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(54) **CONTAINER WITH ATTACHED SHELF**

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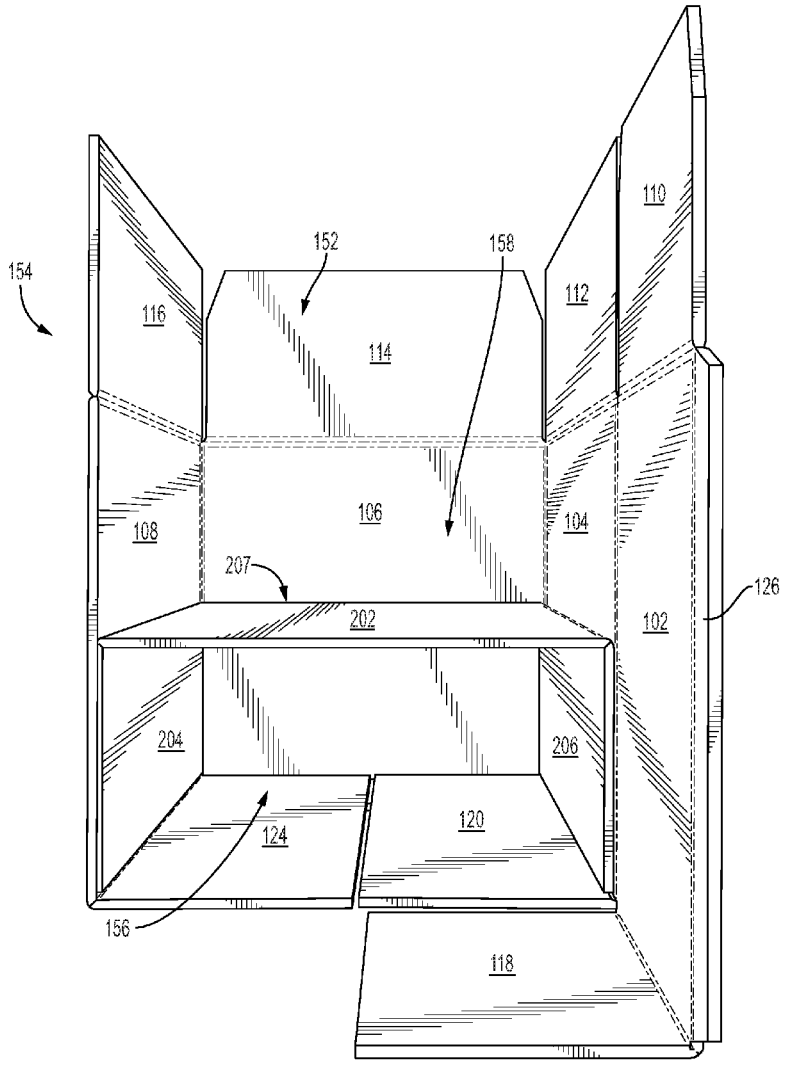
(57) **ABSTRACT**

A container with an attached shelf includes a plurality of panels connected together to enclose an interior space. The interior space is divided into an upper interior space and a lower interior space by a shelf adhered to one or more of the plurality of panels. The shelf includes a main shelf panel and a pair of opposed side shelf flaps connected to the main shelf panel along a pair of fold lines.

The opposed shelf flaps provide load bearing support to the main shelf panel and the main shelf panel is sufficiently rigid to support the weight of an upper product placed in the upper interior space in a manner such that an air gap is maintained between the top of a lower product placed into the lower interior space and the shelf itself so as to avoid unwanted contact between the two products.



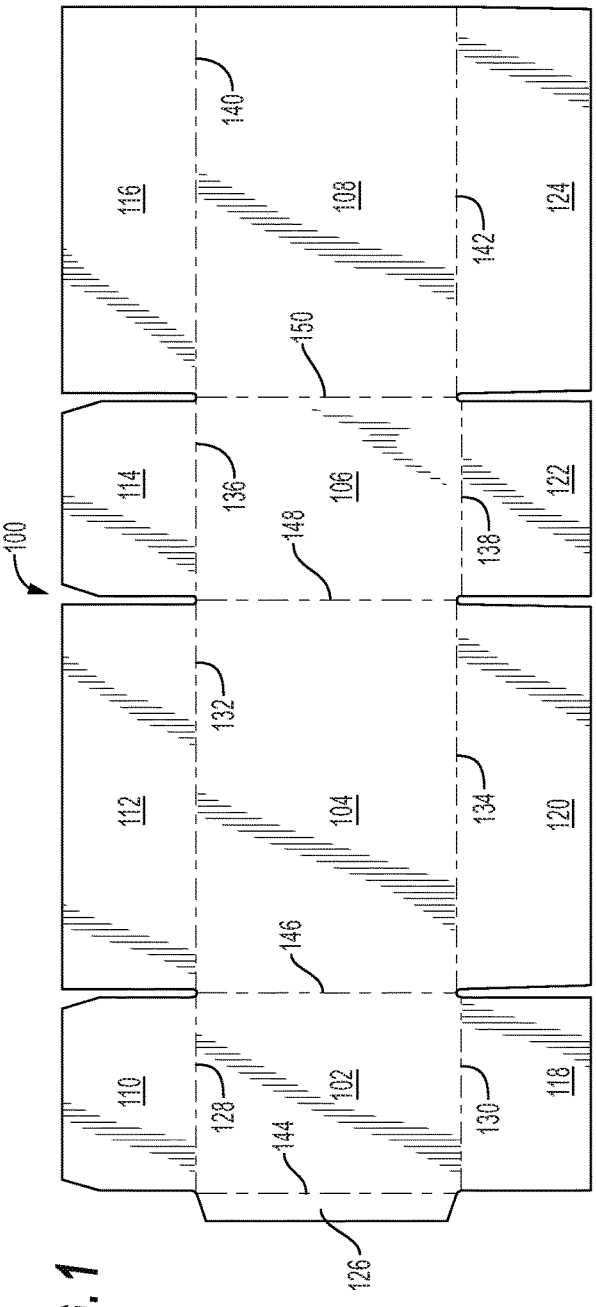

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FIG. 1

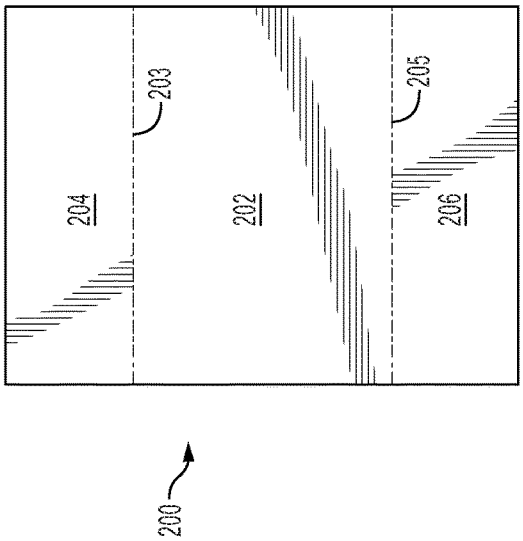
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FIG. 2

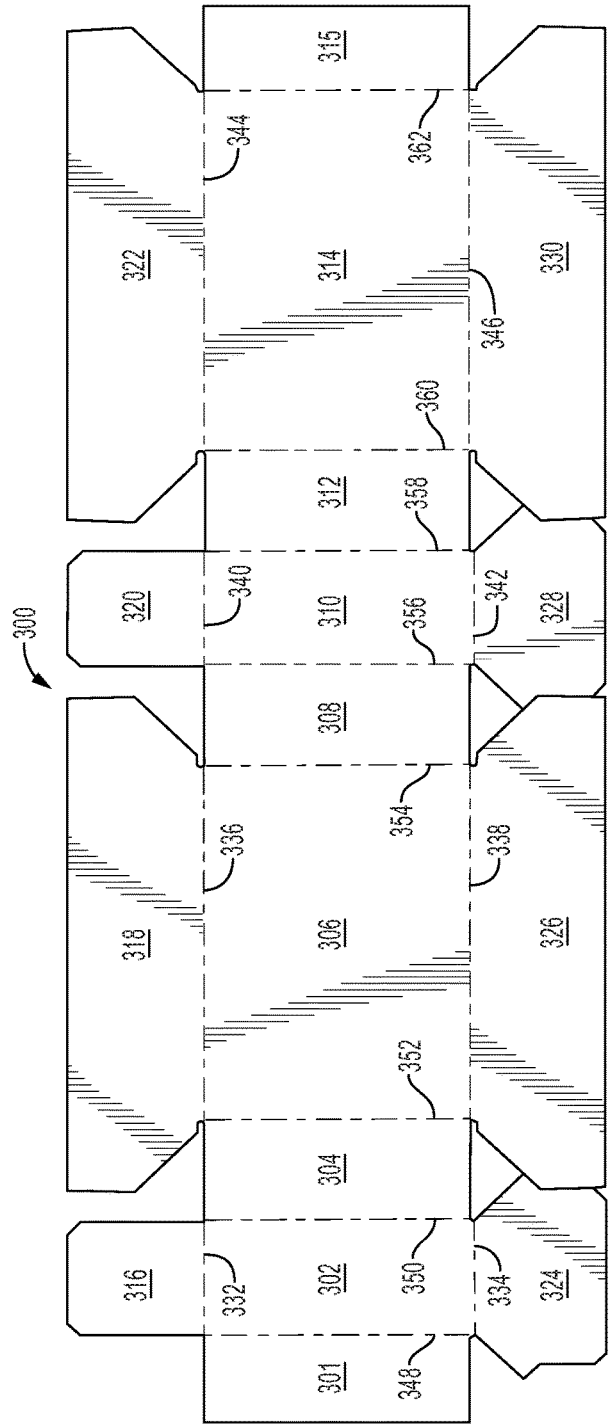
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FIG. 3

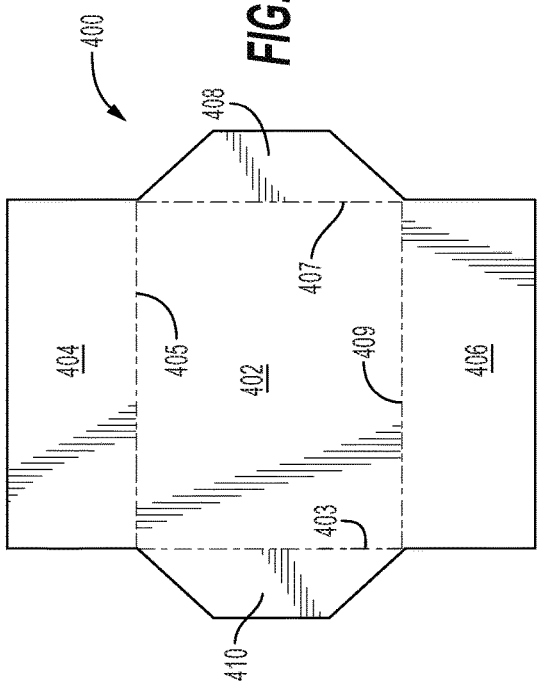
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FIG. 4

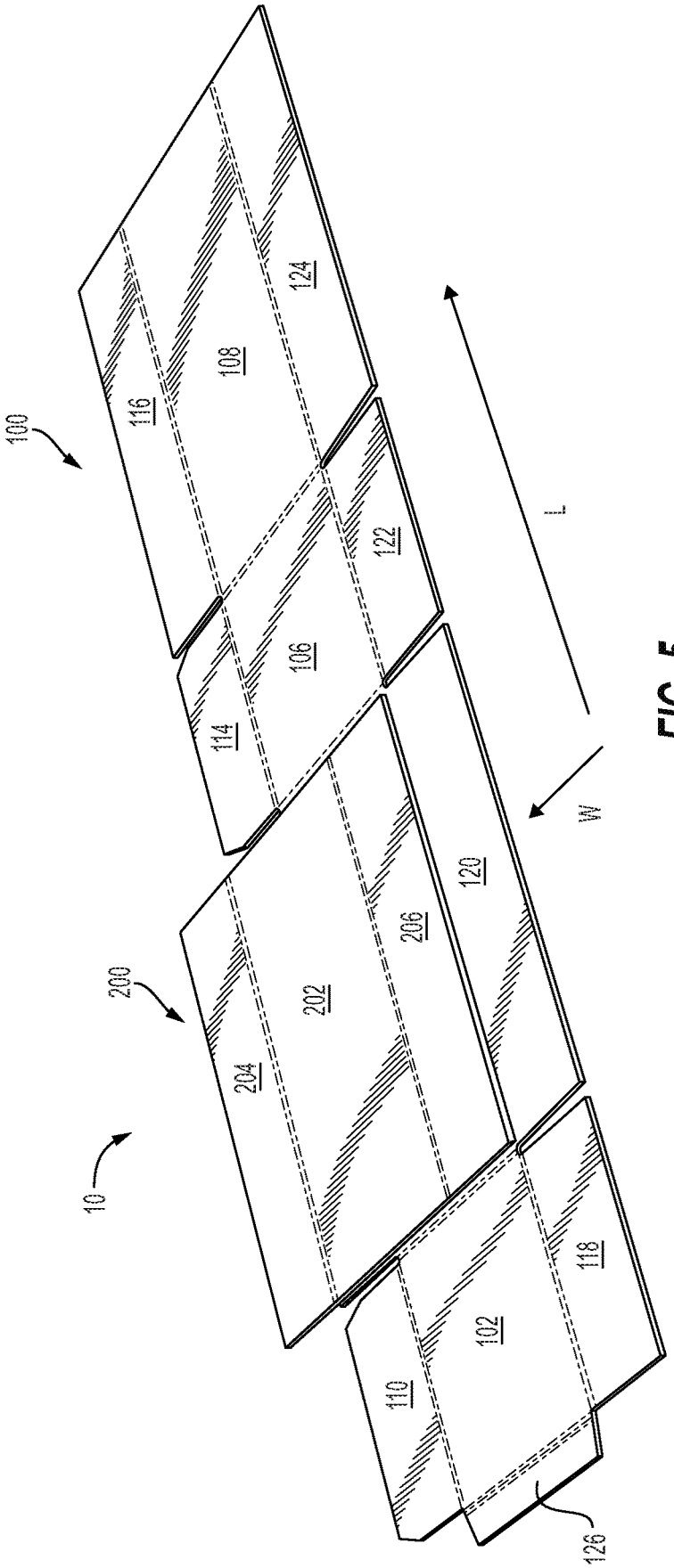
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FIG. 5

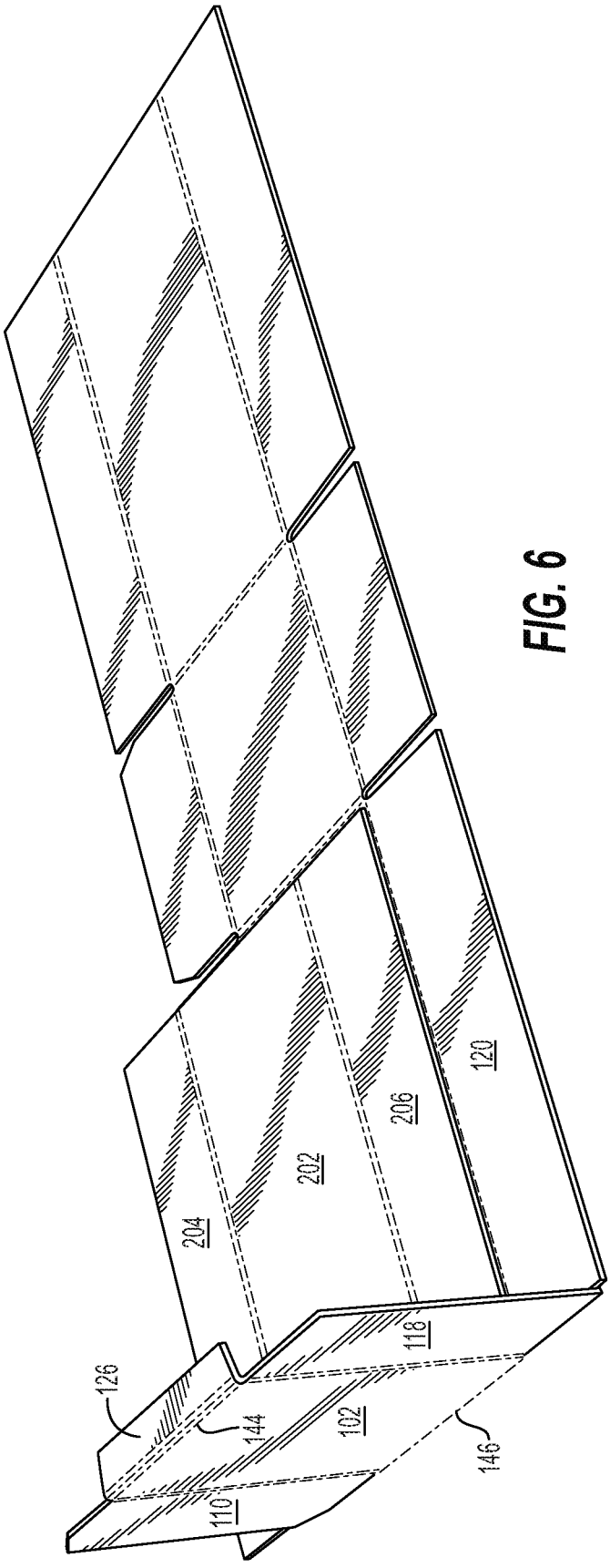


FIG. 6

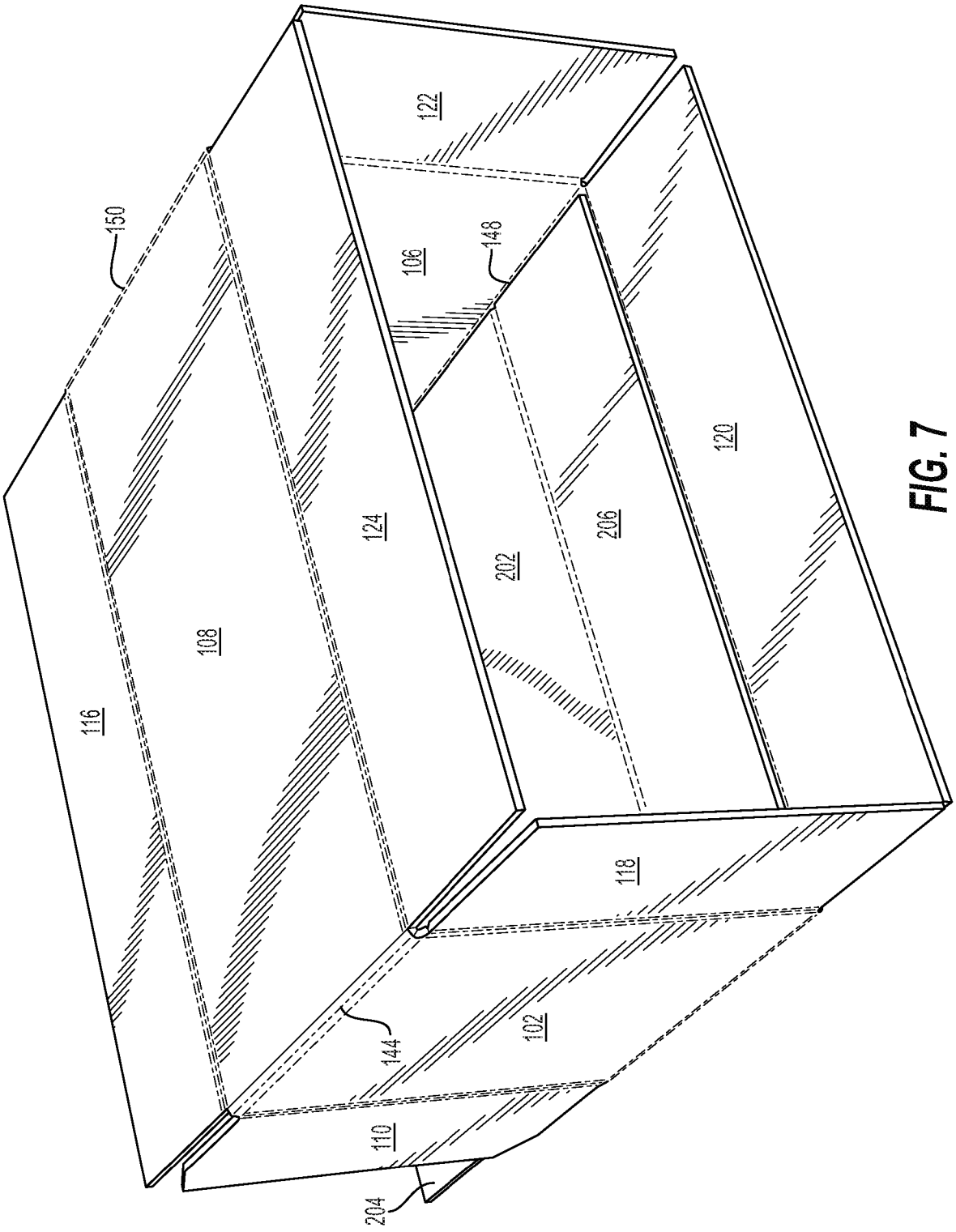
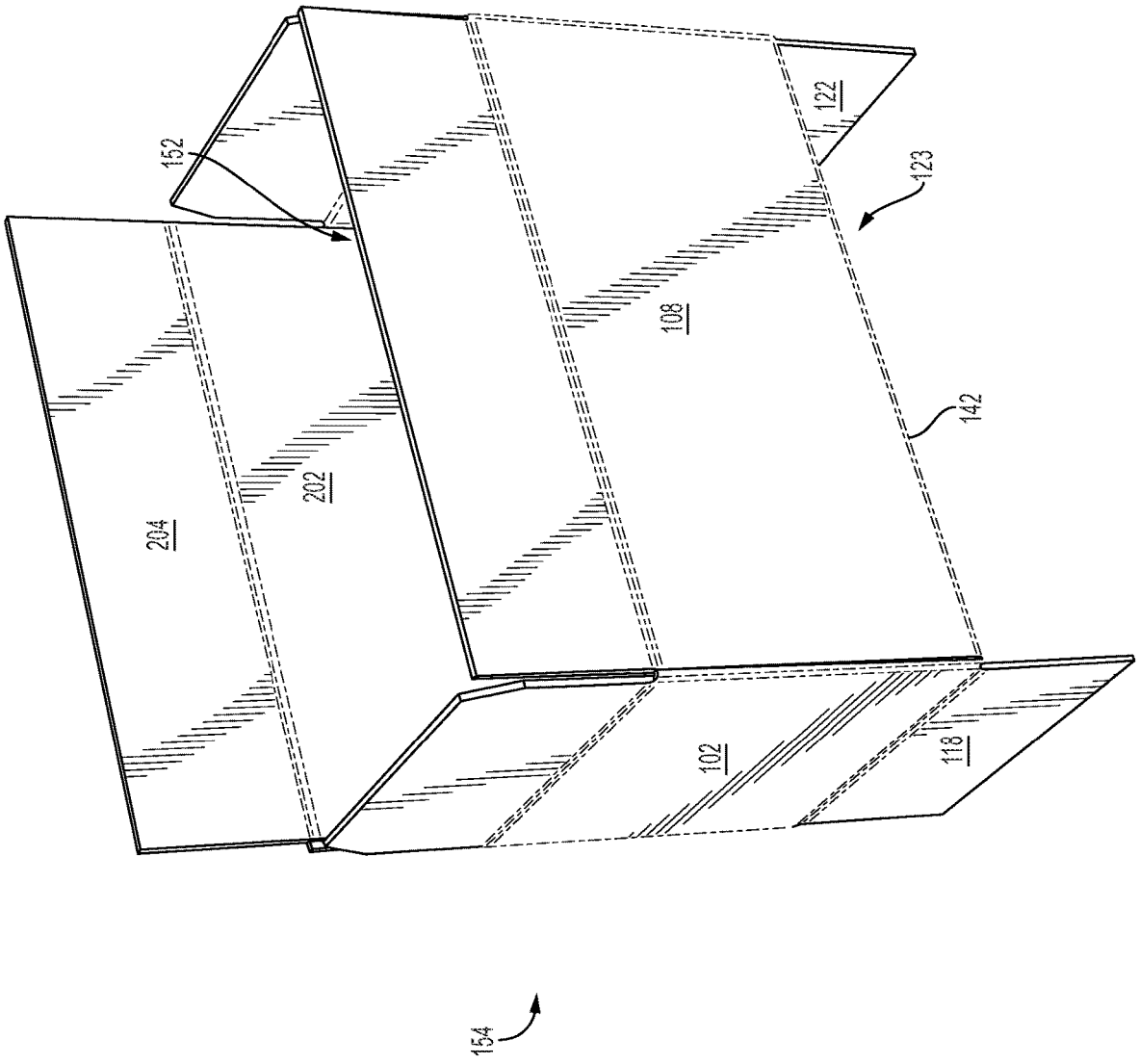


FIG. 7

FIG. 8



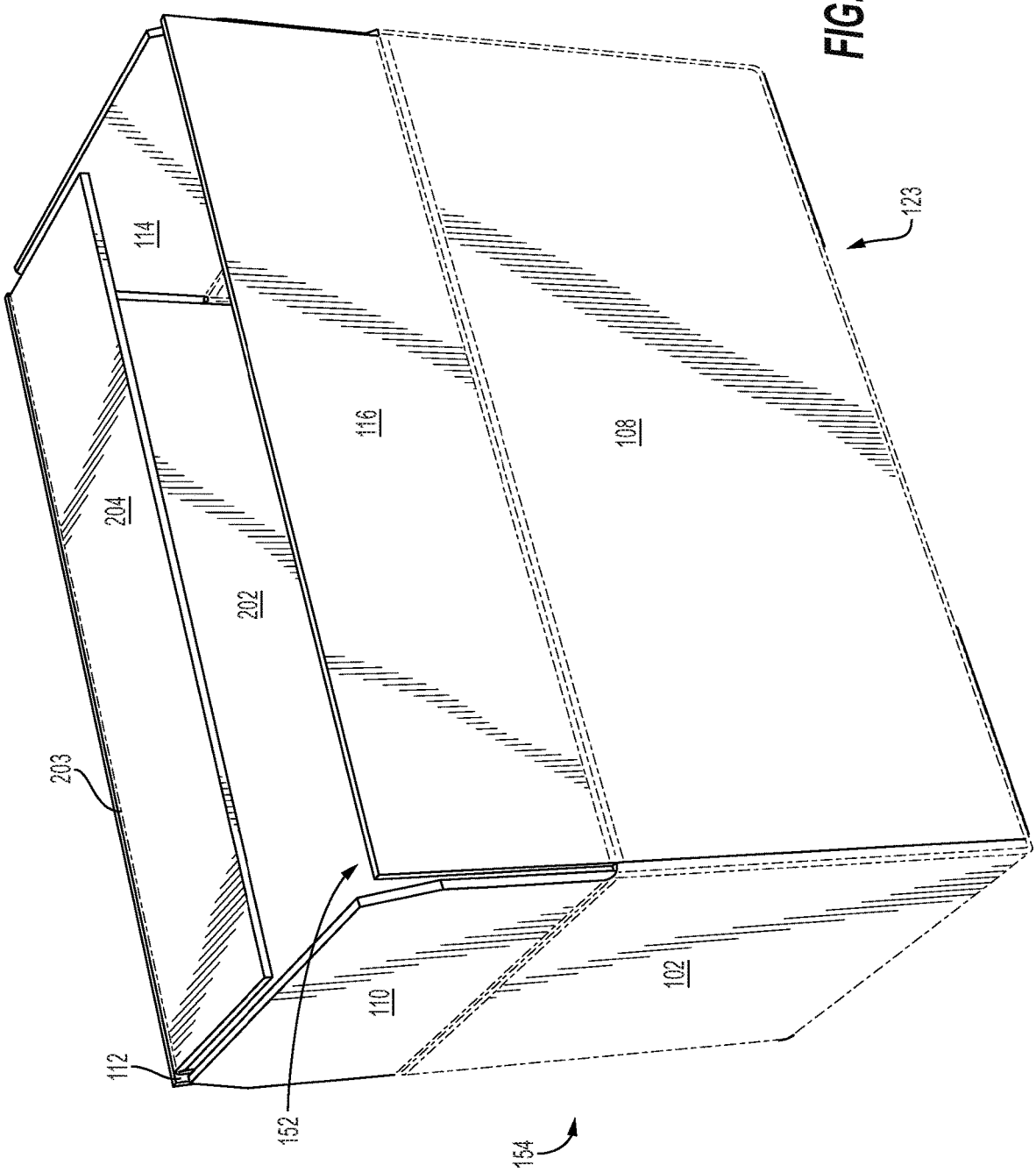


FIG. 9

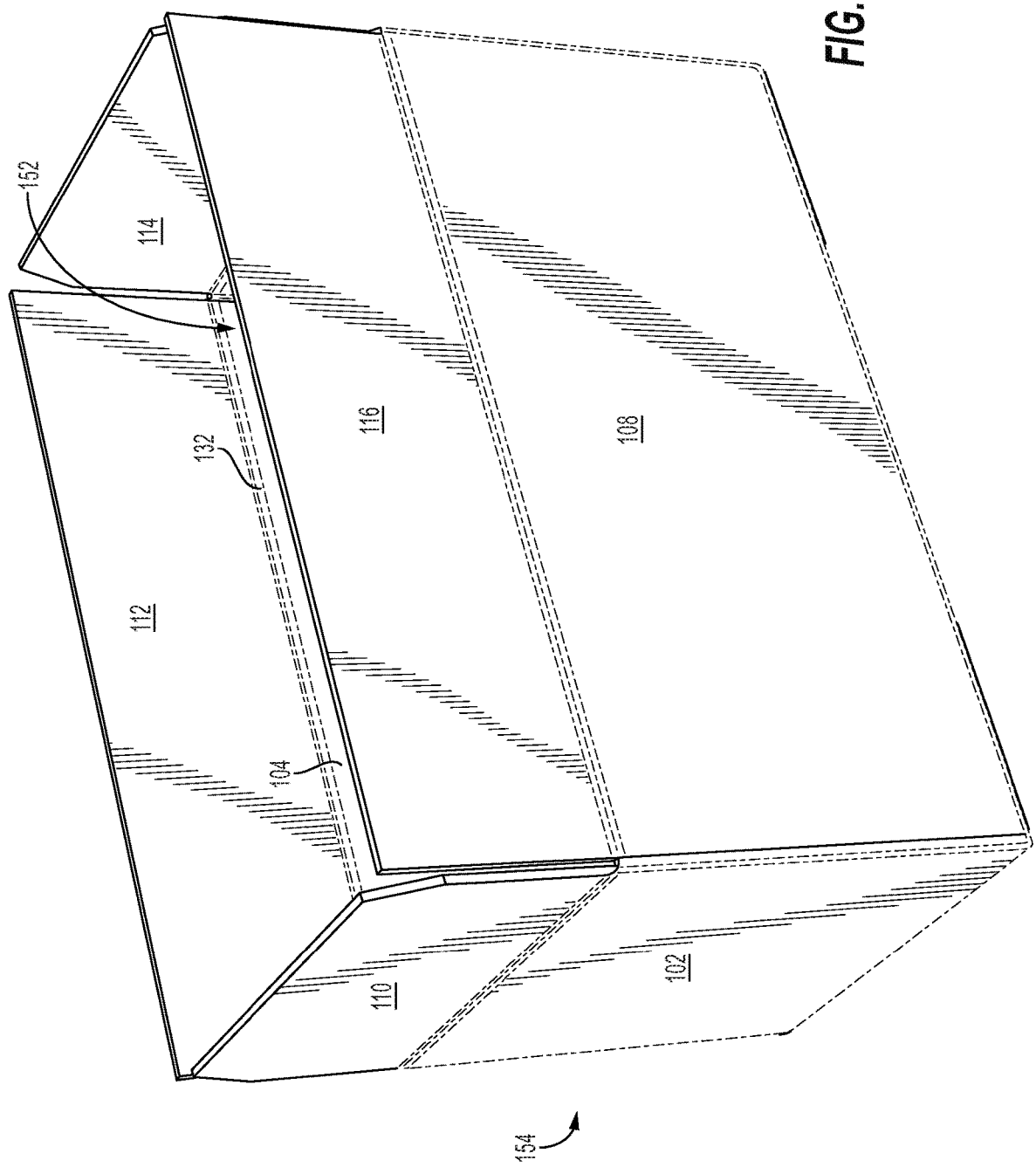


FIG. 10

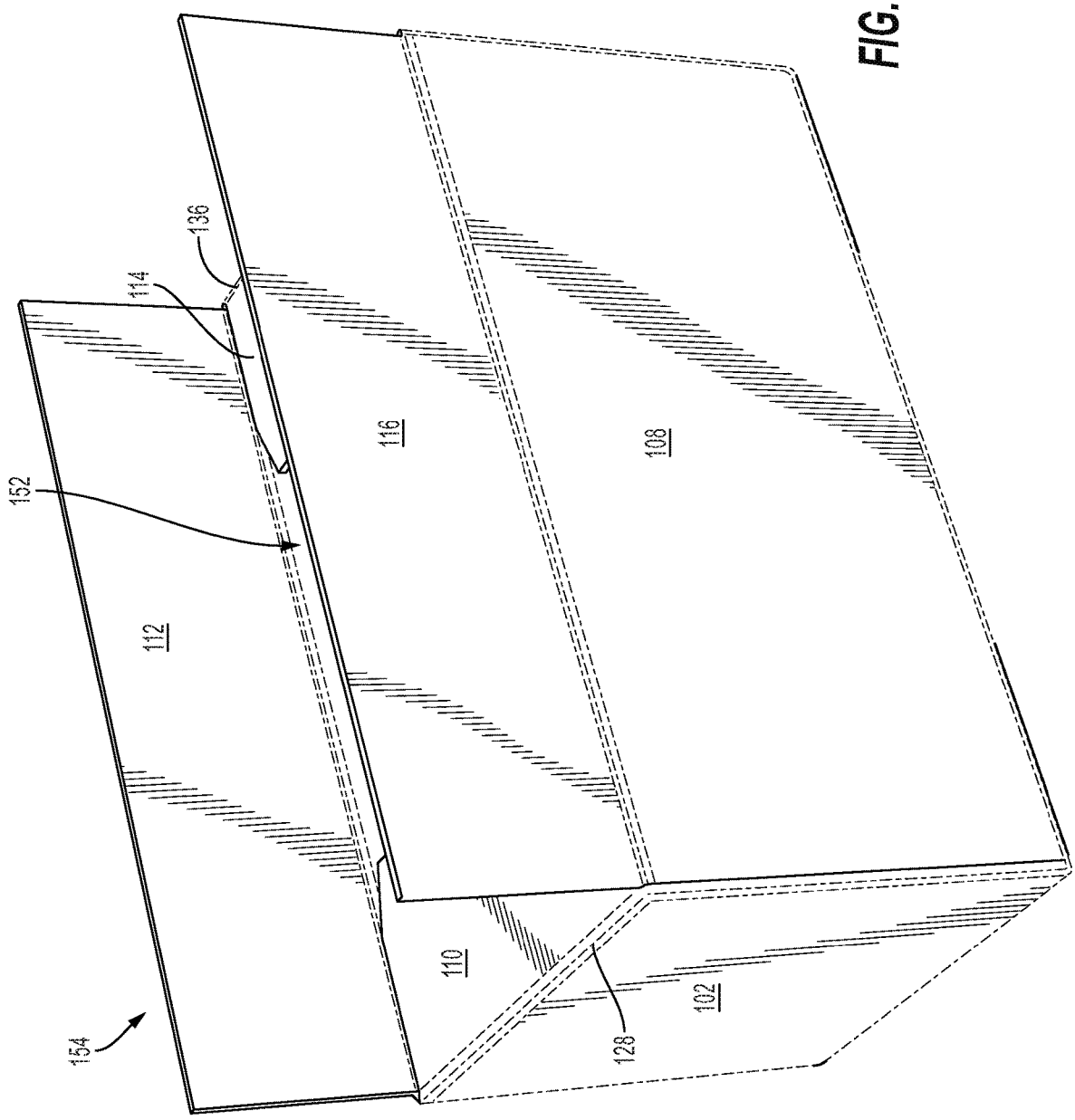


FIG. 11

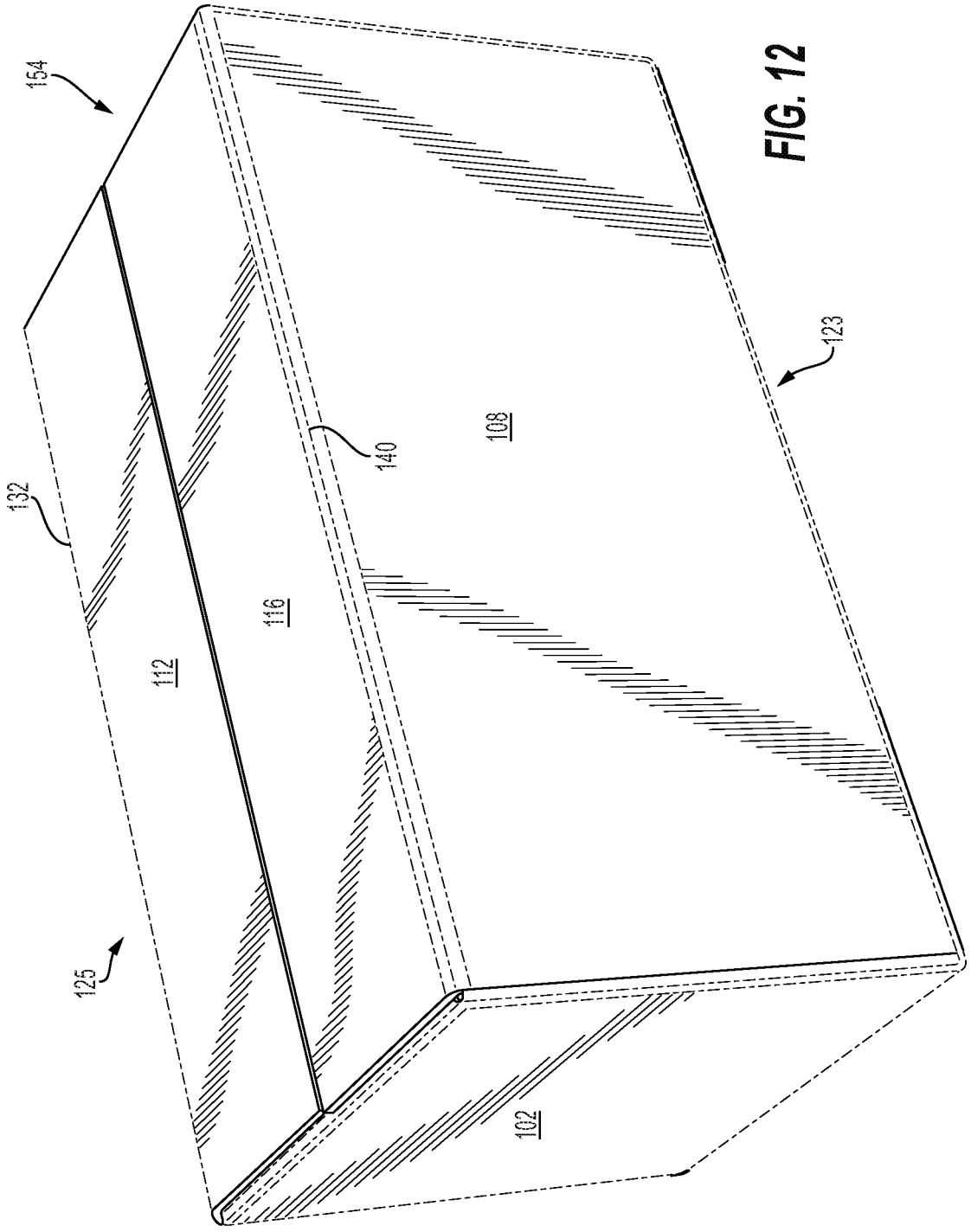


FIG. 12

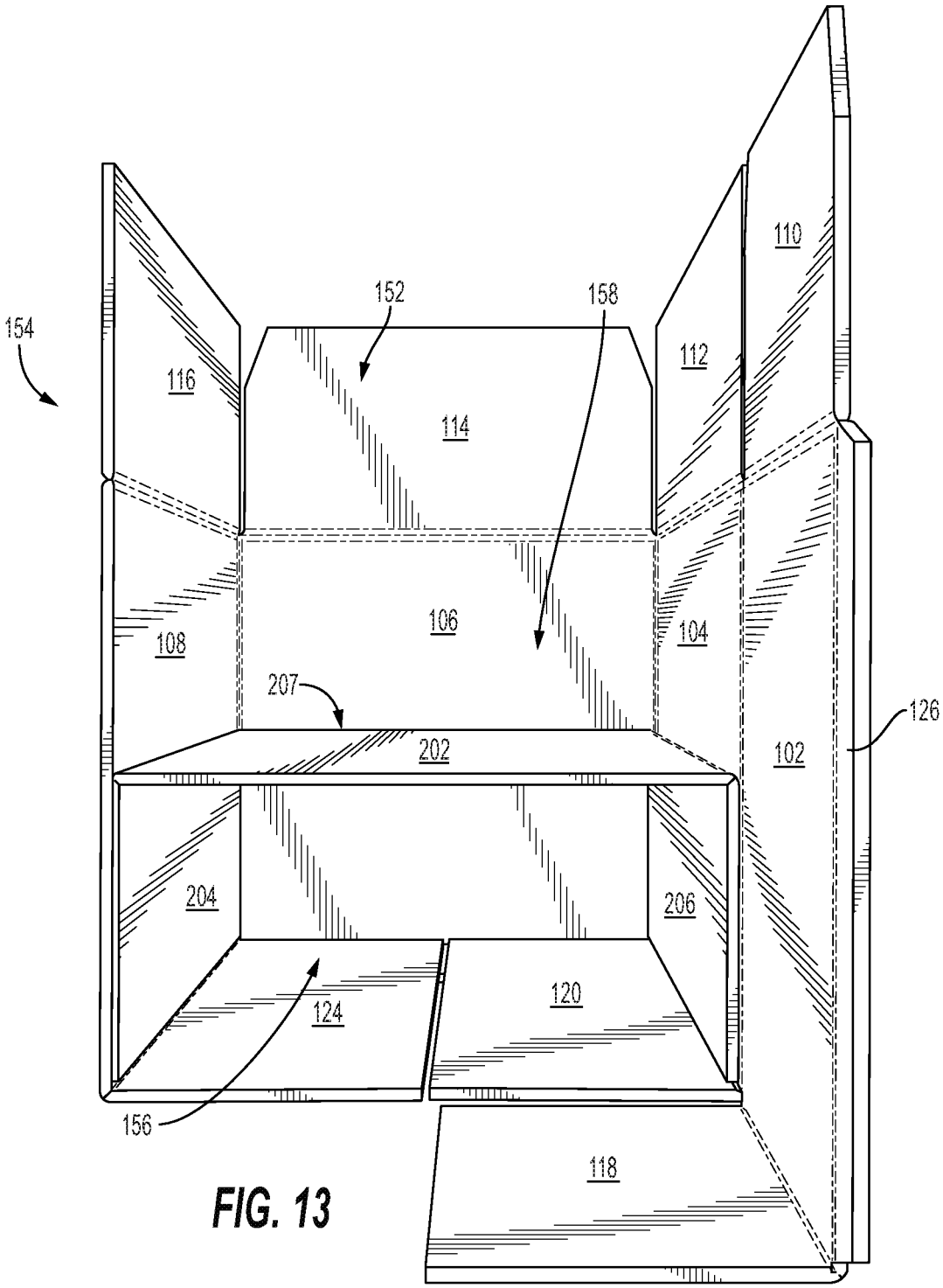

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FIG. 13

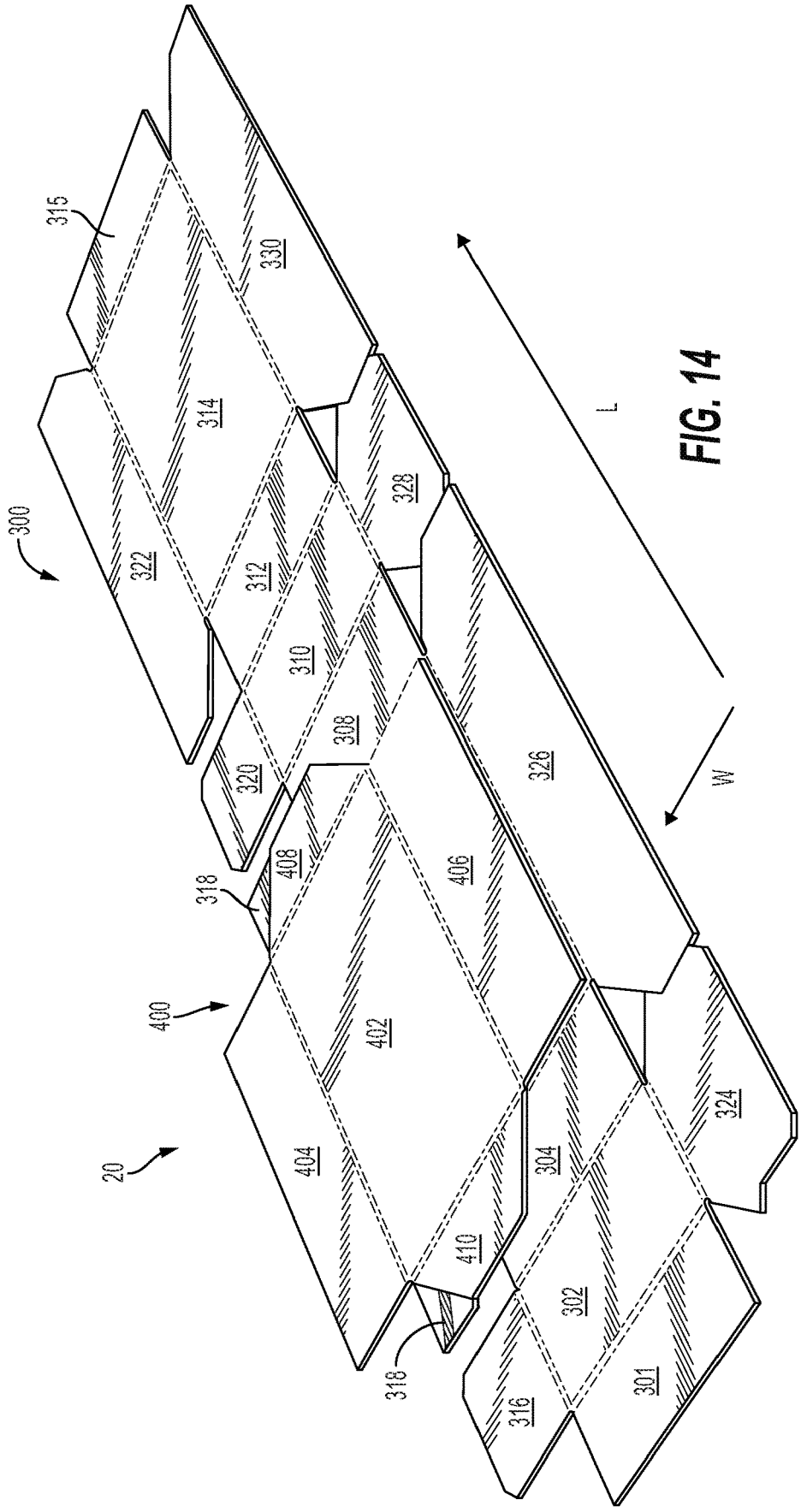
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FIG. 14

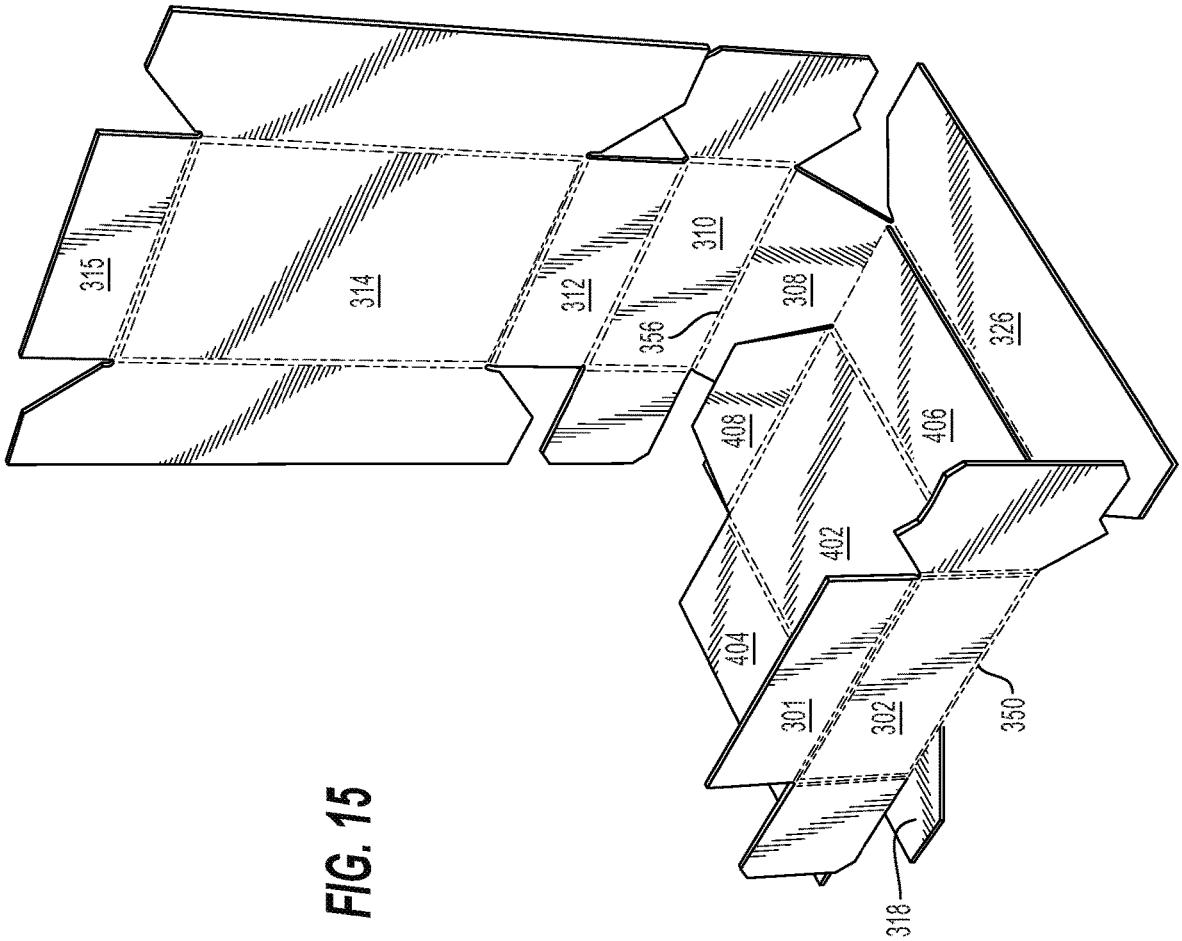

FIG. 15

FIG. 16

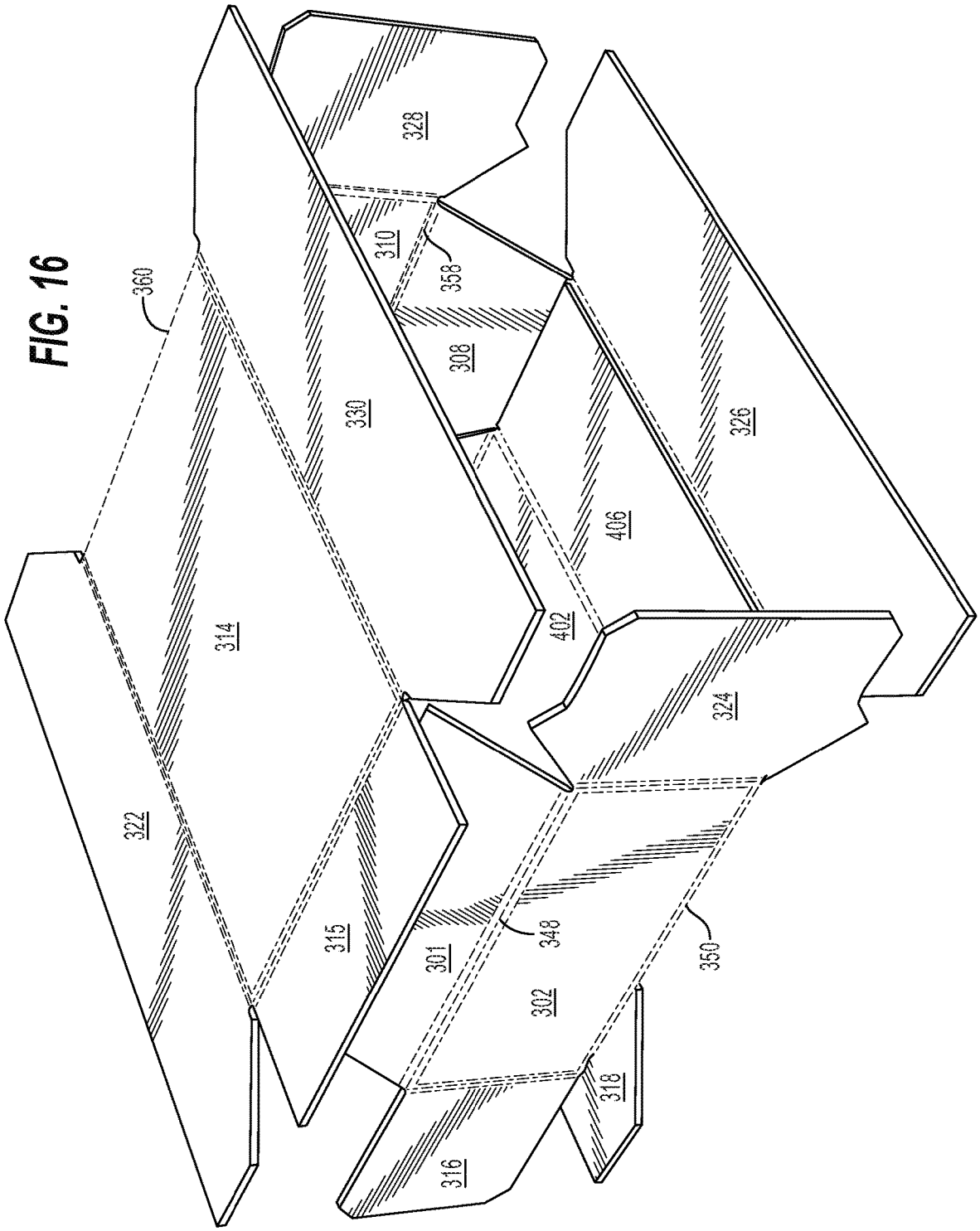
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FIG. 17

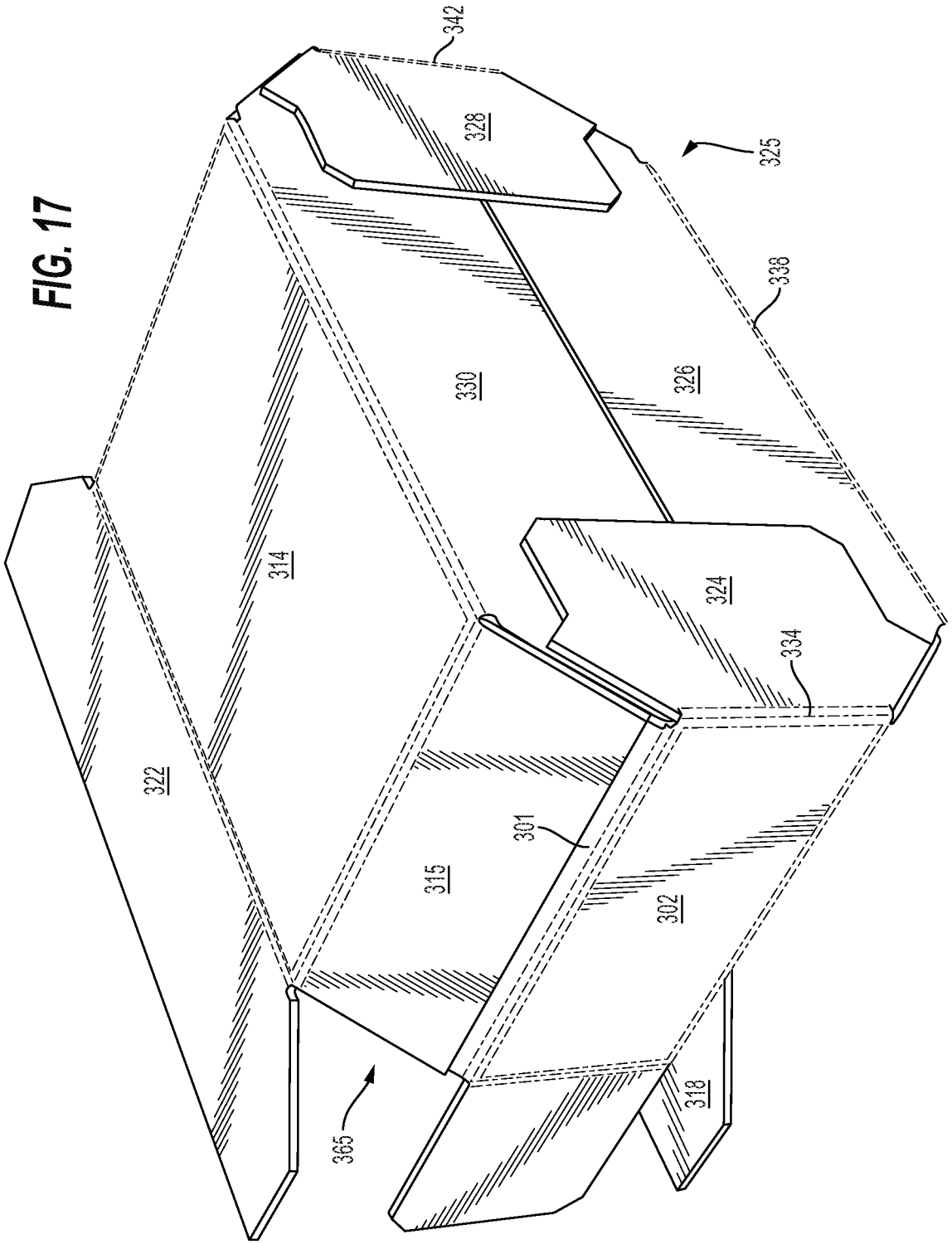


FIG. 18

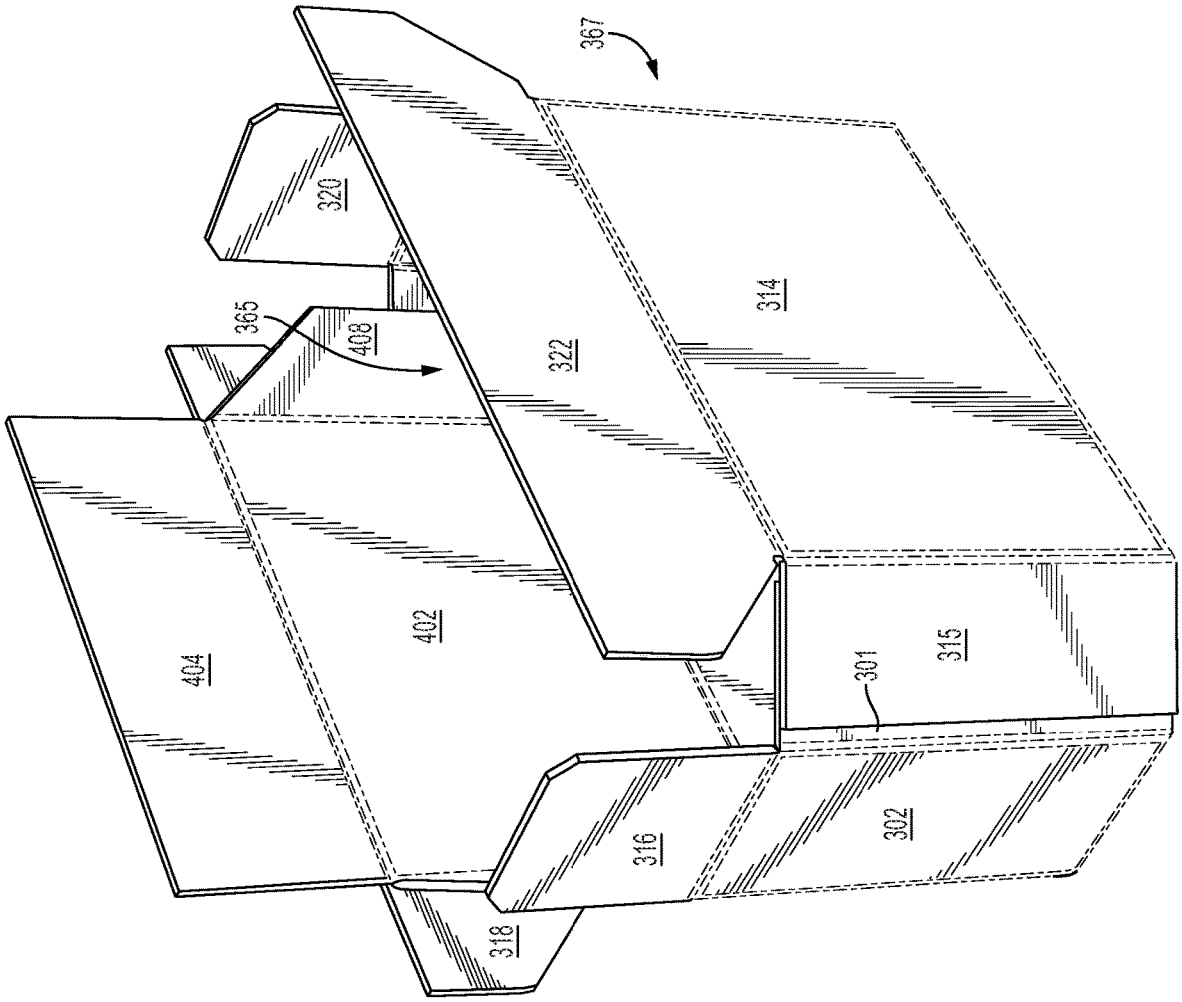


FIG. 19

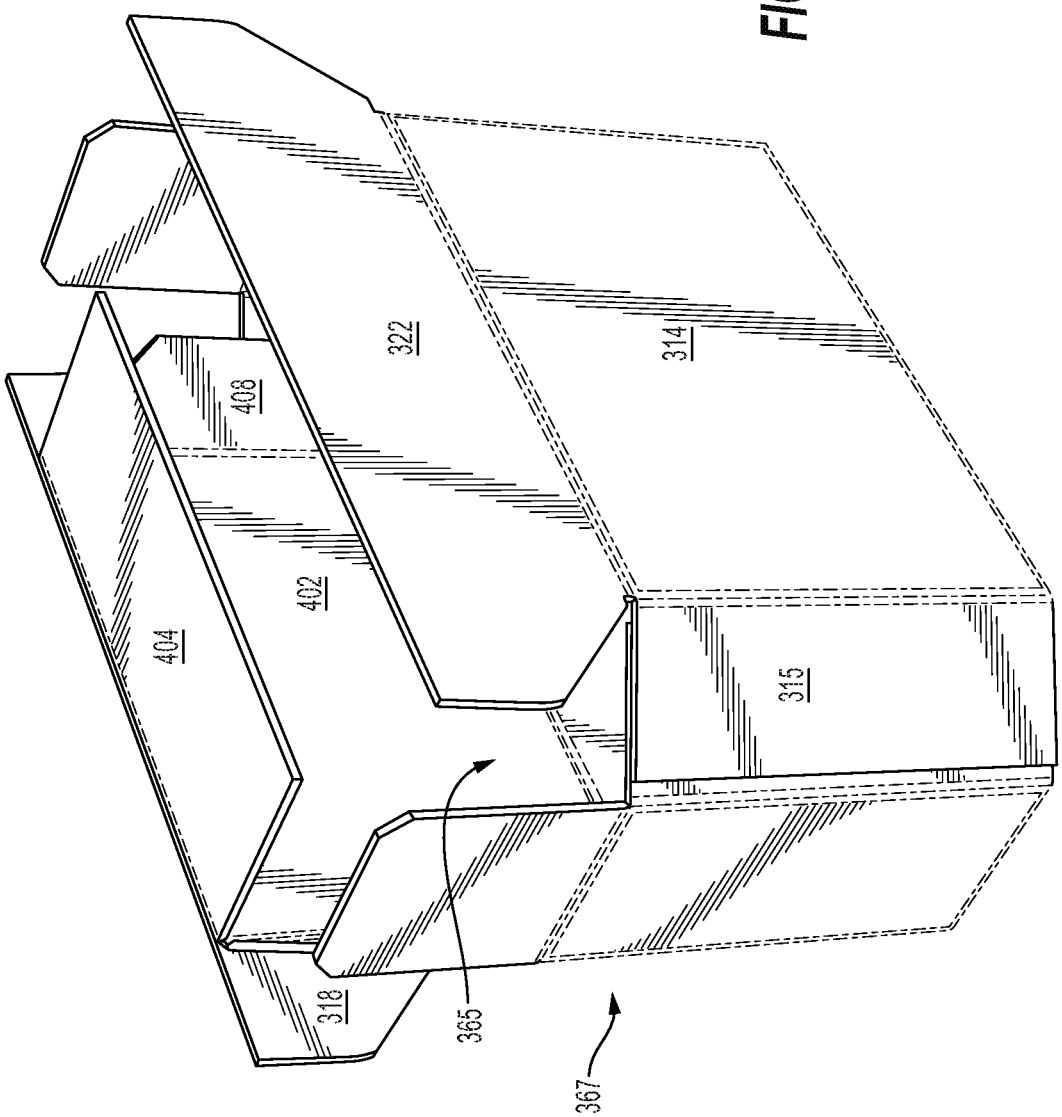
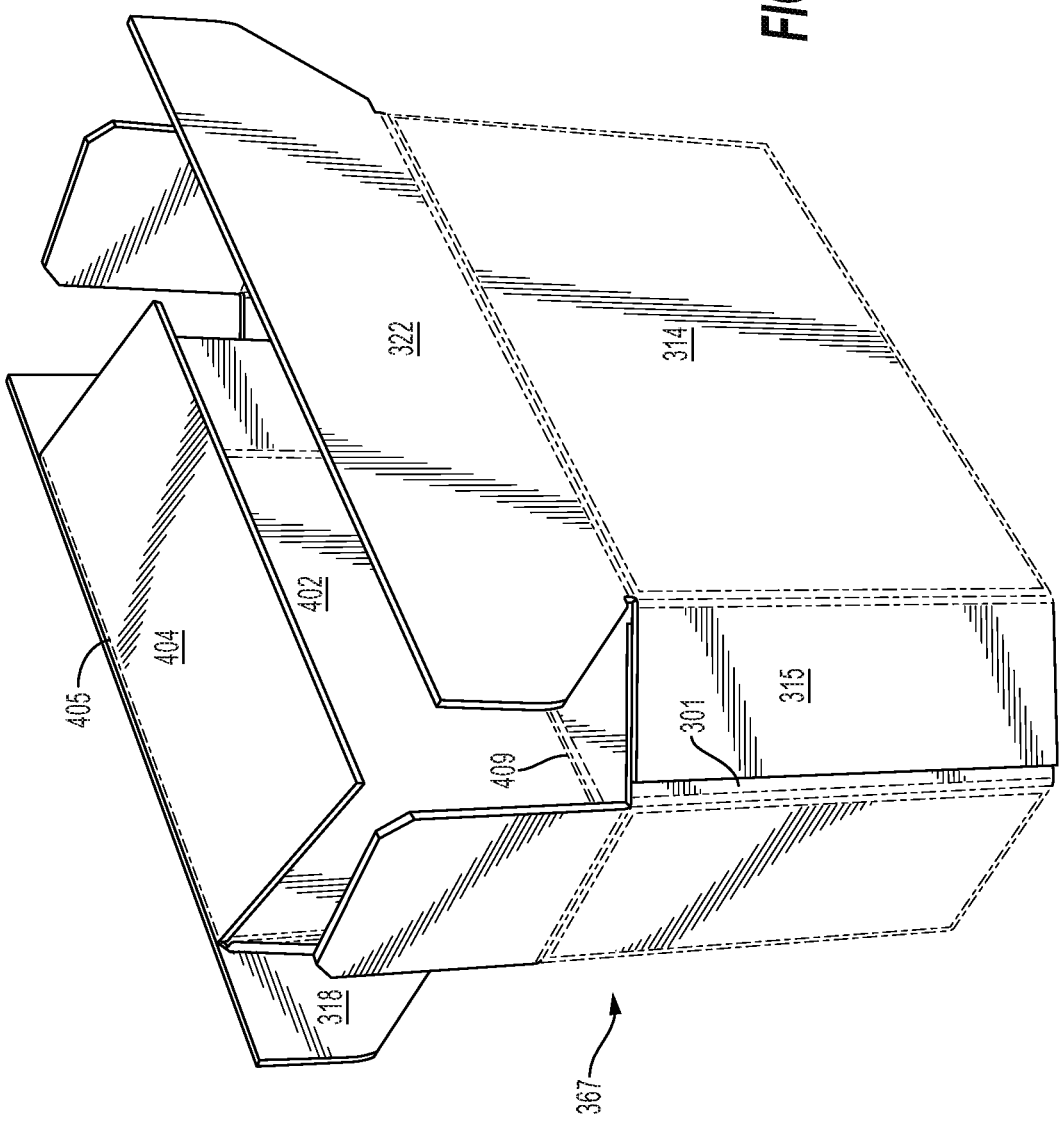


FIG. 20



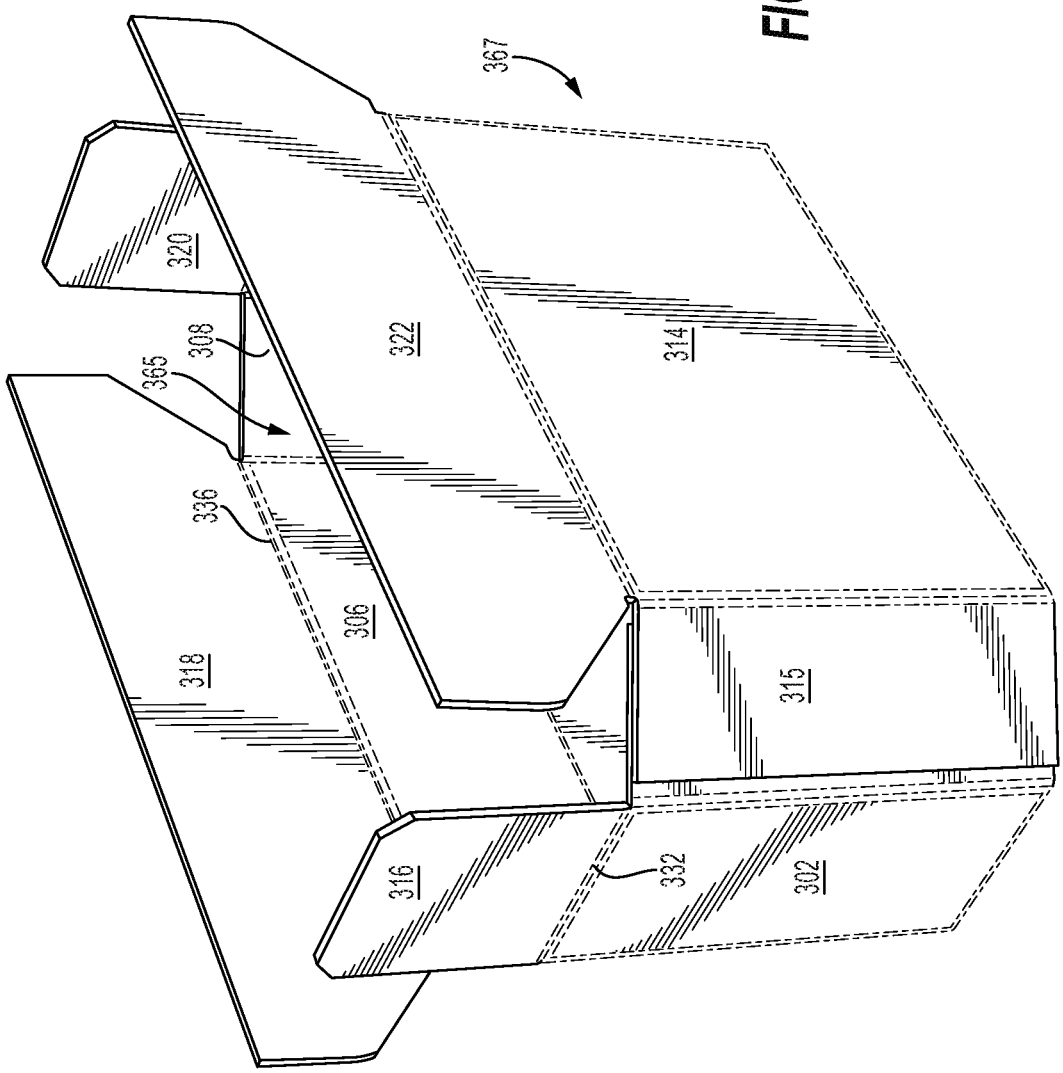
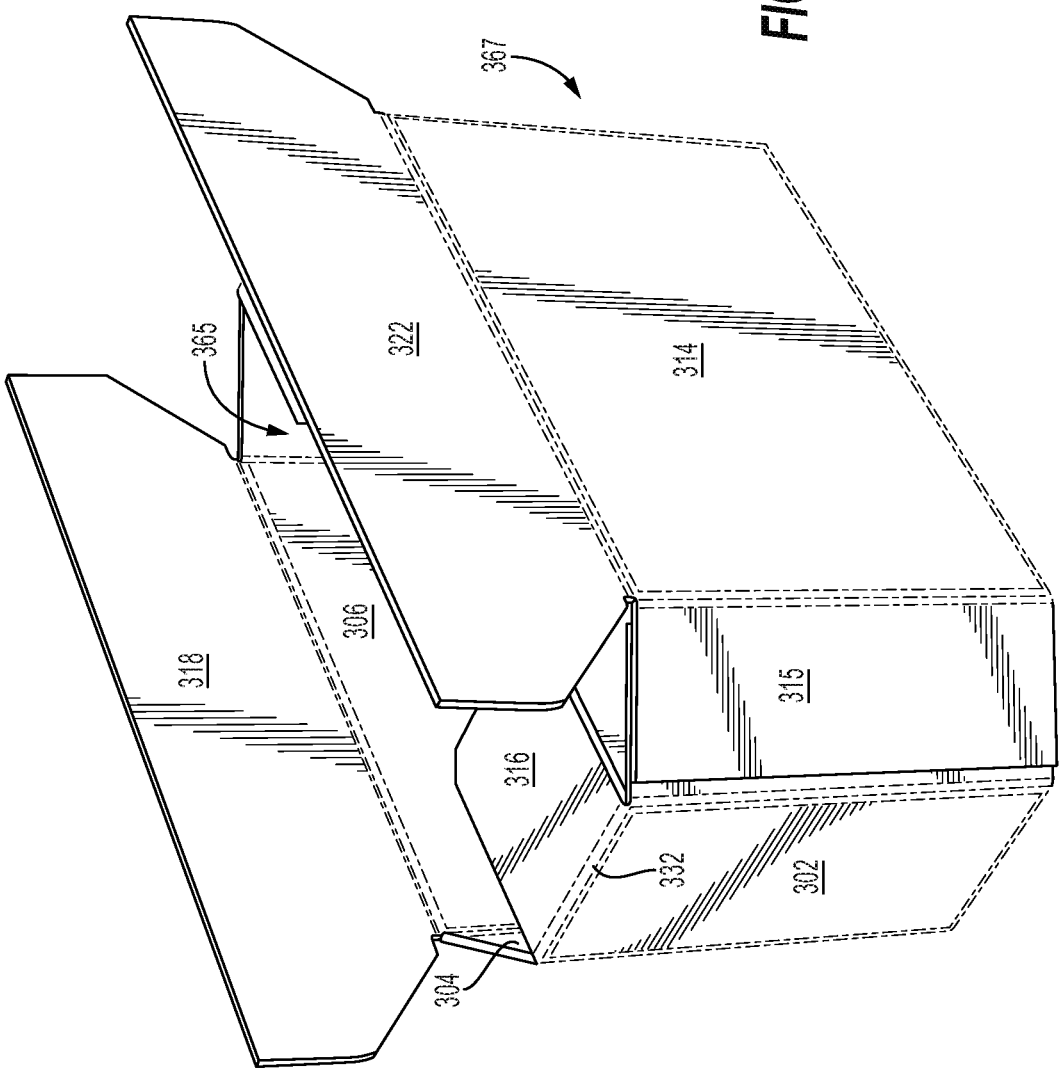


FIG. 21

FIG. 22



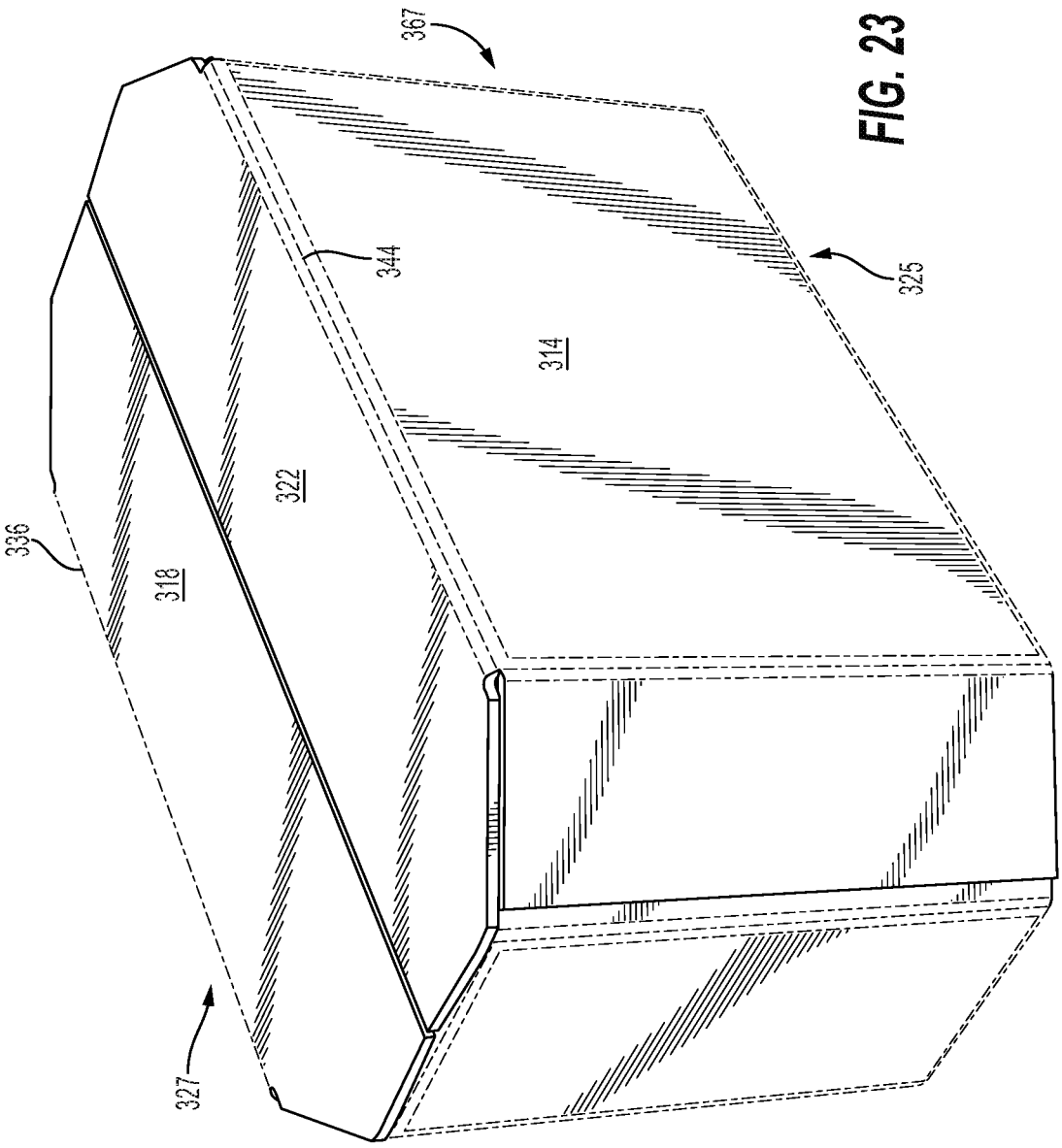
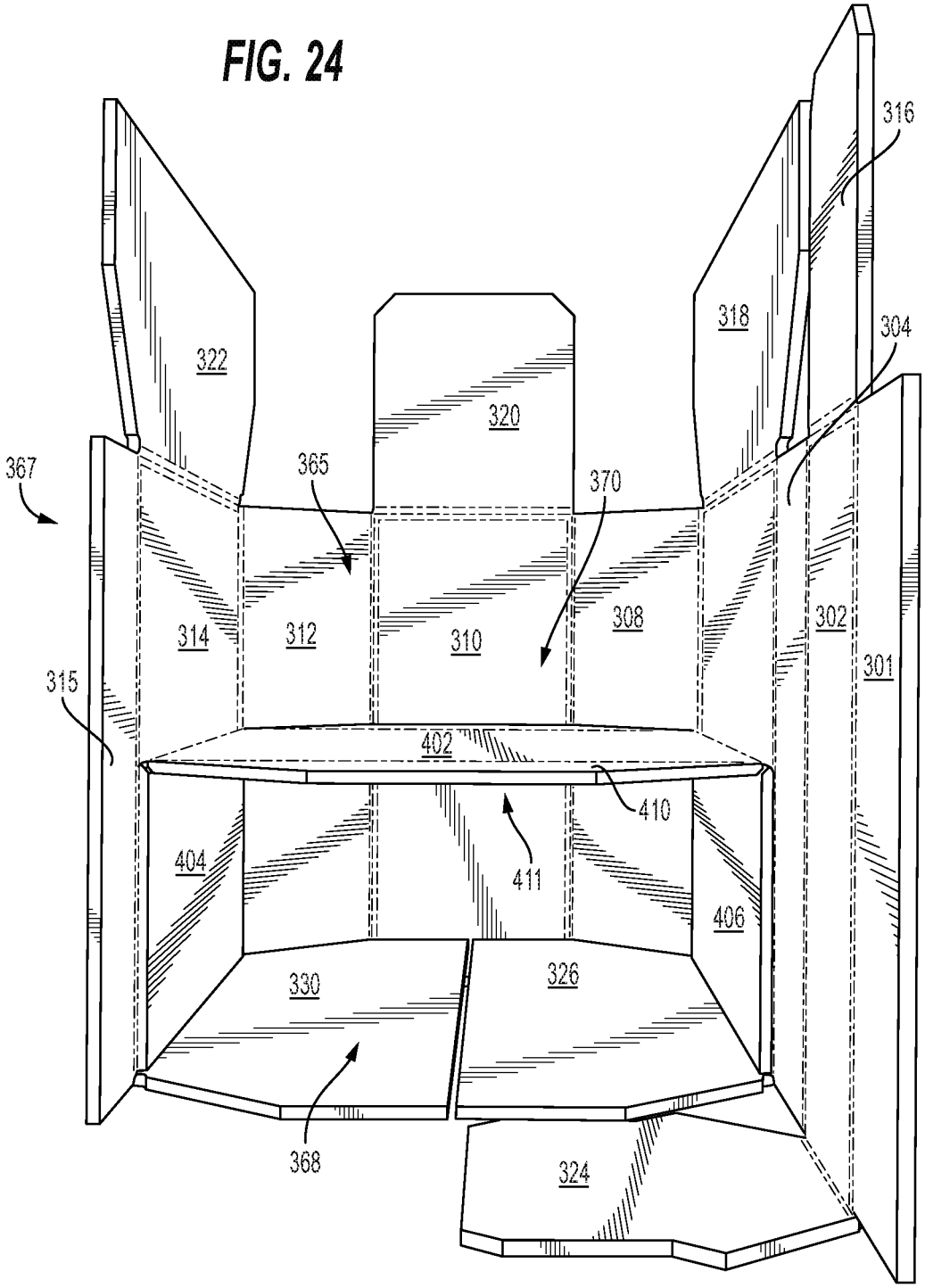


FIG. 23

FIG. 24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CONTAINER WITH ATTACHED SHELF

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present disclosure relates to containers, and more particularly to containers with compartments.

2. Description of Related Art

[0002] Various containers are provided for transporting or shipping goods. In some instances, the goods being transported are relatively fragile, e.g., baked goods and should not be impacted or pressed upon. Typically, goods like cakes are therefore packaged individually in containers strong enough to protect the cake inside during transport.

[0003] The conventional techniques have been considered satisfactory for their intended purpose. However, there is an ever present need for improved transport or shipping containers. This disclosure provides a solution for this need.

SUMMARY OF THE INVENTION

[0004] A container comprises a plurality of panels connected together to enclose an interior space. The interior space is divided into an upper interior space and a lower interior space by a shelf adhered to one or more of the plurality of panels. The shelf includes a main shelf panel and a pair of opposed side shelf flaps connected to the main shelf panel along a pair of fold lines.

[0005] The shelf can extend from a first end of the interior space to an opposite end of the interior space along a longitudinal axis of the container. The pair of opposed shelf flaps can provide load bearing support to the main shelf panel, wherein the opposed shelf flaps are folded 90 degrees with respect to the main shelf panel. The main shelf panel can be sufficiently rigid to support the weight of an upper product that can be placed in the upper interior space in a manner such that an air gap can be maintained between the top of a lower product that can be placed into the lower interior space and the main shelf panel.

[0006] The shelf can include a pair of opposed shelf end flaps connected to the main shelf panel along a second pair of fold lines. One or more of the opposed shelf flaps or opposed shelf end flaps can be adhered to the plurality of panels and the main shelf panel can be not directly adhered to the plurality of panels. The shelf can include corrugated paper material.

[0007] The plurality of panels can include four panels, which, together with a plurality of flaps foldably connected to the plurality of panels, can connect together to form a rectangular footprint of the interior space. The plurality of panels can include eight panels, which, together with a plurality of flaps foldably connected to the plurality of panels can connect together to form an octagonal footprint of the interior space. The main shelf panel can be dimensioned to have the same dimensions as the footprint of the interior space.

[0008] A blank system for forming a container comprises a main blank includes a plurality of panels foldably connected together configured to enclose an interior space. The blank system includes a shelf blank which includes a main shelf panel and a pair of opposed side shelf flaps connected to the main shelf panel along a pair of fold lines. The shelf blank is configured to form a shelf in the interior space when adhered to the main blank and divide the interior space into an upper interior space and a lower interior space.

[0009] The shelf can be sized to extend from a first end of the interior space to an opposite end of the interior space along a longitudinal axis of the container. The pair of opposed shelf flaps can be configured to provide load bearing support to the main shelf panel, wherein the opposed shelf flaps are folded 90 degrees with respect to the main shelf panel.

[0010] The shelf blank can include a pair of opposed shelf end flaps connected to the main shelf panel along a second pair of fold lines. One or more of the opposed shelf flaps or opposed shelf end flaps can be adhered to the main blank and the main shelf panel itself need not be directly adhered to the main blank. The shelf blank can include corrugated paper material.

[0011] The main blank can be a first main blank, and the shelf blank can be a first shelf blank, wherein a plurality of main blanks like the first main blank and a plurality of shelf blanks like the first shelf blank can all be palletized. The main blanks can be palletized on one pallet, and the shelf blanks can be palletized on a separate pallet. The main blanks and shelf blanks can be palletized on a single pallet together. Each shelf blank can be adhered to a respective one of the main blanks before the blanks are palletized.

[0012] A method for forming a container includes joining a shelf blank onto a main blank, folding the main blank around an interior space, and folding the shelf blank into the interior space to create a shelf dividing the interior space into an upper interior space and a lower interior space. The method can include folding a plurality of flaps of the main blank to create a bottom of the container. The method can include placing a product into the lower interior space before the shelf blank is folded into place to form the upper interior space. The method can include placing a second product into the upper interior space on top of the shelf blank.

[0013] These and other features of the systems and methods of the subject disclosure will become more readily apparent to those skilled in the art from the following detailed description of the preferred embodiments taken in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] So that those skilled in the art to which the subject disclosure appertains will readily understand how to make and use the devices and methods of the subject disclosure without undue experimentation, preferred embodiments thereof will be described in detail herein below with reference to certain figures, wherein:

[0015] FIGS. **1-2** are plan views of an embodiment of a blank system constructed in accordance with the present disclosure, showing the main blank and the shelf blank, respectively;

[0016] FIGS. **3-4** are plan views of another embodiment of a blank system constructed in accordance with the present disclosure, showing another main blank and another shelf blank, respectively;

[0017] FIGS. **5-12** are perspective views of the container of FIGS. **1-2**, showing stages of erecting the blanks into a container;

[0018] FIG. **13** is a side view of the container of FIGS. **1-2**, showing the container partially erected, viewing into the interior space of the container, with the shelf assembled therein;

[0019] FIGS. **14-23** are perspective views of the container of FIGS. **3-4**, showing stages of erecting the blanks into a container;

[0020] FIG. **24** is a side view of the container of FIGS. **3-4** showing the container partially erected, viewing into the interior space of the container, with the shelf assembled therein.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] Reference will now be made to the drawings wherein like reference numerals identify similar structural features or aspects of the subject disclosure. For purposes of explanation and illustration, and not limitation, a view of an embodiment of a blank system for forming a container in accordance with the disclosure is shown in FIGS. **1** and **2**, and is designated generally by reference character **10**. Other embodiments of containers in accordance with the disclosure, or aspects thereof, are provided in FIGS. **2-24** as will be described. The systems and methods described herein can be used to provide containers with attached dividers.

[0022] The blank system **10**, depicted in FIGS. **1** and **2**, includes a main blank **100** including a plurality of panels **102**, **104**, **106**, **108** foldably connected together across respective fold lines **146**, **148**, **150** to enclose an interior space **152** (not visible in FIG. **1**, but see FIG. **9**). The main blank **100** also includes upper flaps **110**, **112**, **114**, **116** and lower flaps **118**, **120**, **122**, **124** foldably connected to each of the panels **102**, **104**, **106**, **108**, respectively. The upper flaps **110**, **112**, **114**, **116** are foldably connected to the panels **102**, **104**, **106**, **108** across respective fold lines **128**, **132**, **136**, **140**. The lower flaps **118**, **120**, **122**, **124** are foldably connected to the panels **102**, **104**, **106**, **108** across respective fold lines **130**, **134**, **138**, **142**. Each of the upper **110**, **112**, **114**, **116** and lower **118**, **120**, **122**, **124** flaps can be of similar size and shape from its respective opposite flap attached to the same panel. The upper **110**, **112**, **114**, **116** and lower **118**, **120**, **122**, **124** flaps can also differ in size and shape from its respective opposite flap attached to the same panel. The main blank **100** also includes a tab **126** foldably connected across fold line **144** to one of the plurality of panels **102**.

[0023] The blank system **10** includes a shelf blank **200** which includes a main shelf panel **202** and a pair of opposed side shelf flaps **204**, **206** foldably connected to the main shelf panel across respective fold lines **203**, **205**.

[0024] With reference now to FIG. **5**, the shelf blank **200** is positioned over the main blank **100** on top of one of the plurality of panels **104** and one of the opposed flaps **112**. The outer portion of the side shelf flap **206** aligns with fold line **134** between panel **104** and flap **120**, so that the flap **120** can later fold at fold line **134** without interference from the shelf blank **200**. The shelf blank **200** can be adhered to the main blank **100**. The main blank **100** and shelf blank **200** can be composed of a paperboard or cardboard material which can be corrugated paper material.

[0025] With reference now to FIGS. **6-9**, the folding of the plurality of panels **102**, **104**, **106**, **108** across fold lines **142**, **144**, **146**, **148** so as to enclose the interior space **152** (depicted in FIG. **9**) is depicted. FIG. **6** depicts the tab **126** folding across fold line **144**. As depicted in FIG. **7**, the panels **102**, **104**, **106**, **108** fold in a manner that brings the panel **108** into contact with the tab **126**. The tab **126** can be adhered to the panel **108**. FIG. **8** depicts the container **154** in a partially erected state, with flaps **120**, **124** closed to partially form the bottom **123** of the container **154**. Also visible in FIG. **8** are portions **202**, **204** of the shelf blank **200** connected to the main blank **100**. FIG. **9** depicts the partially erected container **154** with flaps **118**, **122** folded closed to complete the bottom **123** of the container **154**. As depicted in FIG. **9**, the side shelf flap **204** folds 90° across fold line **203** with respect to the main shelf panel **202**.

[0026] With reference to FIG. **10**, the container **154** is shown with the shelf **207** folded into so as to create a lower interior space **156** (depicted in FIG. **13**) within the interior space **152**. The shelf **207** is formed by the folding of each of the opposed side shelf flaps **204**, **206** across fold lines **203**, **205** to 90° with respect to the main shelf panel **202**. The opposed side shelf flaps **204**, **206** can fold simultaneously or sequentially. The opposed side shelf flaps **204**, **206** can fold to an acute angle with respect to the main shelf panel **202** during an intermediate phase of the folding process.

[0027] With reference to FIGS. **11** and **12**, the top **125** of the container **154** is shown being formed by the folding closure of flaps **110**, **114** (FIG. **11**) and the folding closure of flaps **112**, **116** (FIG. **12**). The closure of the flaps **110**, **114**, **112**, **116** to create the top **125** of the container **154** also creates an upper interior space **158** within the interior space **152** of the container **154**. FIG. **12** depicts the erected, closed container **154**. The container **154**, and the interior space **152** display a rectangular footprint.

[0028] FIG. **13** depicts the container **154** partially erected to display a cross-sectional view of the container **154**. Visible in FIG. **13** is the erected shelf **207**, dividing the interior space **152** into a lower interior space **156** and an upper interior space **158**. The shelf **207** spans the length of the interior space **152** along a longitudinal axis, L (depicted in FIG. **5**). The shelf **207** also spans the width of the interior space **152** along a lateral axis, W (depicted in FIG. **5**). The erected shelf **207** receives structural support from the folded opposed side shelf flaps **204**, **206**. The main shelf panel **202** serves as the area on which product can be placed. The main shelf panel **202** is supported by the folded side shelf flaps **204**, **206** is of sufficient rigidity and strength to limit the amount of bowing into the lower interior space **156** when a load is applied thereto. The shelf **207** maintains an air gap between the top of the product in the lower interior space **156** and the portion of the main shelf panel **202** facing the lower interior space **156**. The shelf blank **200** can be composed of a corrugated paper material, where the corrugations can be aligned to provide structural support and integrity for the assembled shelf **207**. The weight of product loaded into the upper interior space **158**, should be adequately supported so that no part of the shelf **207** deflects into the lower interior space **156** to touch, or otherwise impact a product placed into the lower interior space **156**.

[0029] Without limiting the intended scope of potential uses for the disclosed container **154**, an exemplary product that can be loaded into the disclosed container **154** is a cake, other baked goods, or other foods. Baked goods are relatively fragile products and will not transport in a satisfactory manner if force is applied to them, particularly from above. For example the disclosed container **154** can transport a cake in the lower interior space **156** without damaging it, even if the shelf **207** above the lower interior space **156** is supporting the weight of a separate cake in the upper interior space **158**. In another example, a cake can be loaded into the lower interior space **156** while items related to the service of a cake such as utensils, plates, and cutlery can be loaded into the

upper interior space **158** without the shelf **207** deflecting into the lower interior space **156** to impact the cake.

[0030] The main blank **100** can be a first main blank, and the shelf blank **200** can be a first shelf blank, where a plurality of main blanks **100** like the first main blank **100** and a plurality of shelf blanks **200** like the first shelf blank **200** are palletized for shipping. The main blanks **100** can be palletized on one pallet, and the shelf blanks **200** can be palletized on a separate pallet. The main blanks **100** and shelf blanks **200** can be palletized on a single pallet together. The main blanks **100** and shelf blanks **200** can be palletized together as depicted in FIG. **5**, where each shelf blank **200** is positioned on a respective main blank **100**. Each shelf blank **200** can be adhered to a respective main blank **100** before the blanks are palletized.

[0031] With reference now to FIGS. **3** and **4**, another embodiment of a blank system **20** is shown, similar to the blank system **10** with respect to FIGS. **1-2** and **5-13**. The blank system **20** incorporates the features of the blank system **10** discussed above, and some distinguishing features are described below.

[0032] The blank system **20** includes a main blank **300** and a shelf blank **400**. The main blank **300** has 7 panels **302**, **304**, **306**, **308**, **310**, **312**, **314** which fold across respective fold lines **350**, **352**, **354**, **356**, **358**, **360**, **362**. Two end flaps **301**, **315** fold across respective fold lines **348**, **362**, and join together or adhere together to enclose an interior space **365** of a container **367**. The end flaps **301**, **315** can also be referred to synonymously as panels in the present disclosure. The shelf blank **400** is similar to the shelf blank **200** of the blank system **100**, except that it has a pair of opposed shelf end flaps **408**, **410** in addition to the pair of opposed side shelf flaps **404**, **406**.

[0033] With reference now to FIGS. **14-18**, the folding of the plurality of panels **302**, **304**, **306**, **308**, **301**, **312**, **314** across respective fold lines **350**, **352**, **354**, **356**, **358**, **360**, **362** and the folding of end flaps **301**, **315** across fold lines **348**, **362** is depicted. Visible in FIG. **17** are the flaps **324**, **326**, **328**, **330** folded across fold lines **334**, **338**, **342**, **346** to enclose the bottom **325** of the container **367**. Visible in FIG. **18** is the partially erected container **367** around which the panels **302**, **304**, **306**, **308**, **310**, **312**, **314** and end flaps **301**, **315** have partially enclosed an interior space **365**. Also visible in FIG. **18** are portions **402**, **404**, **408**, **410** of the shelf blank **400** connected to the main blank **300**.

[0034] With reference now to FIGS. **19** and **20**, the folding of one of the opposed side shelf flaps **404** is shown. The side shelf flap **404** folds to an acute angle with respect to the main shelf panel **402** across fold line **405** to provide clearance between the main shelf panel **402** and the main blank panel **314** when the main shelf panel **402** is folded across fold line **409** to form the shelf **411**. The folding of the main shelf panel **402** occurs sequentially in FIG. **21**, and the result of the folding of the main shelf panel **402** to form the shelf **411** is depicted in FIG. **24**. Similar to the erecting of the container **154** of the blank system **10**, the folding of the shelf blank **400** to form the shelf **411** creates a lower interior space **368** in the interior space **365** of the container **367**.

[0035] With reference now to FIGS. **21-23**, the top **327** of the container **367** is formed by the folding of flaps **316**, **318**, **320**, **322** across respective fold lines **332**, **336**, **340**, **344**. The folding of flaps **316**, **318**, **320**, **322** to create the top **327** of the container **367** also creates an upper interior space **370** within the interior space **365** of the container **367**. FIG. **23** depicts the erected, closed container **367**. The container **367**, and the interior space **365** adopt an octagonal footprint in this embodiment.

[0036] FIG. **24** presents, as depicted in FIG. **13**, a cross-sectional view of the partially erected container **367**. The features of the shelf **207** of the blank system **10** are shared with the shelf **411** formed within the container **367** formed by the blank system **20**. The shelf **411** has opposed shelf end flaps **408**, **410** which are contoured to fit closely to the shape created by the panels **308**, **310**, **312**. When the container **367** is not opened as in FIG. **13**, the shelf end flaps **408**, **410** also fit closely with the shape created by the panels **302**, **304** and joined end flaps **301**, **315**.

[0037] The methods and systems of the present disclosure, as described above and shown in the drawings, provide for containers with an interior divider. While the apparatus and methods of the subject disclosure have been shown and described with reference to preferred embodiments, those skilled in the art will readily appreciate that changes and/or modifications may be made thereto without departing from the scope of the subject disclosure.

1. A container comprising:

a plurality of panels connected together to enclose an interior space, wherein the interior space is divided into an upper interior space and a lower interior space by a shelf adhered to one or more of the plurality of panels, wherein the shelf includes:

a main shelf panel and a pair of opposed side shelf flaps connected to the main shelf panel along a pair of fold lines.

2. The container as recited in claim **1**, wherein the shelf extends from a first end of the interior space to an opposite end of the interior space along a longitudinal axis of the container.

3. The container as recited in claim **1**, wherein the pair of opposed shelf flaps provide load bearing support to the main shelf panel and wherein they are folded **90** degrees with respect to the main shelf panel.

4. The container as recited in claim **3**, wherein the main shelf panel is sufficiently rigid so as to support the weight of an upper product placed in the upper interior space in a manner that maintains an air gap between the top of a lower product placed into the lower interior space and the main shelf panel.

5. The container as recited in claim **1**, wherein the shelf includes a pair of opposed shelf end flaps connected to the main shelf panel along a second pair of fold lines.

6. The container as recited in claim **5**, wherein one or more of the opposed shelf flaps or opposed shelf end flaps is adhered to the plurality of panels and the main shelf panel is not directly adhered to the plurality of panels.

7. The container as recited in claim **1**, wherein the shelf includes corrugated paper material.

8. The container as recited in claim **1**, wherein the plurality of panels includes four panels, which, together with a plurality of flaps foldably connected to the plurality of panels, connect together to form a rectangular footprint of the interior space.

9. The container as recited in claim **1**, wherein the plurality of panels includes eight panels, which, together with a plurality of flaps foldably connected to the plurality of panels connect together to form an octagonal footprint of the interior space.

10. The container as recited in claim **1**, wherein the main shelf panel is dimensioned to have the same dimensions as the footprint of the interior space.

11. A blank system for forming a container comprising:

a main blank including a plurality of panels foldably connected together configured to enclose an interior space; and

a shelf blank including a main shelf panel and a pair of opposed side shelf flaps connected to the main shelf panel along a pair of fold lines, wherein the shelf blank is configured to form a shelf in the interior space when adhered to the main blank and divide the interior space into an upper interior space and a lower interior space.

12. The system as recited in claim **11**, wherein the shelf is sized to extend from a first end of the interior space to an opposite end of the interior space along a longitudinal axis of the container.

13. The system as recited in claim **10**, wherein the pair of opposed shelf flaps are configured to provide load bearing support to the main shelf panel when they are folded **90** degrees with respect to the main shelf panel.

14. The system as recited in claim **10**, wherein the shelf blank includes a pair of opposed shelf end flaps connected to the main shelf panel along a second pair of fold lines.

15. The system as recited in claim **12**, wherein one or more of the opposed shelf flaps or opposed shelf end flaps is adhered to the main blank and the main shelf panel is not directly adhered to the main blank.

16. The system as recited in claim **12**, wherein the shelf blank includes corrugated paper material.

17. The system wherein the main blank is a first main blank, and the shelf blank is a first shelf blank, further comprising a plurality of main blanks like the first main blank and a plurality of shelf blanks like the first shelf blank, wherein all the blanks are palletized.

18. The system recited in claim **17**, wherein the main blanks are palletized on one pallet, and wherein the shelf blanks are palletized on a separate pallet.

19. The system recited in claim **17**, wherein the main blanks and shelf blanks are palletized on a single pallet together.

20. The system recited in claim **19**, wherein each shelf blank is adhered to a respective one of the main blanks before the blanks are palletized.

21. A method for forming a container comprising joining a shelf blank onto a main blank;

folding the main blank around an interior space;

folding the shelf blank into the interior space to create a shelf dividing the interior space into an upper interior space and a lower interior space.

22. The method as recited in claim **18**, further comprising folding a plurality of flaps of the main blank to create a bottom of the container, then placing a product into the lower interior space before folding the shelf blank into place to form the upper interior space.

23. The method as recited in claim **22**, further comprising placing a second product into the upper interior space on top of the shelf blank.

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