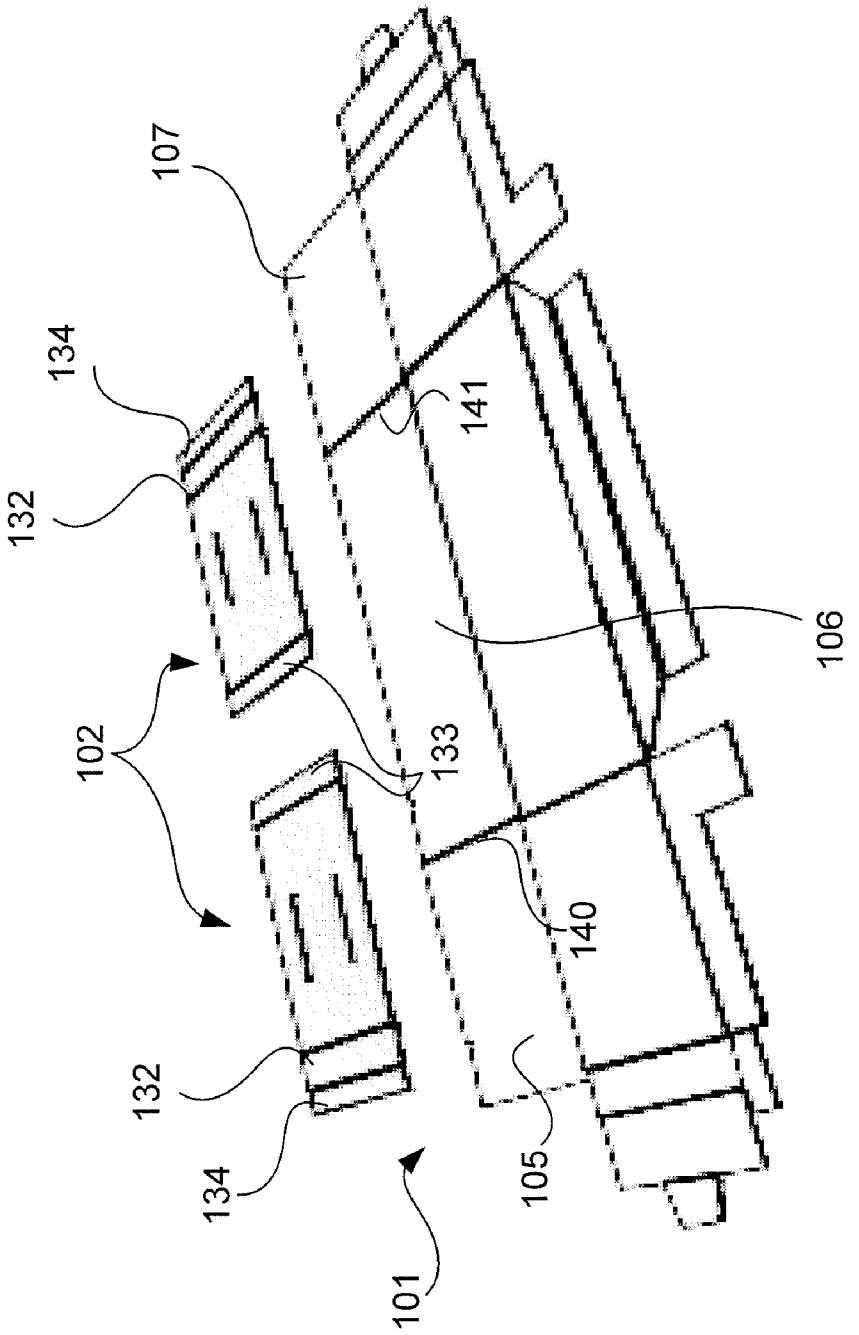



FIGURE 4

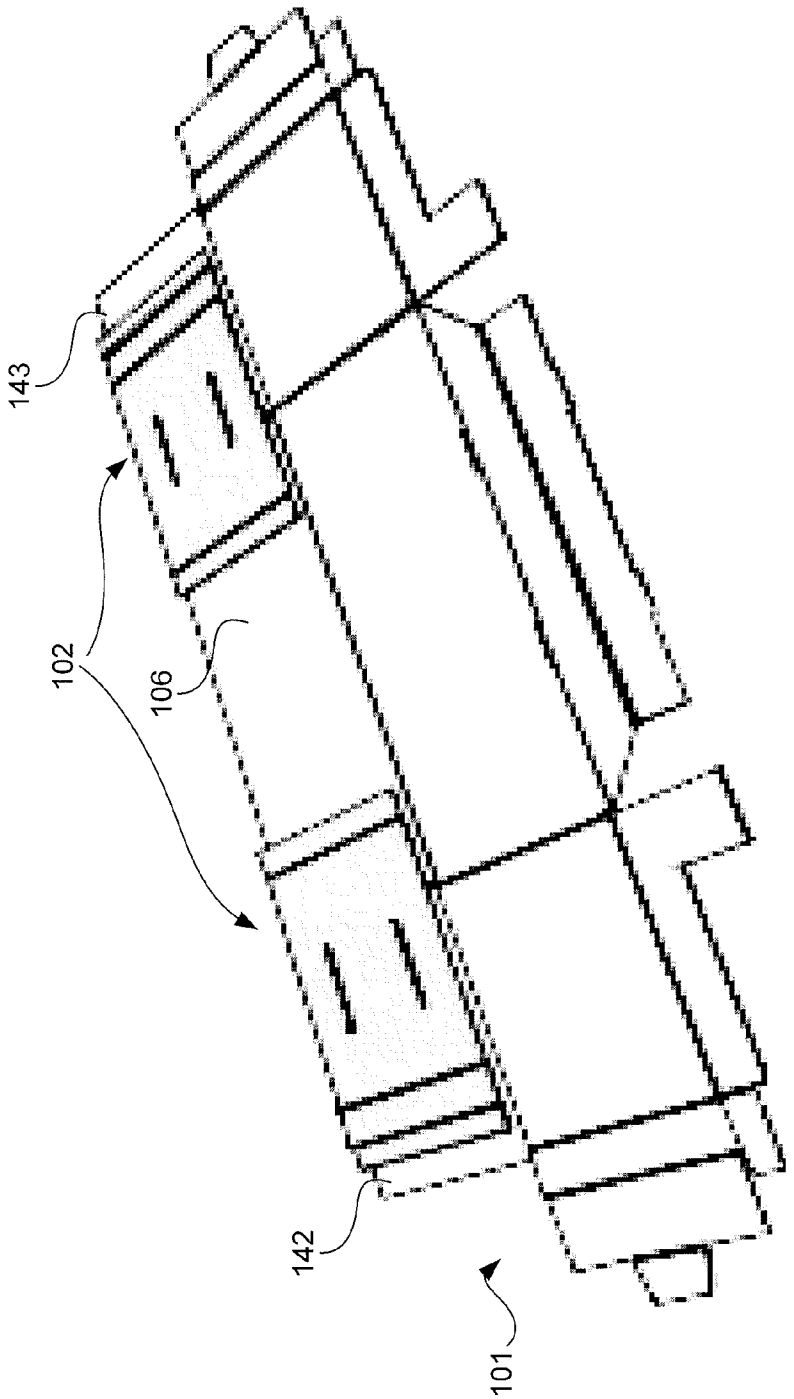
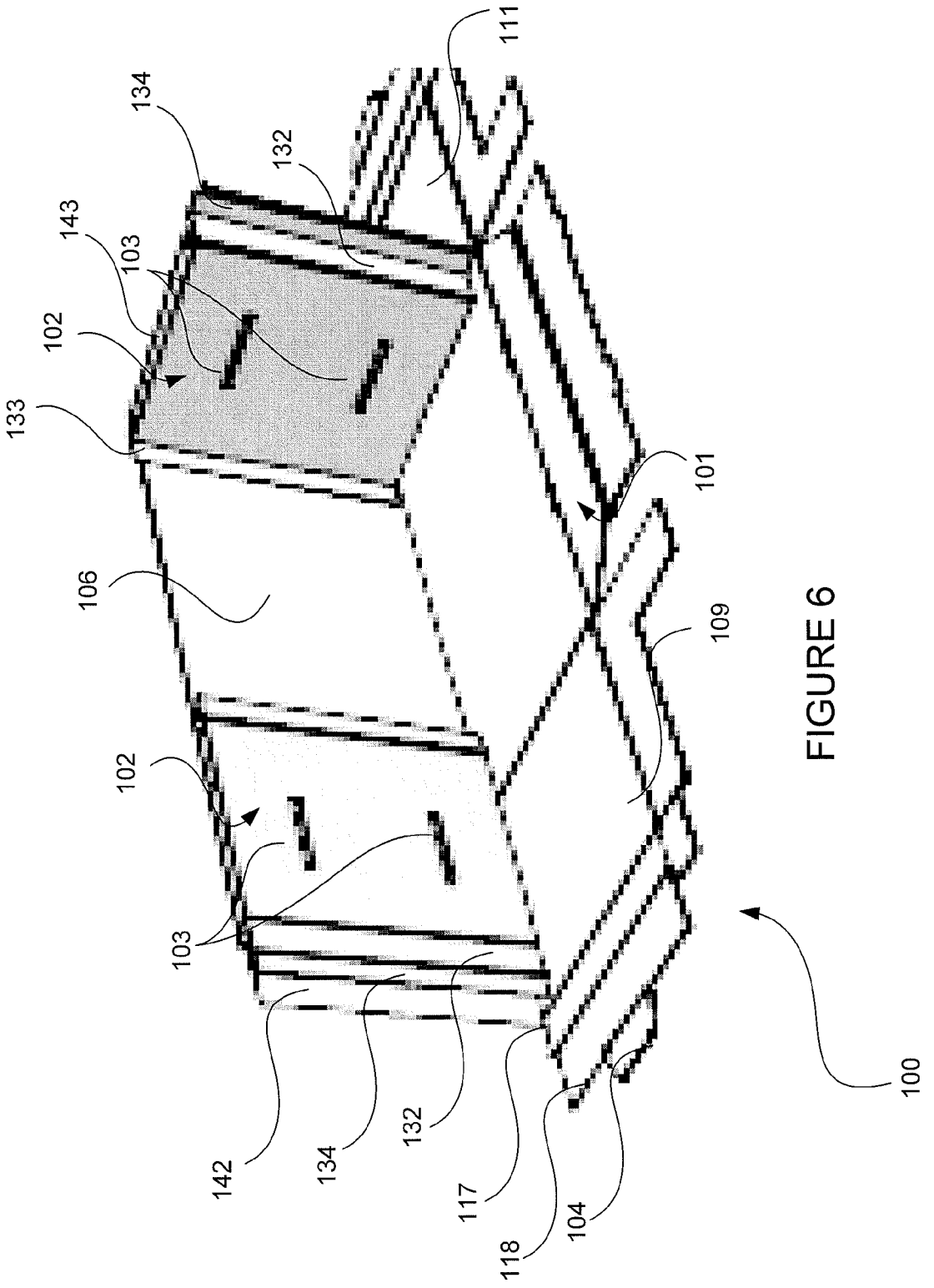



FIGURE 5


111
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109
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117
118
104
100

FIGURE 6

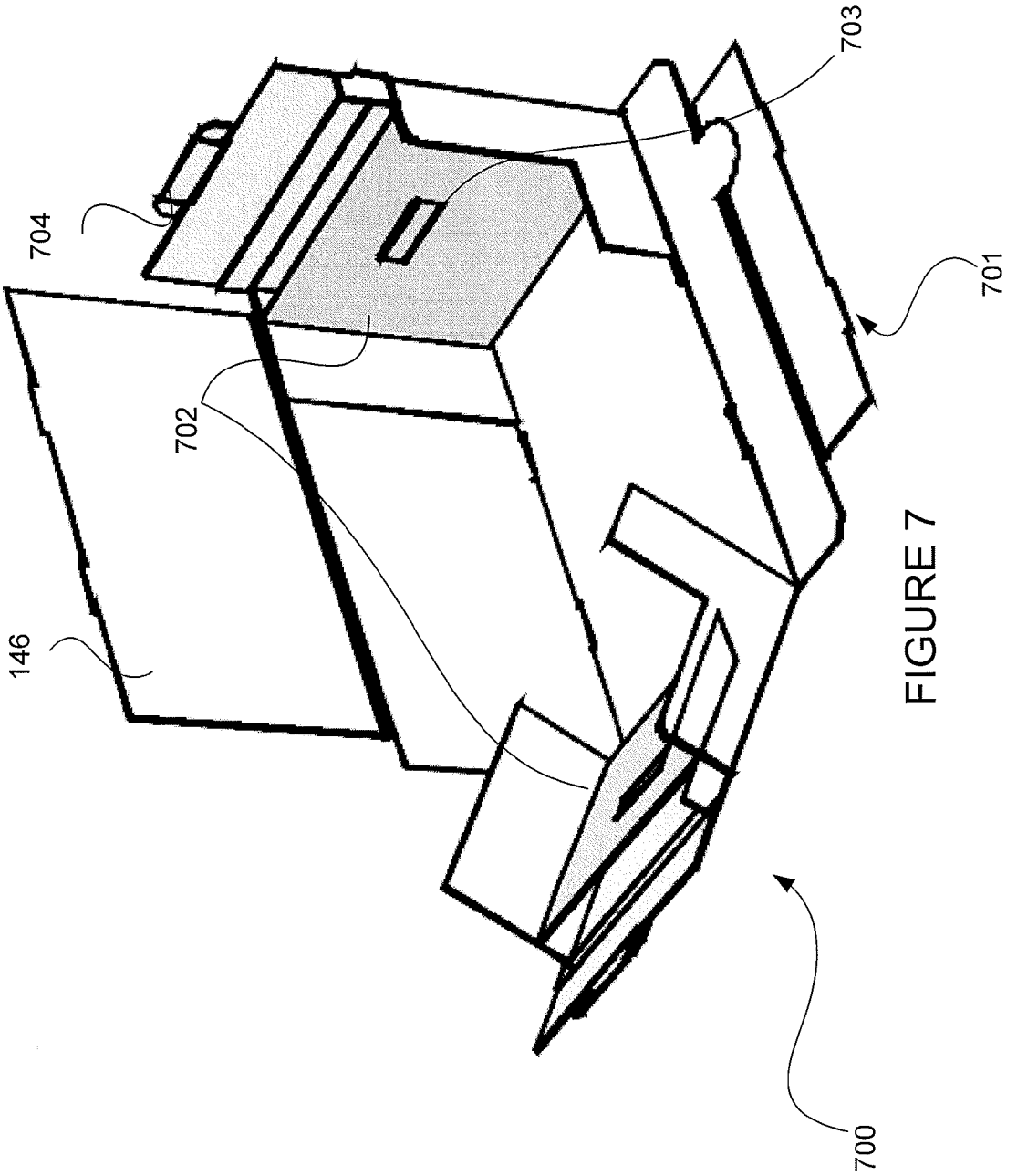
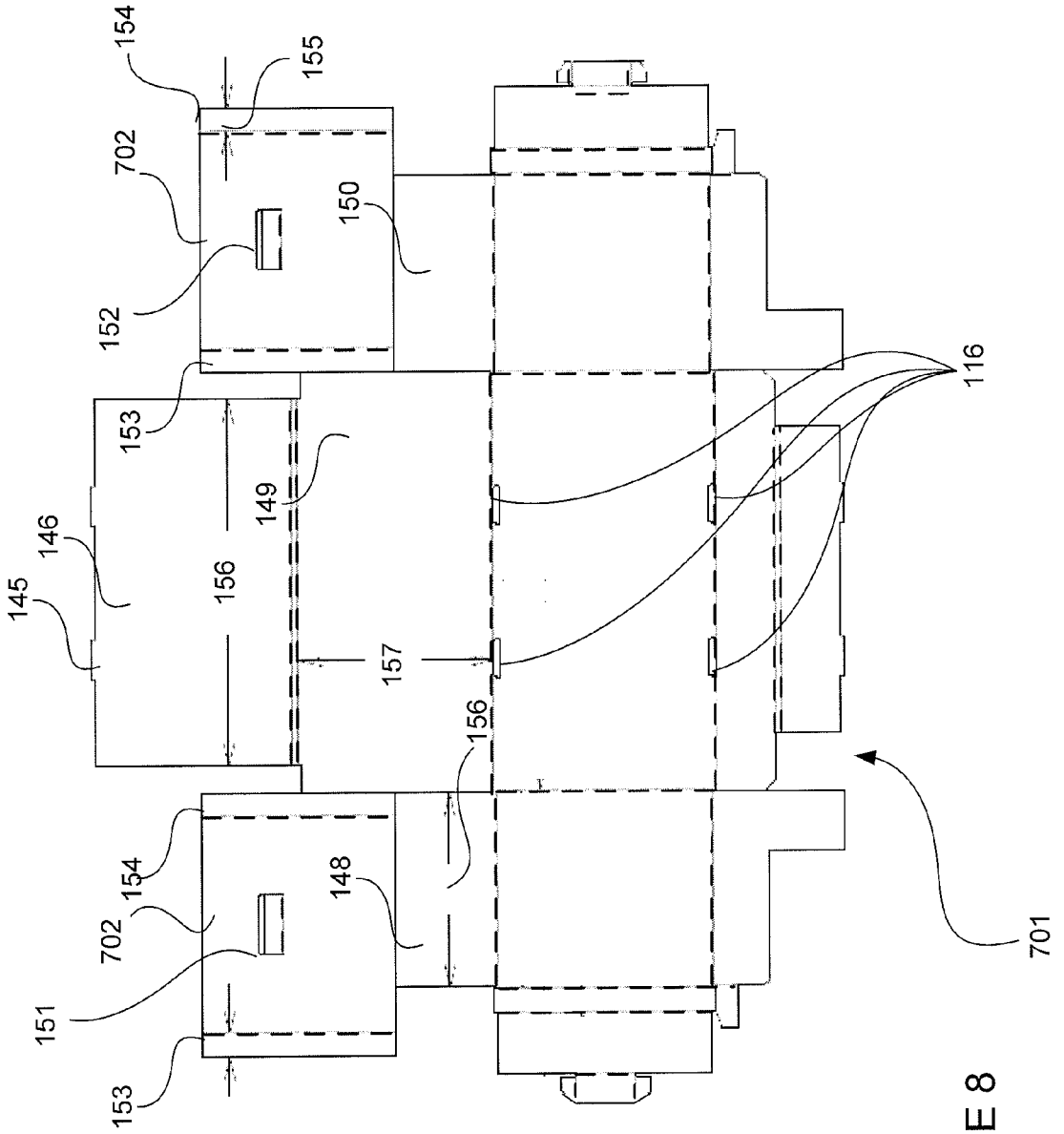



FIGURE 7


154
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702
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116
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148
702
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701

FIGURE 8

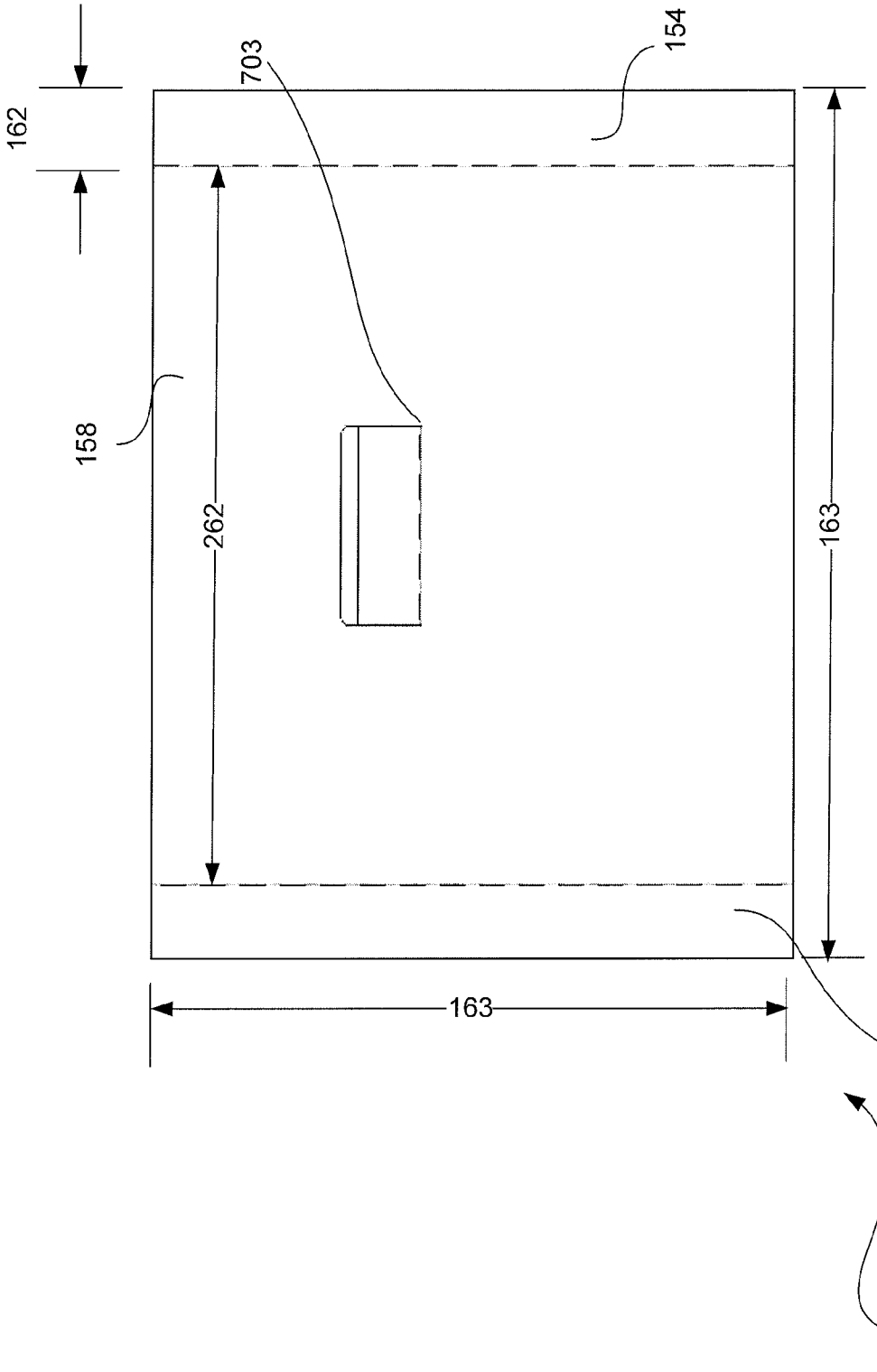
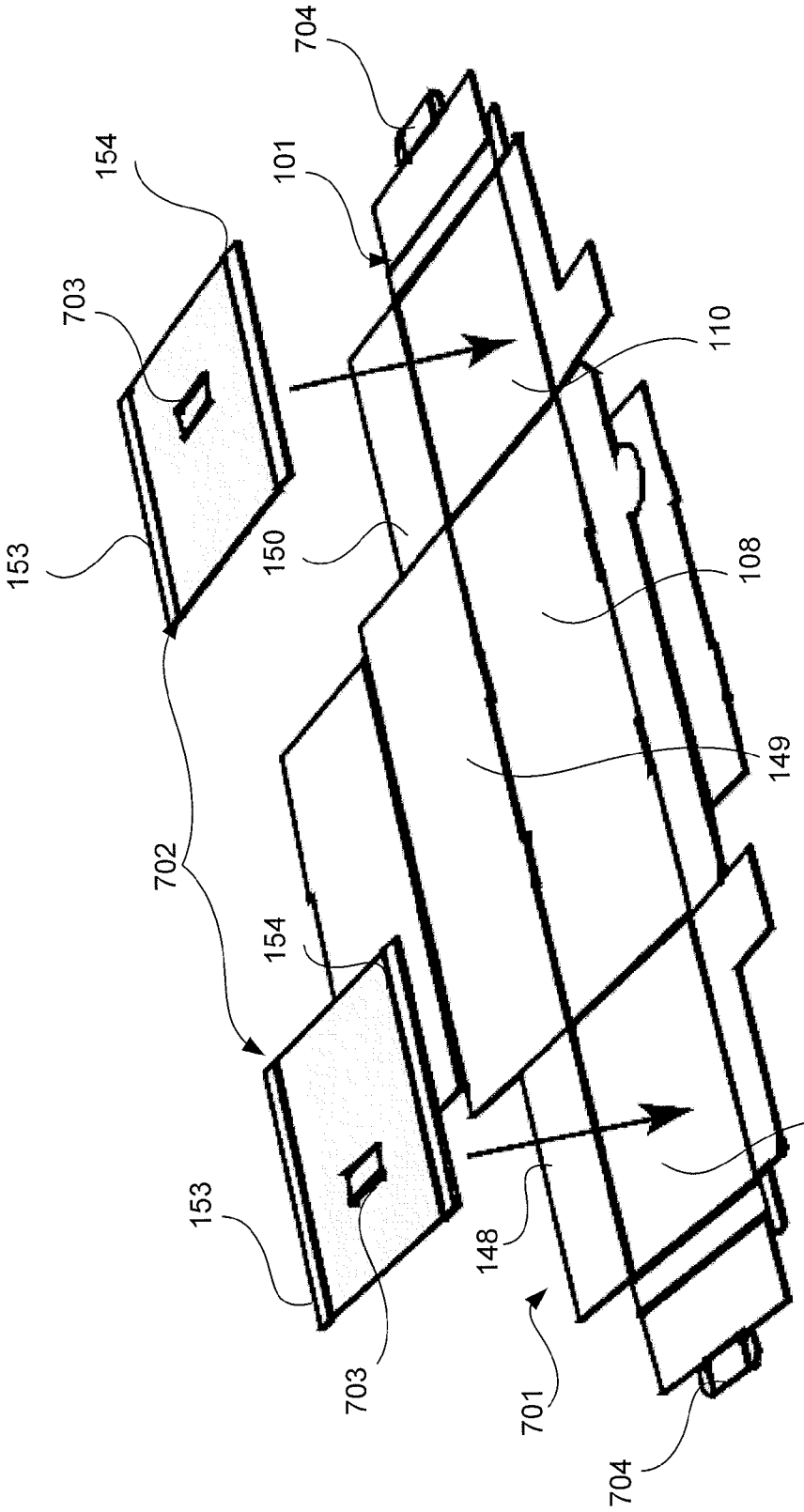



FIGURE 9


704
154
101
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110
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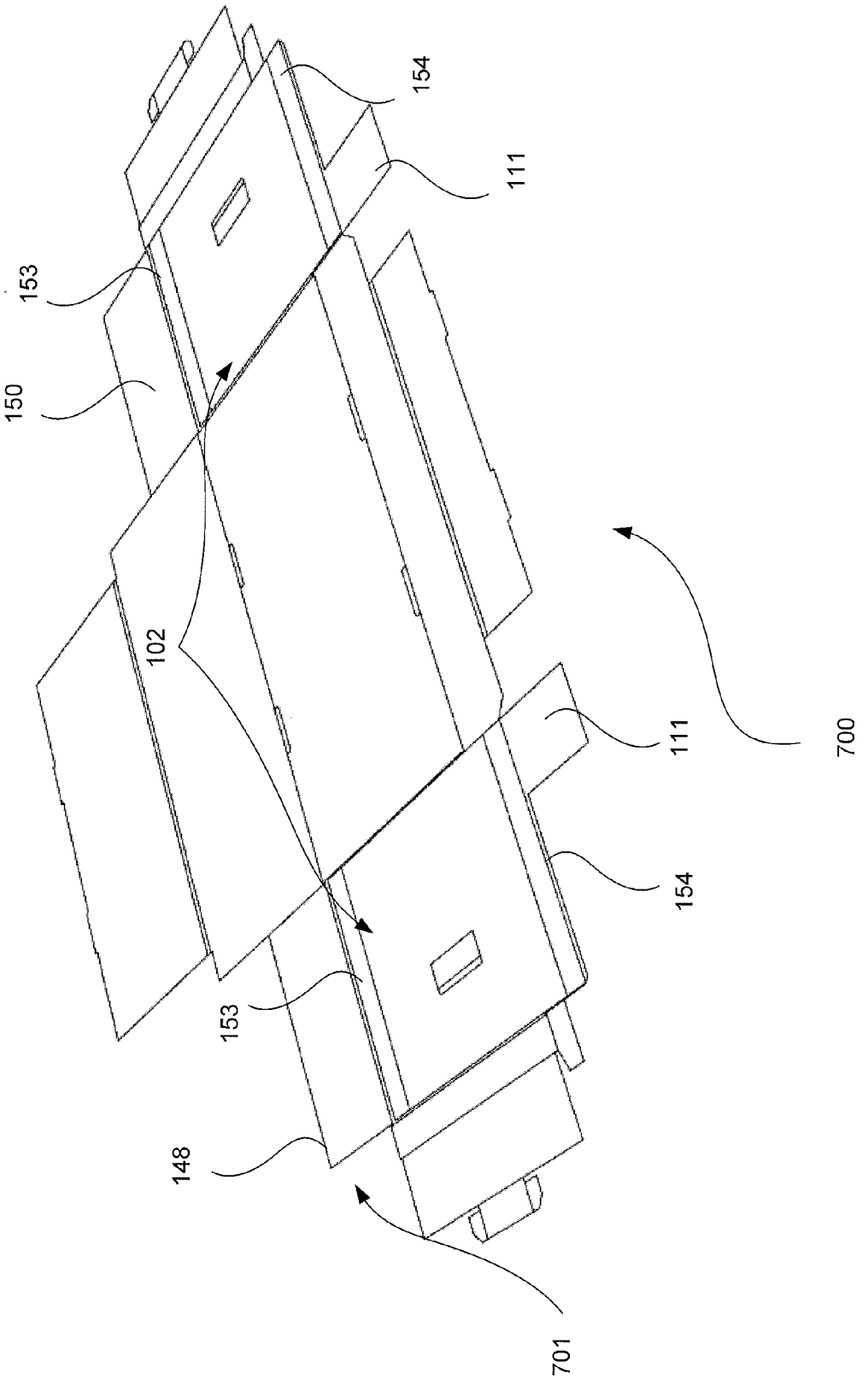
150
108
149
702
154
153
148
109
700
703
701
704

FIGURE 10

FIGURE 11



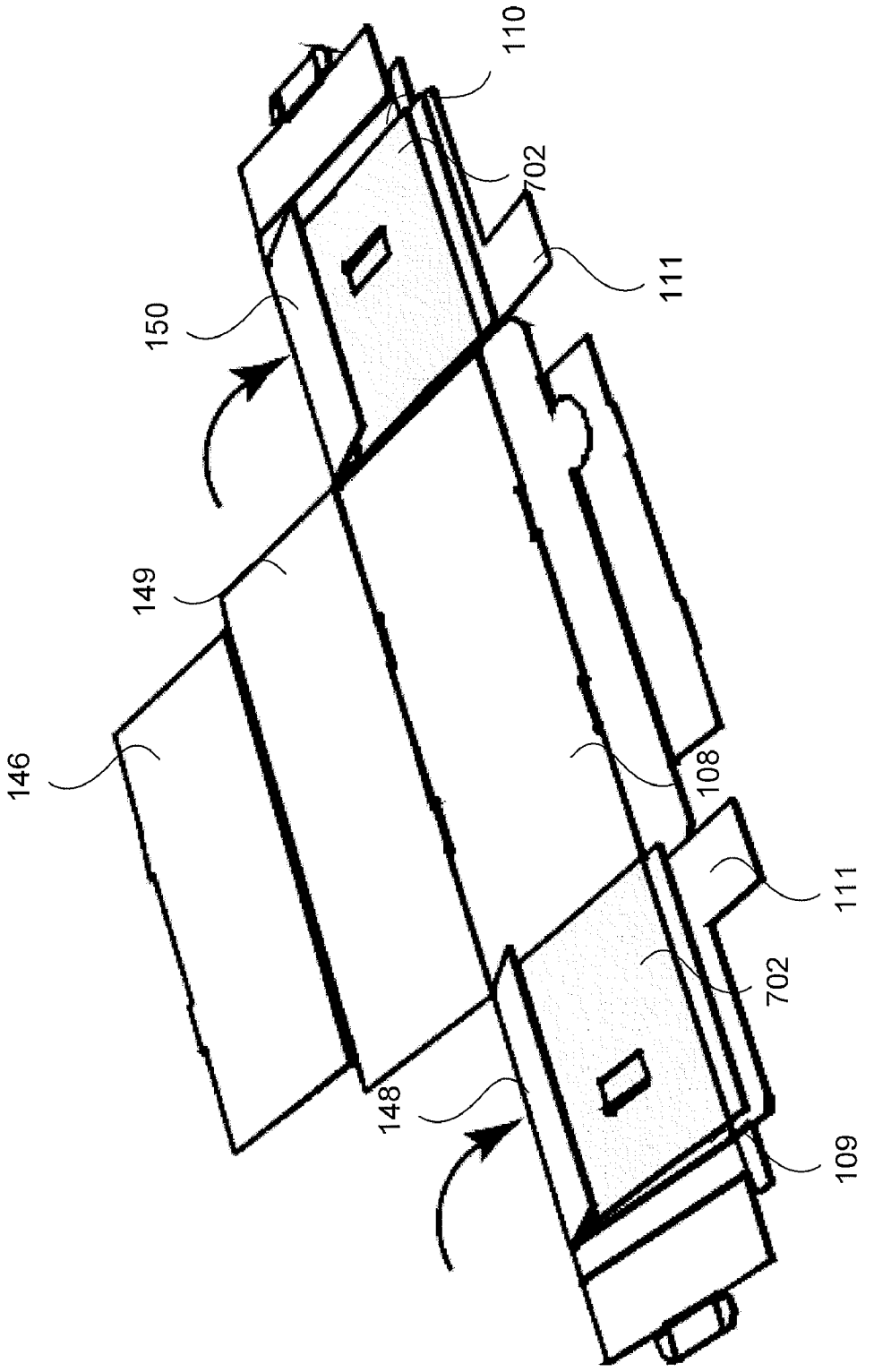



FIGURE 12

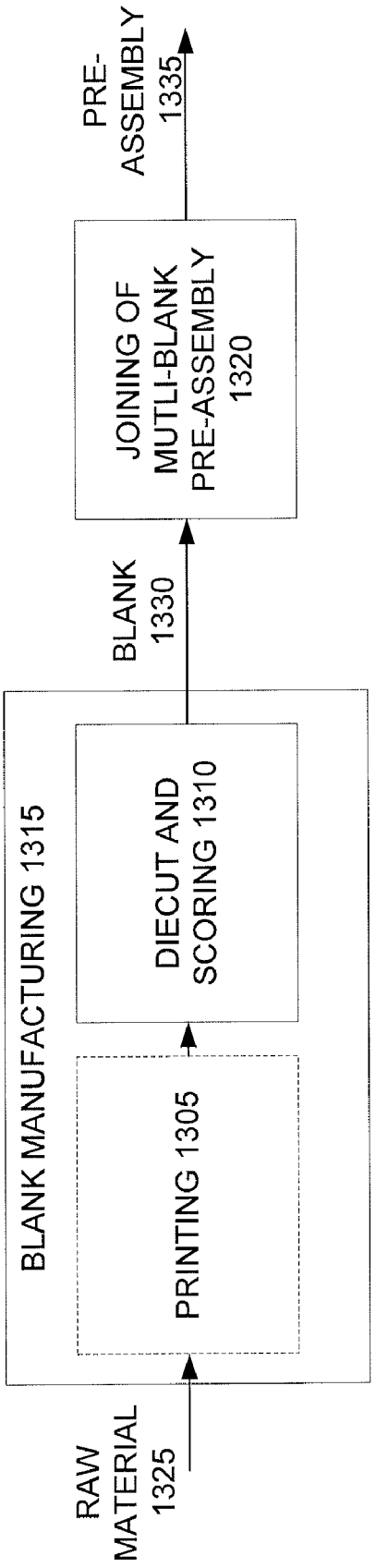

RAW MATERIAL 1325
BLANK MANUFACTURING 1315
PRINTING 1305
DIECUT AND SCORING 1310
BLANK 1330
JOINING OF MUTLI-BLANK PRE-ASSEMBLY 1320
PRE-ASSEMBLY 1335

FIGURE 13

# MATERIALS FOR AND METHOD FOR MANUFACTURING CONTAINER WITH STACKING SHOULDERS AND RESULTING CONTAINER

**[0001]** The invention relates in general to the manufacture of containers that may be readily used to ship and/or display contents following delivery of the container, as specified in the independent claims.

## BACKGROUND OF THE INVENTION

**[0002]** Various containers are conventionally provided as packaging for shipping or for display of product in a retail environment to prospective customers. As is conventionally known in the industry, such containers can be transported to manufacturing and/or retail environments for use in shipping or display in knock-down form, i.e., flattened but otherwise being glued, stapled or otherwise secured together, such that they are already substantially pre-assembled; such knock-down form containers are also referred to as preassemblies. In such a "knockdown" state (i.e., knocked down or not set-up), personnel assembling the product container need only open the sides and or ends of the container and affix the package bottom wall into its assembled condition. As a result, such containers assembly may be performed such that the product can be placed into a resulting assembled container for shipping or as display package for ready display.

**[0003]** Conventionally, it has been deemed advantageous at times to stack a plurality of such containers, one on top of the other for the purposes of transport to a retail environment or during display in the retail environment. In this use, it is necessary that the containers stacked above the bottom-most package are amply supported also that a stack of a number of such containers, when filled with product, will not collapse.

## SUMMARY

**[0004]** The following presents a simplified summary in order to provide a basic understanding of some aspects of various invention embodiments. The summary is not an extensive overview of the invention. It is neither intended to identify key or critical elements of the invention nor to delineate the scope of the invention. The following summary merely presents some concepts of the invention in a simplified form as a prelude to the more detailed description below.

**[0005]** In accordance with illustrated embodiments, a method of manufacturing containers and resulting containers and associated preassemblies and blanks, which, when utilized, result in containers having an interior formed by a primary blank serving as an exterior of the container, the interior including a plurality of stacking shoulders formed by an supplementary blank at opposing ends of the container interior, wherein the plurality of stacking shoulders are formed as part of the set up or final assembly of exterior of the container.

**[0006]** Additionally, in accordance with illustrated embodiments, the plurality of stacking shoulders is formed by coupling of the primary and supplementary blanks at a side panel of the primary blank. Alternatively, or in addition, the plurality of stacking shoulders is formed by coupling of the primary and supplementary blanks at a back panel of the primary blank.

**[0007]** The illustrated embodiments of the invention have particular utility when used for the manufacture of preassemblies and associated containers that are flat bottomed tray type containers.

**[0008]** These illustrated embodiments are achieved by a combination of features recited in the independent claim. Accordingly, dependent claims prescribe further detailed implementations of the present invention.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0009]** Various embodiments are described herein, by way of example only, with reference to the accompanying drawings. With specific reference now to the drawings, it should be understood that the particulars shown are by way of example and for purposes of discussion of illustrated embodiments only, and are presented in order to provide what is believed to be a useful and readily understood description of the principles and concepts of the invention. In this regard, no attempt is made to show structural details of the invention in more detail than is necessary for a fundamental understanding of the invention, the description taken with the drawings making apparent to those skilled in the art how the several forms of the invention may be embodied in practice.

**[0010]** Accordingly, a more complete understanding of the present invention and the utility thereof may be acquired by referring to the following description in consideration of the accompanying drawings, in which like reference numbers indicate like features, and wherein:

**[0011]** FIG. **1** illustrates a side perspective view of a container manufactured in accordance with an illustrated embodiment.

**[0012]** FIG. **2** illustrates an example of a primary blank used in manufacturing the container of the type illustrated in FIG. **1**.

**[0013]** FIG. **3** illustrates an example of a supplementary blank used in manufacturing the container of the type illustrated in FIG. **1**.

**[0014]** FIG. **4** illustrates the interconnectedness of the primary and supplementary blanks illustrated in FIGS. **2** and **3** to provide the container illustrated in FIG. **1**.

**[0015]** FIG. **5** illustrates a side perspective of the preassembly manufactured from the blanks illustrated in FIG. **4**.

**[0016]** FIG. **6** illustrates a side perspective of the preassembly manufactured from the blanks illustrated in FIG. **4** during final assembly.

**[0017]** FIG. **7** illustrates a side perspective of an alternative embodiment of a preassembly manufactured in accordance with another illustrated embodiment as shown during final assembly of the container from the preassembly.

**[0018]** FIG. **8** illustrates an example of a primary blank in combination with supplementary blanks used in manufacturing the container of the type illustrated in FIG. **7**.

**[0019]** FIG. **9** illustrates an example of a supplementary blank used in manufacturing the container of the type illustrated in FIG. **7**.

**[0020]** FIG. **10** illustrates the interconnectedness of the primary and supplementary blanks illustrated in FIGS. **8** and **9** to provide the container illustrated in FIG. **7**.

**[0021]** FIG. **11** illustrates a side perspective of the preassembly manufactured from the blanks illustrated in FIG. **10** at a first stage of assembly.

**[0022]** FIG. **12** illustrates a side perspective of the preassembly manufactured from the blanks illustrated in FIG. **11** at a second stage of assembly.

**[0023]** FIG. **13** illustrates a functional block diagram used to describe the manufacturing method of containers in accordance with an illustrated embodiment.

## DETAILED DESCRIPTION OF THE INVENTION

**[0024]** In the following description of various invention embodiments, reference is made to the accompanying drawings, which form a part hereof, and in which is shown, by way of illustration, various embodiments in which the invention may be practiced. It is to be understood that other embodiments may be utilized and structural and functional modifications may be made without departing from the scope and spirit of the present invention.

**[0025]** As explained above, it is useful to be able to stack a plurality of containers one on top of the other for the purposes of transport to a retail environment or during display in the retail environment. This ability (also known as "stackability") requires that containers stacked above the bottom-most package are amply supported also that a stack of a number of such containers, when filled with product, will not collapse.

**[0026]** Conventionally, there are various container designs that provide increased stackability by including, for example, stacking shoulders that utilize additional material and components to increase the vertical stability of the container. However, the skill level and time required for assembling such containers varies depending on the number of touches required for assembling the container. In fact, the time required for assembling conventional containers including stacking shoulders of some sort or another may be somewhat lengthy as assembly of a container may require a number of separate actions to be performed by the final assembler of a container. The number of such separate actions is conventionally referred to as the number of "touches" required for assembly; thus, a container requiring complex assembly requires a greater number of touches than a container requiring relatively simple assembly.

**[0027]** Another problem with such stackable containers is the increased height, length, width and weight of such containers due to the added material provided for the stacking shoulders. Therefore, although the use of such stackable containers is useful, the increased time for final assembly and increased dimensions and weight of the containers are deficiencies of conventional designs. Thus, there is a need for a design for a stackable container (e.g., a shipping package, display or display ready package or compartmentalized package so as to reduce fulfillment cost and time) that includes stacking shoulders with less affect on the overall dimensions and weight of the stackable container, while reducing the amount of material used in the container and reduces the number of touches required for final assembly of the container.

**[0028]** With this understanding in mind, a description of various invention embodiments is now provided.

**[0029]** According to as least one illustrated embodiment, there is provided equipment configured to manufacture containers, e.g., for shipment or display of product (as well as corresponding container preassemblies and blanks) that result in containers having an interior formed by a primary blank serving as an exterior of the container, the interior including a plurality of stacking shoulders formed by an supplementary blank at opposing ends of the container interior, wherein the plurality of stacking shoulders are formed as part of the set up or final assembly of exterior of the container.

**[0030]** Understanding of the manufacturing of a container, blanks and/or preassemblies in accordance with embodiments may best be understood by first reviewing an illustration of a manufactured container provided in accordance with one illustrated embodiment. As illustrated in FIG. **1**, one example of such a container **100** may be a flat bottomed tray, which may include a main compartment defined between a plurality of stacking shoulders formed by a corresponding plurality of supplementary blanks **102** and included in an interior space of a primary blank **101** following assembly. These stacking shoulders may be formed by coupling the supplementary blanks to locations on the primary blank **101**. For example, a plurality of tabs **104** (one provided on each end of the container **100** by the primary blank **101**) may be inserted in corresponding slots **103** provided on the supplementary blank **102**. Additionally, as part of preassembly manufacture for a preassembly for container **100**, the supplementary blank **102** may be adhered to the primary blank **101** as explained in connection with FIGS. **5-12** so in various alternative configurations to provide for improved ease of final assembly for the container **100**.

**[0031]** Such a container **100** may be used for various purposes including shipping and placement on a display floor along with other such containers in a stack. However, it should be understood that the manufactured container may be any type of container including, for example, any carton, package, box, etc. of any suitable type; accordingly, the actual configurations of the primary blank **101** and the interrelationship with the supplementary blank **102** may change without departing from the scope of the embodiments.

**[0032]** Thus, in accordance with illustrated embodiments, a method is provided of manufacturing containers and resulting containers **100** and associated preassemblies (the combination of **101**, **102**) and blanks **101**, **102**, which, when utilized, result in containers **100** that include a supplementary blank **102** that provides a plurality of stacking shoulders that serve as a mechanism for improving the stackability of the container **100**, whereby the container **100** may be configured to bare larger amounts of force (e.g., weight) from a top direction.

**[0033]** Based on the illustrated examples of container designs provided with stacking shoulders as disclosed herein, it should be appreciated that the incorporation of the stacking shoulders increases stackability of the resulting containers without requiring a lengthier time period for final assembly and without a need for assemblers having superior skill. This is because, as explained herein, the majority of manipulation of the preassembly to form the stacking shoulders are already performed as part of the assembly of the primary blank as the exterior of the container. As a result, the additional touches needed to provide the stacking shoulders is reduced relative to what is conventionally required.

**[0034]** Further, the illustrated examples of containers designs provide stacking shoulders but with significantly less material than is conventionally required for stacking shoulders. For example, the square footage of material incorporated in container designs utilizing the inventive concept may be reduced on average between 30%-35%. This reduction in material results in a reduction in the container weight and resources expended to produce the container, while still providing improved strength.

**[0035]** As will be appreciated from the remaining disclosure by one of ordinary skill in the art, the container **100** may be used to ship or display product therein in a retail environ-

ment. Thus, subsequent to arrival at a retail environment or off-site fulfillment or contract packaging facility, a knockdown version of the container **100** (e.g., a preassembly) may be assembled and product placed in the container **100** for transport and/or display.

**[0036]** FIG. **2** illustrates an example of a primary blank **101**, which may be thought of as a conventional tray such as the one illustrated in FIG. **1**. The knockdown of the container **100** is manufactured by joining the primary blank **101** with a supplementary blank **102** (which may be thought of as a pad) illustrated in FIG. **3**, as explained herein. The primary blank **101** illustrated in FIG. **2** corresponds to an exterior of the container **100** illustrated in FIGS. **1** and **4**; therefore, the container **100** includes primary blank **101**. Likewise, the container **100** also includes supplementary blank **102** illustrated separately in FIG. **3** and in conjunction with primary blank **101** in FIGS. **4-5**.

**[0037]** As used in FIG. **2**, solid lines indicate edges of the blank illustrated, whereas dashed lines indicate perforation, folding or scoring lines provided as part of manufacturing to enable folding of the blanks along the dashed lines.

**[0038]** As shown in FIG. **2**, the primary blank **101** includes a first front end panel **105**, a side panel **106** and a first back end panel **107**, along with a bottom panel **108** and a second front end panel **109** and a second back end panel **110**. The primary blank **101** also includes a plurality of minor panels **111** with included interlock tabs that interact with corresponding minor side panel portions **113**, **114** to provide an open side of the container illustrated in FIG. **1**. The primary blank **101** also includes minor panels **115** that fold over as part of assembly and provide part of the exterior of container **100** by interacting with panels **117**, **118**.

**[0039]** Thus, the total width **119** of the blank **101** includes the width **120** of the side panel **106** as well as the width **121** of the bottom panel **108** and the widths **122** (which is approximately the same width as width **124** of the minor panels **111**) and **123** of the minor side panels **113**, **114**. Likewise, the total length **125** of the blank **101** includes the length **126** of the first back end panel **107**, which is slightly larger than the length **127** of the second back end panel **110**, as well as the width **130** of the bottom panel **108**. The total length **125** also includes the widths **128**, **129** of the panels **118**, **117** respectively.

**[0040]** FIG. **3** illustrates an example of a supplementary blank **102** used in manufacturing the container of the type illustrated in FIG. **1**. The supplementary blank **102** includes a major panel **131** as well as a minor panel **132** and two end panels **133**, **134**. The major panel **131** includes two slots **103** located and configured to interact with tab **104** of the primary blank **101** as part of final assembly of the container **100**. As will be become clear with reference to FIGS. **4-6**, the two locations for the slots **103** are provided because the supplementary blank may be used on either the front end or back end of the container **100**. As such, the supplementary blank **102** needs to be flipped horizontally depending on the end on which the blank **102** is to be located.

**[0041]** The total length **135** of the supplementary blank **102** includes the length **136** of the major panel **131**, as well as the lengths **137**, **138** of the two end panels **133**, **134** respectively and the length **139** of the minor panel **132**. The total width **140** of the blank **102** may be uniform across the major panel **131**, minor panel **132** and end panels **133**, **134**.

**[0042]** As explained above, illustrated embodiments may provide improved assembly of containers for shipping and/or display ready packaging that have increased stackability as a result of stacking shoulders formed by the interaction of the supplementary blank **102** with the primary blank **101** through at least one of adhering a plurality of parts of the supplementary and primary blanks to one another.

**[0043]** FIG. **4** illustrates the interconnectedness of the primary and secondary blanks illustrated in FIGS. **2** and **3** to provide the container illustrated in FIG. **1**. Accordingly, as illustrated in FIG. **4**, the primary and supplementary blanks **101**, **102** may be configured so as to interact in a manner that enables the stacking shoulders to be formed easily and quickly as part of the final assembly of the container **100**. Accordingly, the total length and width dimensions for the blanks **101**, **102** and their constituent panels, walls and sections may be selected so as to facilitate the positioning of the supplementary blanks **102** with respect to the interior of the assembled primary blank **101**.

**[0044]** In one potential implementation, one or more portions of the primary and supplementary blanks **101**, **102** may be adhered to one another via, for example, adhesive such as glue, staples, tape, etc. so as to produce a preassembly (e.g., a knockdown or preassembly for the container illustrated in FIG. **1**.), wherein the positioning of supplementary blank **102** in cooperation with primary blank **101** is controlled. For example, the primary and supplementary blanks **101**, **102** may be adhered to each other on their mating faces (e.g., the bottom face of supplementary blank **102** and the top face of the primary blank **101**. More specifically, adhesive may be applied to end panels **133**, **134** of each of the supplementary blanks **102**; subsequently, the end panels may be placed in contact with corresponding portions of the end panels of the primary blank **101** during preassembly manufacture.

**[0045]** More specifically, an end panel **134** of a first supplementary blank **102** may be adhered to the first front end panel **105** and the corresponding end panel **133** of the first supplementary blank **102** may be adhered to the side panel **106**. Similarly, the end panel **134** of the second supplementary blank **102** may be adhered to first back end panel **107** and the corresponding end panel **133** may be adhered to side panel **106**. Accordingly, adhesive may be applied on the top surfaces of the panels of the primary blank **101** or on bottom surfaces of the end panels **133**, **134** of the supplementary blanks **102**. Following application of adhesive, the supplementary blanks **102** may be placed in contact with the primary blank **101** to provide adherence between primary and supplementary blanks **101**, **102**.

**[0046]** As a result of such a process, a preassembly may be provided that which, when utilized, results in a container having an interior formed by a primary blank serving as an exterior of the container, the interior including a plurality of stacking shoulders formed by the supplementary blank at opposing ends of the container interior, wherein the plurality of stacking shoulders are formed as part of the set up or final assembly of exterior of the container.

**[0047]** It should be appreciated that, as a first operation in manufacturing the preassembly for the container **100**, the faces of the primary and supplementary blanks **101**, **102** are affixed together at various locations. Thus, although not shown, a preassembly may be provided wherein the primary and supplementary blanks **101**, **102** are adhered to one another via adhesive but the panels, walls, etc. are not configured for final assembly. As a result, such a preassembly may be delivered to a location for final assembly and placement of product; such a preassembly may be effectively and easily stacked with other preassemblies because such preas-

semblies are flat having not yet been built or assembled as shown in FIG. **1**. Accordingly, it should be understood that the faces of the blanks **101**, **102** may be affixed in one or more suitable manners including, for example but not limited to, application of adhesive on one or both of the affixed faces, use of staples, tape, etc.

**[0048]** Thus, FIG. **5** illustrates a side perspective of the preassembly manufactured from the blanks illustrated in FIG. **4**. As shown in FIG. **5**, the supplementary blanks **102** are adhered to the primary blank **101** and located such that two non-overlapping sections **142**, **143** are provided on the first front end panel **105** and the first back end panel **107**, respectively.

**[0049]** FIG. **6** illustrates a side perspective of the preassembly manufactured from the blanks illustrated in FIG. **4** during final assembly. As shown in FIG. **6**, the side panel **106** and first front and back end panels **105**, **107** are folded towards the remaining components of the preassembly such that side panel **106** becomes a major side panel of the container **100** and the first front and back end panels **105**, **107** form front and back ends of the container **100**, respectively.

**[0050]** Subsequently, the second front and back end panels **109**, **111** are folded upward and the pairs of panels **117**, **118** on each end are folded over the respective end panels **105**, **107** to enable the tabs **104** provided on each end to be inserted into the corresponding slot **103**.

**[0051]** FIG. **7** illustrates a side perspective of an alternative embodiment of a preassembly manufactured in accordance with another illustrated embodiment, as shown during final assembly of the container from the preassembly. As shown in FIG. **7**, the stacking shoulders are formed by supplementary blanks **702** adhered to singular end panels of the primary blank **701**. Thus, whereas the embodiment illustrated in FIG. **1** has first and second end panels on both the front and back ends of the container **700**, the embodiment illustrated in FIG. **7** has only a single front and back end panel as part of the primary blank **701**.

**[0052]** The knockdown of the container **700** is manufactured by joining the primary blank **701** (illustrated in FIG. **8**) with a supplementary blank **702** which may be thought of as a pad (illustrated in both FIGS. **8** and **9**), as explained herein. The blank **701** illustrated in FIG. **8** corresponds to an exterior of the container **700** illustrated in FIGS. **1** and **4**; therefore, the container **700** includes primary blank **701**. Likewise, the container **700** also includes supplementary blank **702** illustrated in combination with primary blank **701** in FIG. **8** and also separately in FIG. **9**.

**[0053]** FIG. **8** illustrates an example of a combination primary blank **701** and secondary blanks **702** provided together in a manner that may be provided in a single die cut and scoring phase of manufacturing the container of the type illustrated in FIG. **7**. As used in FIG. **7**, solid lines indicate edges of the blanks illustrated, whereas dashed lines indicate perforation, folding or scoring lines provided as part of manufacturing to enable folding of the blanks along the dashed lines.

**[0054]** As shown in FIG. **8**, a substantial portion of the primary blank **701** is configured similarly to the primary blank illustrated in FIG. **2**; accordingly, those panels that are similar are not particularly referenced with new reference numbers. However, that portion of the primary blank **701** that includes differing components, structure or panels are separately numbered as follows.

**[0055]** Minor panels **148** and **150** and a first major side panel **149** are provided along the panels that comprise the front end panel **109**, bottom panel **108** and a back end panel **110**. The minor panels **148**, **150** and first major side panel **149** and a second major side panel **156** are adjacent to the two supplementary blanks **702**.

**[0056]** Thus, the width **156** of the second major side panel **146** is smaller than the width of the first major side panel **149**. The length **157** of the first major side panel **149** is substantially equal to the length of the second major side panel **146**. Like the embodiment of FIG. **2**, however, the embodiment of FIG. **7** also includes a bottom panel **108** that includes slots **116**, two of which most proximate to the first major side panel **149** interact with tabs **145** provided on the second major side panel **146**.

**[0057]** As illustrated in FIG. **9**, the secondary blanks **702** include a major panel **158** and a plurality of end panels **153**, **154** that are hingedly connected. The total length **160** of the secondary blank **702** includes the length **161** of the major panel **158**, and the lengths **162** of the end panels **153**, **154**. The width **163** of the secondary blank **702** is uniform among the plurality of panels **153**, **154**, **158**.

**[0058]** It should be appreciated that, unlike the embodiment of FIG. **1**, this embodiment's supplementary blank **702** includes only one slot **703**. This is because there is no need to have alternative slot locations even if supplementary blank **702** is used on either end of the container **700**; more specifically, there is no need to flip the blank (as in blank **102** of the embodiment illustrated in FIG. **1**) because the blank **702** is symmetrical horizontally.

**[0059]** FIG. **10** illustrates the interconnectedness of the primary and supplementary blanks illustrated in FIGS. **8** and **9** to provide the container illustrated in FIG. **7**. As shown in FIG. **10**, the blanks **702** are positioned over the end panels **109**, **110** to provide a preassembly as illustrated in FIG. **11**. Accordingly, the end panels **154** of the secondary blanks **702** may overlap the minor side panels **111** of the primary blank **701**.

**[0060]** In one potential implementation, one or more portions of the primary and supplementary blanks **701**, **702** may be adhered to one another via, for example, adhesive such as glue, staples, tape, etc. so as to produce a preassembly (e.g., a knockdown or preassembly for the container illustrated in FIGS. **10-12**), wherein the positioning of supplementary blanks **702** in cooperation with primary blank **701** is controlled. For example, the primary and supplementary blanks **701**, **702** may be adhered to each other on one or more mating faces. More specifically, adhesive may be applied to end panels **153**, **154** of each of the supplementary blanks **702**; subsequently, the end panels **153**, **154** may be placed in contact with corresponding portions of the primary blank **701** as shown in FIGS. **10-12** during preassembly manufacture.

**[0061]** More specifically, a top surface of the end panel **153** of a first supplementary blank **702** may be adhered to a mating surface of a primary blank minor side panel **148** (as explained below with reference to FIG. **12**) and a corresponding top surface of an end panel **153** of a second supplementary blank **702** may be adhered to the bottom surface of a primary blank minor side panel **150**. Similarly, the bottom surfaces of the end panels **154** of the supplementary blanks **702** may be adhered to the top surfaces of minor panels **111** of the primary blanks **701**. Accordingly, adhesive may be applied on the top surfaces of the panels of the primary blank **101** or mating surfaces of the end panels **153**, **154** of the supplementary blanks **702**. Following application of the adhesive, the

supplementary blanks **702** may be placed in contact with the primary blank **701** to provide adherence between primary and supplementary blanks **701**, **702**.

**[0062]** Thus, as illustrated in FIG. **12** a final stage of preassembly manufactured from the blanks illustrated in FIG. **10** involves the folding of the minor panels **148**, **150** towards the supplementary blanks **702** located on the top surface of the end panels **109**, **110** respectively. Subsequently, the minor panels **148**, **150** and their corresponding supplementary blanks **702** are adhered to one another, e.g., end panels **153** for the supplementary blanks **702** illustrated in FIG. **11** are adhered with the bottom surface of the minor panels **148**, **150**. Likewise, as explained above, the bottom surfaces of the supplementary blank end panels **154** illustrated in FIG. **11** may be adhered to the top surfaces of the minor panels **111** of the primary blank **701**.

**[0063]** As a result of such a process, a preassembly may be provided which, when utilized, results in a container having an interior formed by a primary blank serving as an exterior of the container; the container interior includes a plurality of stacking shoulders formed by the supplementary blanks at opposing ends of the container interior, wherein the plurality of stacking shoulders are formed as part of the set up or final assembly of exterior of the container.

**[0064]** Accordingly, the inclusion of stacking shoulders is implemented with minimal effort and deviation from the assembly required for the exterior of the container. Thus, stacking shoulders may be provided with improved ease and consistency as part of final assembly of a container exterior.

**[0065]** FIG. **13** illustrates a functional block diagram used to describe the manufacturing method of containers in accordance with an illustrated embodiment. As alluded to in the background section, and as conventionally known, the manner of manufacturing containers such as the examples illustrated in FIGS. **1-12** may be conveniently described in two phases: preassembly and final assembly/use.

**[0066]** Preassembly is normally performed at a container manufacturing facility to produce a preassembly which may also be thought of and referred to as a knockdown of the container. These preassemblies may be shipped to a customer location such as a product manufacturing facility or retail environment or third party fulfillment contract packaging facility. At that destination, the container customer may perform final assembly/use of the containers by, for example, folding and assembling various panels of the container to provide a container that is configured to hold manufacture product, e.g., for shipping and/or display.

**[0067]** In such operations, the manufacturing of the container preassemblies may be performed by the customer of the preassemblies and/or as part of manufacture of the preassemblies as illustrated in FIG. **13**.

**[0068]** FIG. **13** illustrates various functional operations performed as part of the manufacture of a preassembly by, for example, a display, shipping or display ready packaging manufacturer. The operations may begin, for example, with printing **1305** of container material prior to the container material being die cut and/or scored **1310** as part of an overall blank manufacturing operation **1315**. The manufactured blanks **1330** may or may not be printed on one or both sides of the blanks **1330** depending on customer requirements. Accordingly, the printing operation **1305** may be omitted.

**[0069]** Subsequent to blank manufacturing **1315**, the manufactured blanks may be affixed to one another as part of the joining of multi-blank preassembly operations **1320**. The operations performed at **1320** may be performed in various suitable manners including by hand or using various commercially available machines (for example, those produced by Bahmueller Technologies, Inc. of Charlotte, N.C., USA or Bobst Group North America of Roseland, N.J., USA). Thus, the operations performed at **1320** may produce preassemblies for containers such as that illustrated in FIGS. **1** and **7**.

**[0070]** Therefore, it should be appreciated that one or more of the operations performed to produce blanks, preassemblies, knockdowns and containers may be performed in whole or in part by machines and or human personnel. Moreover, human personnel may utilize one or more different types of machines and/or tools to perform assembly operations performed either to manufacture preassemblies or finally assembled containers.

**[0071]** Thus, at the beginning of such operations, raw material **1325** is used to produce blanks **1330**. Such raw materials **1325** may include but are not limited to various grades, types, configurations and combinations of corrugated fiberboard and/or solid paperboard, liner board, board of various fluting types and combinations as well as various types of sealants, non-organic materials and inks and dies of various suitable types.

**[0072]** It should be understood that implementation of the method and system of the present invention involves performing or completing certain selected tasks or steps manually, automatically, or a combination thereof.

**[0073]** While this invention has been described in conjunction with the specific embodiments outlined above, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, the various embodiments of the invention, as set forth above, are intended to be illustrative, not limiting. Various changes may be made without departing from the spirit and scope of the invention.

**[0074]** For example, various illustrated features of the preassembly and resulting containers may be omitted. Furthermore, it should be understood that invention embodiments are capable of variations practiced or carried out in various ways. Therefore, it should be appreciated that, in accordance with at least one embodiment of the invention, any and all of the walls may be constructed of corrugated cardboard. However, it should be understood that the walls, panels, any tabs on various panels, etc., may be constructed of various industry recognized appropriate materials that meet various transporting and/or display criteria. As a result, it should be understood that containers manufactured in accordance with at least one embodiment of the invention may also be considered "cartons," which may be considered packaging or display containers, commonly made from cardstock or cardboard. Further, it should be understood that cartons come in many different varieties but most cartons can be folded and assembled from a flat form, known as a carton blank. Thus, it should be understood that the pattern for any blank, preassembly or container may be different than those described herein.

**[0075]** Alternatively, or more specifically, the packaging and/or display containers may be made using corrugated board, e.g., material made by a corrugator (a machine that produces corrugated board by attaching fluting to liners) which is a structured board formed by gluing one or more arched layers of corrugated medium to one or more flat-facing linerboards.

**[0076]** Additionally, it should be appreciated that material used in accordance with at least one embodiment of the invention may be laminated to provide barrier properties. Further, other barrier materials may be used including Ultra Violet (UV), moisture and gas barriers. Additionally, though not discussed in detail herein, it should be understood that any adhesive used to provide a bond between materials used in containers provided in accordance with the invention may include any substance that helps bond two materials together, examples including but not limited to glue and paste.

**[0077]** Further, it should be appreciated that the material used to form the primary blank may be different, stronger, or weaker than the blank used to form the supplementary blank. Thus, for example, use of a supplementary blank that is of a heavier, more durable or stronger material than the material used for primary blank, may provide the increased ease of final assembly as well as increased durability or strength to the resulting container while reducing the amount of material in the container (something of interest for environmental and cost issues).

**[0078]** It should also be appreciated that certain features of the invention, which are, for clarity, described in the context of separate embodiments, may also be provided in combination in a single embodiment. Conversely, various features of the invention, which are, for brevity, described in the context of a single embodiment, may also be provided separately or in any suitable sub-combination.

**[0079]** Although the invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, it is intended to embrace all such alternatives, modifications and variations that fall within the spirit and broad scope of the appended claims. All publications, patents and patent applications mentioned in this specification are herein incorporated in their entirety by reference into the specification, to the same extent as if each individual publication, patent or patent application was specifically and individually indicated to be incorporated herein by reference. In addition, citation or identification of any reference in this application shall not be construed as an admission that such reference is available as prior art to the present invention.

**[0080]** Additionally, it should be understood that the functionality described in connection with various described components of various invention embodiments may be combined or separated from one another in such a way that the structure of the invention is somewhat different than what is expressly disclosed herein.

**[0081]** For example, although not discussed in detail, it should be appreciated that the supplementary blank and/or resulting stacking shoulders may be, for example, rectangular or trapezoidal or any other configuration that provides the features to manufactured containers discussed herein.

**[0082]** Moreover, it should be understood that, unless otherwise specified, there is no essential requirement that methodology operations be performed in the illustrated order; therefore, one of ordinary skill in the art would recognize that some operations may be performed in one or more alternative order and/or simultaneously.

**[0083]** As a result, it will be apparent for those skilled in the art that the illustrative embodiments described are only examples and that various modifications can be made within the scope of the invention as defined in the appended claims.

**1**. A method of manufacturing a container, the method comprising:

cutting a primary blank including a plurality of side panels and end panels configured to provide an exterior of the container;

cutting a plurality of supplementary blanks each including a major panel and a plurality of end panels; and

affixing an end panel of each supplementary blank and a panel of the primary blank such that, as the container is assembled, an exterior of the container is formed by the plurality of side panels and end panels of the primary blank,

wherein a plurality of stacking shoulders are formed by the supplementary blanks at opposing ends of an interior of the container, and the plurality of stacking shoulders are formed as part of the final assembly of the primary blank as the exterior of the container.

**2**. The method of claim **1**, wherein the plurality of side and end panels of the primary blank include first and second front end panels, at least one side panel and first and second back end panels.

**3**. The method of claim **2**, wherein the plurality of supplementary blank end panels are affixed to either the first front end panel or the first back end panel.

**4**. The method of claim **1**, wherein the plurality of side and end panels of the primary blank include a front end panel, major and minor side panels, a back end panel and minor panels.

**5**. The method of claim **1**, wherein the primary blank is affixed to the supplementary blank via application of an adhesive.

**6**. The method of claim **1**, wherein each supplementary blank includes at least one slot configured and located to receive a corresponding tab included in the primary blank.

**7**. A container preassembly comprising:

a primary blank including a plurality of side panels and end panels configured to provide an exterior of the container;

a plurality of supplementary blanks each including a major panel and a plurality of end panels,

wherein an end panel of each supplementary blank and a panel of the primary blank are affixed such that, as the container is assembled, an exterior of the container is formed by the plurality of side panels and end panels of the primary blank,

wherein a plurality of stacking shoulders are formed by the supplementary blanks at opposing ends of an interior of the container, and the plurality of stacking shoulders are formed as part of the final assembly of the primary blank as the exterior of the container.

**8**. The preassembly of claim **7**, wherein the container is a display.

**9**. The preassembly of claim **7**, wherein the plurality of side and end panels of the primary blank include a first and second front end panels, at least one side panel and first and second back end panels.

**10**. The preassembly of claim **9**, wherein the plurality of supplementary blank end panels are affixed to either the first front end panel or the first back end panel.

**11**. The preassembly of claim **7**, wherein the plurality of side and end panels of the primary blank include a front end panel, major and minor side panels, a back end panel and minor panels.

**12**. The preassembly of claim **7**, wherein the primary blank is affixed to the supplementary blank via application of an adhesive.

**13**. The preassembly of claim **7**, wherein each supplementary blank includes at least one slot configured and located to receive a corresponding tab included in the primary blank.

**14**. A plurality of blanks for a container preassembly, the plurality of blanks comprising:

a primary blank including a plurality of side panels and end panels configured to provide an exterior of the container;

a plurality of supplementary blanks each including a major panel and a plurality of end panels,

wherein the primary blank is configured to mate with and be affixed with the supplementary blanks so that an end panel of each supplementary blank is affixed with an end panel of the primary blank such that, as the container is assembled, an exterior of the container is formed by the plurality of side panels and end panels of the primary blank,

wherein a plurality of stacking shoulders are formed by the supplementary blanks at opposing ends of an interior of the container, and the plurality of stacking shoulders are formed as part of the final assembly of the primary blank as the exterior of the container.

**15**. The plurality of blanks of claim **14**, wherein the container is a display.

**16**. The plurality of blanks of claim **14**, wherein the plurality of side and end panels of the primary blank include a first and second front end panels, at least one side panel and first and second back end panels.

**17**. The plurality of blanks of claim **16**, wherein the plurality of supplementary blank end panels are affixed to either the first front end panel or the first back end panel.

**18**. The plurality of blanks of claim **14**, wherein the plurality of side and end panels of the primary blank include a front end panel, major and minor side panels, a back end panel and minor panels.

**19**. The plurality of blanks of claim **14**, wherein the primary blank is affixed to the supplementary blank via application of an adhesive.

**20**. The plurality of blanks of claim **14**, wherein each supplementary blank includes at least one slot configured and located to receive a corresponding tab included in the primary blank.

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