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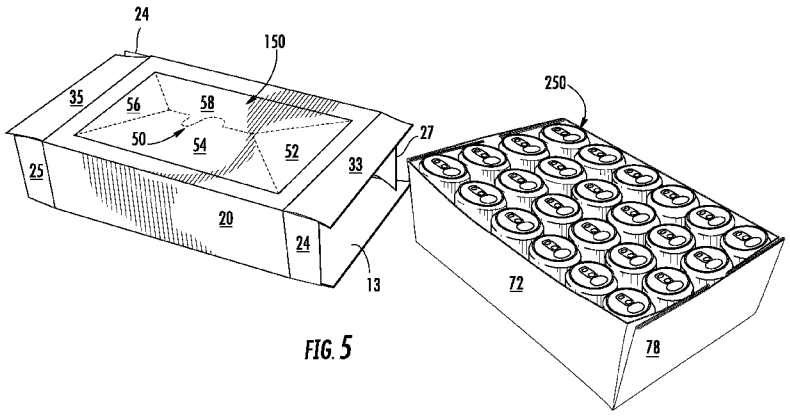


FIG. 5

(57) Abstract: A package can include a tray that is inserted into the interior of a carton. The tray can have a tray bottom panel foldably connected to a first tray side panel and a second tray side panel. The carton can have a top access feature in a top panel to allow access to the containers and also expansion of the volume of the interior of the carton.

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CARTON WITH TRAY AND TOP ACCESS FEATURE

CROSS-REFERENCED TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 62/179,165, filed on April 29, 2015.

INCORPORATION BY REFERENCE

[0002] The disclosure of U.S. Provisional Patent Application No. 62/179,165, which was filed on April 29, 2015, is hereby incorporated by reference for all purposes as if presented herein in its entirety.

BACKGROUND OF THE DISCLOSURE

[0003] The present disclosure generally relates to a carton for handling and carrying containers, and particularly to cartons having a top access feature and a tray with liquid-tight or leakage resistant features.

SUMMARY OF THE DISCLOSURE

[0004] In one aspect, the disclosure is generally directed to a package for holding a plurality of containers. The package comprising a carton comprising a plurality of panels that extends at least partially around an interior of the carton. The plurality of panels comprising a top panel, a bottom panel, a first side panel, and a second side panel. The package comprises a tray for insertion into the interior of the carton. The tray comprises a tray bottom panel for supporting the plurality of containers, a first tray side panel foldably connected to the bottom tray panel, a second tray side panel foldably connected to the tray bottom panel, and liquid-tight features for at least partially preventing leakage from the package. The carton comprises at least one access feature in the top panel of the carton for providing access to the interior of the carton.

[0005] In another aspect, the disclosure is generally directed to the combination of a carton blank and a tray blank for forming a package that holds a plurality of containers and has a carton and a tray. The carton blank is for forming the carton. The carton blank comprises a plurality of panels comprising a top panel, a bottom panel, a first side panel, and a second side panel, and at least one access feature in the top panel. The tray blank is for forming the tray. The tray blank comprises a tray bottom panel for supporting the plurality of containers, a first tray side panel foldably connected to the tray bottom panel, a second tray side panel foldably connected to the tray bottom panel, and features for forming liquid-tight features of the tray for at least partially preventing leakage of the package formed from the carton blank and the tray blank.

[0006] In another aspect, the disclosure is generally directed to a method of forming a package for holding a plurality of containers. The method comprises obtaining a carton blank that comprises a plurality of panels comprising a top panel, a bottom panel, a first side panel, and a second side panel, and at least one access feature in the top panel. The method comprises obtaining a tray blank comprising a tray bottom panel for supporting a plurality of containers. The tray bottom panel is foldably connected to a first tray side panel and a second tray side panel and the tray blank comprises features for forming liquid-tight features for at least partially preventing leakage from the package formed from the carton blank and tray blank. The method comprises forming an interior of a carton at least partially defined by the plurality of panels, wherein the at least one access feature provides access to the interior of the carton, forming a tray at least partially defined by the tray bottom panel, the first tray side panel, and the second tray side panel, and inserting the tray into the interior of the carton.

[0007] In another aspect, the disclosure is generally directed to a method of expanding the interior volume of a carton.

[0008] According to another aspect of the disclosure, the access feature in the top panel can be opened and volume of the carton expanded so that ice, cold water, additional containers, and/or other articles can be placed in the carton through the opened top end. The tray located in the interior volume of the carton can be used to retain liquids, such as water resulting from melting ice, condensation, other liquids, and articles such as, for example, refuse, particulate matter, etc.

[0009] Other aspects, features, and details of the present disclosure can be more completely understood by reference to the following detailed description, taken in conjunction with the drawings and from the appended claims.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0010] According to common practice, the various features of the drawings discussed below are not necessarily drawn to scale. Dimensions of various features and elements in the drawings may be expanded or reduced to more clearly illustrate the embodiments of the disclosure.

[0011] FIG. 1 is a plan view of a carton blank used to form a carton according to one embodiment of the disclosure.

[0012] FIG. 2 is a plan view of a tray blank used to form a tray according to one embodiment of the disclosure.

[0013] FIG. 3 is a perspective view of the erected tray according to one embodiment of this disclosure.

[0014] FIG. 4 is a top view of the erected tray according to one embodiment of this disclosure.

[0015] FIG. 5 is a perspective view of the erected carton and the erected tray according to one embodiment of the disclosure.

[0016] FIG. 6 is a perspective view of the erected tray being inserted into the erected carton according to one embodiment of this disclosure.

[0017] FIG. 7 is a perspective view of the erected carton with opened access flaps according to one embodiment of this disclosure.

[0018] FIG. 8 is a perspective view the erected carton showing the access features according to one embodiment of the disclosure.

[0019] Fig. 9 is a perspective view of the carton of the first embodiment illustrating access and expansion of the interior of the carton.

[0020] Corresponding parts are designated by corresponding reference numbers throughout the drawings.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

[0021] The embodiments of the present disclosure described below generally relate to a carton suitable for storing and dispensing articles such as, for example, beverage containers. The carton provides a bottom receptacle suitable for accommodating, for example, liquids, ice, or other coolants in the carton bottom. In one exemplary embodiment, ice can be added to the opened top of the carton to cool beverage containers held within the carton. As the ice melts, all or a part of the resultant runoff water may be held within the bottom receptacle.

[0022] Articles accommodated within the present carton embodiments can include containers such as, for example, metallic beverage cans, glass or plastic bottles, or other containers such as, for example, those used in packaging foodstuffs and other products. For the purposes of illustration and not for the purpose of limiting the scope of the disclosure, the following detailed description describes generally cylindrical metallic beverage containers as disposed within the carton. In this specification, the terms "side," "end," "bottom," and "top" indicate orientations determined in relation to fully erected, upright cartons.

[0023] FIG. 1 shows a plan view of a carton blank 5 used to form a carton 150 (illustrated in FIGS. 7-8), and FIG. 2 shows a plan view of a tray blank 55 used to form a tray 250 (illustrated in FIG. 3), according to one embodiment of the disclosure. The tray 250 may contain and at least partially support the containers C and be inserted into the carton 150 to form a package 255 (FIG. 6). The tray 250 also can have liquid-tight features for preventing leakage of liquid from the package 255, and the carton 150 can have access features for allowing access to the containers C and expanding the volume of the package 255 to allow ice to be placed on top of the containers C and retained in the package 255. In the illustrated embodiment, the carton 150, tray 250, and package 255 may be dimensioned, sized, and/or shaped to house twenty-four containers C in a single layer in a 4x6 arrangement, but it is understood that the carton 150, tray 250, and package 255 may be dimensioned, sized and/or shaped to hold containers of a different or same quantity in more than one layer and/or in different row/column arrangements (e.g., 1x6, 3x4, 2x6x2, 3x4x2, 3x5, 4x5, 3x6, 2x9, 2x6, 4x4, etc.).

[0024] As generally shown in FIG. 1, in one embodiment, the carton blank 5 can have a longitudinal axis L1 and a lateral axis L2 and generally include a bottom panel 10; a first side panel 20 and a second side panel 22 foldably connected to a respective side of the bottom panel 10 at or along a respective longitudinal fold line 21, 23; and a top panel 30 foldably connected to the first side panel 20 at or along a longitudinal fold line 31. An adhesive panel 40 can be foldably connected to the top panel 30 along longitudinal fold line 41. Additionally, the bottom panel 10 may be foldably connected to a first top end flap 13 and a second top end flap 15. The first side panel 20 can be foldably connected to first side end flap 24 and a second side end flap 25, and the second side panel 22 can be foldably connected to a first side end flap 27 and second side end flap 29. The top panel 30 also can be foldably connected to a first top end flap 33 and second top end flap 35.

[0025] In the illustrated embodiment, when the carton 150 is erected, the first end flaps 13, 24, 27, 33 may close a first end 9 of the carton 150 and the second end flaps 15, 25, 29, 35 may close a second end 11 of the carton 150 (FIGS. 7-8). The end flaps 13, 24, 27, 33 can extend along a first marginal area 100 of the carton blank 5 and be foldably connected to a respective panel 10, 20, 22, 30 at a longitudinal fold line 62, and the end flaps 15, 25, 29, 35 can extend along a second marginal area 102 of the carton blank 5 and be foldably connected to a respective panel 10, 20, 22, 30 at or along a longitudinal fold line 64 (FIG. 1). The longitudinal fold lines 62, 64 may be, for example, substantially straight, or offset at one or more locations to account for blank thickness or for other factors. However, the longitudinal fold lines 62, 64 could be omitted or could be otherwise shaped, arranged, positioned, and/or configured without departing from the disclosure.

[0026] The top panel 30 can include a tear feature, e.g., a breachable line of disruption 50, that at least partially forms four top access flaps 52, 54, 56, 58 in the top panel 30, according to one embodiment of this disclosure. Although, more or less, or other arrangements and/or configurations of, access flaps can be used without departing from this disclosure. Each of the top access flaps 52, 54, 56, 58 can be respectively foldably connected to the top panel 30 at a respective fold line 53, 55, 47, 59 (FIGS. 1 and 8). In the illustrated embodiment, the line of disruption 50 can be a tear line that includes a central lateral portion 61 and oblique portions 63 extending from ends of the central portion, though the line or disruption could be otherwise shaped, arranged, and/or configured without departing from the present disclosure. The central lateral portion 61 may comprise one or more curved portions, e.g., 61a and 61b, and the curved portions 61a, 61b may form or define a substantially sinusoidal shape, though the central lateral portion can include any suitable shape without departing from the disclosure.

[0027] As illustrated in FIG. 2, the tray blank 55 can include a longitudinal axis L1 and a lateral axis L2 and have a bottom panel 70; two side panels 72, 74 foldably connected to the bottom panel 70 at respective longitudinal fold lines 73, 75; and end panels 76, 78 foldably connected to the bottom panel 70 at respective lateral fold lines 77, 79. A lower gusset 80 can be located at or along each corner of the bottom panel 70, extending between and connected to an adjacent side panel 72, 74 and bottom end panel 76, 78, and each lower gusset 80 may comprise a first gusset panel 82 foldably connected to a bottom end panel 76, 78 at the longitudinal fold line 73, 75, and a second gusset panel 84 foldably connected to a side panel 72, 74 at the lateral fold line 77, 79 and the first gusset panel 82 at an oblique fold line 86 (FIG. 2). The tray blank 55 could be otherwise shaped, arranged, and/or configured without departing from this disclosure.

[0028] An exemplary method of erecting or forming the carton 150, tray 250, and package 255 from the carton blank 5 and tray blank 55 is generally discussed below with reference to FIGS. 1-9. The carton 150, tray 250, and package 255, however, can be erected with other methods or folding steps without departing from the disclosure.

[0029] The tray 250 can be formed from the tray blank 55 by upwardly folding the side panels 72, 74 and the end panels 76, 78 relative to the bottom panel 70. The gussets 80 can be formed by overlapping and gluing the gusset panels 82, 84 to connect or fix the side panels 72, 74 to the end panels 76, 78 by way of the gussets 80. The gusset panels 82, 84 can be folded and glued or otherwise fixed together, and the gusset panels 82 can be glued or otherwise fixed to the end panels 76, 78. The connection of the gussets 80 to the end panels 76, 78 may form the tray 250, and the tray 250 may be liquid-tight and able to contain water and prevent leakage. The tray 250 can be formed by other steps without departing from the disclosure. The tray 250 can be filled with

containers C by placing the containers on the bottom panel 70 of the tray 250. The loaded tray 250 further can be loaded or inserted into the carton 150.

[0030] The carton 150 can be formed by attaching the adhesive panel 40 to the second side panel 22, e.g., using glue, and positioning the side panels 20, 22 to extend between the bottom panel 10 and the top panel 30 to form an open ended sleeve 91 (FIGS. 6 and 7). The open end sleeve 91 can receive the tray 250 loaded with the containers C (Fig. 6). The ends 9, 11 of the carton 150 can be closed by folding and at least partially overlapping the ends flaps 13, 24, 27, 33 at the first end 104 and by folding and at least partially overlapping the end flaps 15, 25, 29, 35 at the second end 106. The carton 150 and/or sleeve 91 can be formed by other steps without departing from the disclosure.

[0031] The loaded and closed package 255 including the carton 150 and the tray 250 is generally shown in FIG. 8. An exemplary method of accessing the package 255 and expanding the volume of the package 255 is discussed below with reference to FIGS. 9-10.

[0032] The top access flaps 52, 54, 56, 58 can be separated from the top panel 30 by tearing along the tear feature 50 to allow the flaps to be folded upwardly along a respective fold line 53, 55, 57, 59. The upwardly folding of the flaps 52, 54, 56, 46 allows access to the containers C held in the tray 250. Also, as shown in FIG. 9, the upwardly folding of the access flaps 52, 54, 56, 58 provides an open secondary compartment 157 above the tray 250 that houses the containers C. The secondary compartment 157 may be open to the interior of the carton 150 and the tray 250 and expand the interior volume of the carton 150 to allow ice to be supported at a location above the containers C. The access flaps or four walls 52, 54, 56, 58 of the secondary compartment 157 can flex to at least partially support the ice and funnel the ice and melted cool water down onto the containers C and into the tray 250. The liquid-tight tray 250 keeps the cool water and ice from leaking from the carton 150 so that the containers C stay cold. Containers housed in the tray 250 can be accessed and withdrawn from the carton 150 through the secondary compartment 157 that allows access to the tray. The secondary compartment 157 can have other features and be otherwise shaped, arranged, and/or configured without departing from the disclosure.

[0033] According to one aspect of the present disclosure, the added interior volume afforded by activating the upstanding secondary compartment 157 on top of the bottom tray 250 increases the carton height allowing a significant volume of cooling media such as, for example, ice to be placed on top of the beverage containers. If desired, additional articles may be placed in the carton 150 after opening. As the ice melts, the carton 150 serves to retain all or a portion of the water runoff from the melting ice by the liquid-tight features of the tray 250.

[0034] According to one embodiment of the present disclosure, the height of the interior volume of the carton 150 increases by at least about 10% when changed from the closed configuration illustrated in FIG. 8, to the open and expanded configuration shown in FIG. 9. According to another embodiment of the disclosure, the height of the interior volume of the open and expanded configuration is at least about 25% greater than the height in the closed configuration. Alternative configurations having different ratios between the first height and the height and volumes are considered within the scope of this disclosure.

[0035] The carton blank 5 and/or tray blank 55 can, for example, be constructed of water resistant material to any degree desired so that liquid in the bottom of the carton 150 or tray 250 remains in the carton package 255 for a selected amount of time.

[0036] Cartons or packages according to the principles of the present disclosure may be formed from materials such as, for example, paperboard. Therefore, if exposed to water or other liquids for extended periods of time, the package, carton, or tray may allow for the passage of liquid through the wetted carton surfaces due to partial permeability of the carton material. In this specification, the term "liquid-tight" is generally used to define a portion of the package that is formed from a continuous portion of material or of a portion without any glued seams through which liquid or fine particulate matter might leak, and the term "liquid-tight" therefore encompasses packages, cartons, or trays that may become partially water permeable over time due to prolonged exposure to water or other liquids.

[0037] In the above embodiments, the packages, cartons, or trays are described as accommodating twenty-four 12-ounce cans containers in 4 x 6 x 1 configuration. Other arrangements of containers, packages, articles, and other items, however, can be accommodated within a package, carton, or tray constructed according to the principles of the present disclosure. For example, a package, carton, or tray constructed according to the principles of the present disclosure would also work satisfactorily if the package, carton, or tray were sized and shaped to hold articles in other configurations, such as 3 x 4 x 1, 3 x 6 x 1, 2 x 4 x 1, 2 x 5 x 1, 2 x 6 x 1, 4 x 6 x 1, etc., and multi-tier variations of the aforementioned configurations.

[0038] The dimensions of the blanks may also be altered, for example, to accommodate various container forms. For example, 16-ounce petaloid-shaped bottles, or bottles having any shape, may be accommodated within a carton constructed according to the principles of the present disclosure.

[0039] The blanks according to the present disclosure can be, for example, formed from coated paperboard and similar materials. For example, the interior and/or exterior sides of the blanks can be coated with a clay coating. The clay coating may then be printed over with product, advertising, price coding, and other information or images. The blanks may then be coated with a varnish to protect any information printed on the blank. The blanks may also be coated with, for example, a moisture barrier layer, on either or both sides of the blank. In accordance with the above-described embodiments, the blanks may be constructed of paperboard of a caliper such that it is heavier and more rigid than ordinary paper (e.g., a caliper of at least about 14). The blanks can also be constructed of other materials, such as cardboard, hard paper, or any other material having properties suitable for enabling the carton to function at least generally as described herein. The blanks can also be laminated or coated with one or more sheet-like materials at selected panels or panel sections.

[0040] The above embodiments may be described as having one or more panels adhered together by glue. The term "glue" is intended to encompass all manner of adhesives commonly used to secure carton panels in place.

[0041] In accordance with the above-described embodiments of the present disclosure, a fold line can be any substantially linear, although not necessarily straight, form of weakening that facilitates folding therealong. More specifically, but not for the purpose of narrowing the scope of the present disclosure, fold lines include: a score line, such as lines formed with a blunt scoring knife, or the like, which creates a crushed portion in the material along the desired line of weakness; a cut that extends partially into a material along the desired line of weakness, and/or a series of cuts that extend partially into and/or completely through the material along the desired line of weakness; and various combinations of these features. In the present specification, a "panel" or "flap" need not be flat or otherwise planar. A "panel" or "flap" can, for example, comprise a plurality of interconnected generally flat or planar portions.

[0042] For purposes of the description presented herein, the term "line of disruption" can be used to generally refer to, for example, a cut line, a score line, a crease line, a tear line, or a fold line (or various sequential and/or overlapping combinations thereof) formed in a blank. A "breachable" line of disruption is a line of disruption that is intended to be breached during ordinary use of the carton. An example of a breachable line of disruption is a tear line.

[0043] As an example, a tear line can include: a slit that extends partially into the material along the desired line of weakness, and/or a series of spaced apart slits that extend partially into and/or completely through the material along the desired line of weakness, or various combinations of these features. As a more specific example, one type tear line is in the form of a series of spaced

apart slits that extend completely through the material, with adjacent slits being spaced apart slightly so that a nick (e.g., a small somewhat bridging-like piece of the material) is defined between the adjacent slits for typically temporarily connecting the material across the tear line. The nicks are broken during tearing along the tear line. The nicks typically are a relatively small percentage of the tear line, and alternatively the nicks can be omitted from or torn in a tear line such that the tear line is a continuous cut line. That is, it is within the scope of the present disclosure for each of the tear lines to be replaced with a continuous slit, or the like. For example, a cut line can be a continuous slit or could be wider than a slit without departing from the present disclosure.

[0044] In the illustrated embodiments, selected fold lines are shown as including spaced cuts to facilitate folding along the lines. If the cuts are below or adjacent to a bottom receptacle portion of a carton, less than 100% cuts may be used to prevent leakage along the fold lines. Alternatively, cuts or scores may be omitted within or near the receptacle portion.

[0045] The foregoing description of the disclosure illustrates and describes various exemplary embodiments. Various additions, modifications, changes, etc. could be made to the exemplary embodiments without departing from the spirit and scope of the claims. It is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. Additionally, the disclosure shows and describes only selected embodiments of the disclosure, but the disclosure is capable of use in various other combinations, modifications, and environments and is capable of changes or modifications within the scope of the inventive concept as expressed herein, commensurate with the above teachings, and/or within the skill or knowledge of the relevant art. Furthermore, certain features and characteristics of each embodiment may be selectively interchanged and applied to other illustrated and non-illustrated embodiments of the disclosure.

Claims

What is claimed is:

1. A package for holding a plurality of containers, comprising:

a carton comprising a plurality of panels that extends at least partially around an interior of the carton, the plurality of panels comprising a top panel, a bottom panel, a first side panel, and a second side panel; and

a tray for insertion into the interior of the carton, the tray comprises a tray bottom panel for supporting the plurality of containers, a first tray side panel foldably connected to the bottom tray panel, a second tray side panel foldably connected to the tray bottom panel, and liquid-tight features for at least partially preventing leakage from the package,

the carton comprises at least one access feature in the top panel of the carton for providing access to the interior of the carton.

2. The package of claim 1, wherein the at least one access feature comprises at least one tear feature in the top panel of the carton.

3. The package of claim 3, wherein the at least one tear feature comprises a breachable line of disruption at least partially defining a plurality of access flaps in the top panel of the carton.

4. The package of claim 4, wherein the breachable line of disruption comprises a central portion and at least one oblique portion extending from an end of the central portion.

5. The package of claim 4, wherein the breachable line of disruption comprises a central portion and pairs of oblique portions extending from respective ends of the central portion.

6. The package of claim 5, wherein the access flaps are each foldably connected to the top panel of the carton along a respective fold line.

7. The package of claim 6, wherein the access flaps are folded upwardly relative to the top panel to at least partially form a compartment.

8. The package of claim 7, wherein the compartment is at least partially open to the interior of the carton.

9. The package of claim 8, wherein the compartment expands an interior volume of the carton and allows ice to be supported at a location above the plurality of containers.

10. The package of claim 9, wherein one or more of the access flaps at least partially support the ice and are flexible for directing the ice and melted liquid onto the plurality of containers.

11. The package of claim 1, wherein the tray comprises a first tray end panel and a second tray end panel foldably connected to the tray bottom panel, and a plurality of gussets connecting a respective one of the first tray side panel and the second tray side panel to a respective one of the first tray end panel and the second tray end panel.

12. The package of claim 11, wherein the plurality of gussets comprises four gussets, each of the four gussets being at a respective corner of the tray.

13. In combination, a carton blank and a tray blank for forming a package that holds a plurality of containers and comprises a carton and a tray,

the carton blank for forming the carton, the carton blank comprises a plurality of panels comprising a top panel, a bottom panel, a first side panel, and a second side panel; and at least one access feature in the top panel; and

the tray blank for forming the tray, the tray blank comprises a tray bottom panel for supporting the plurality of containers, a first tray side panel foldably connected to the tray bottom panel, a second tray side panel foldably connected to the tray bottom panel, and features for forming liquid-tight features of the tray for at least partially preventing leakage of the package formed from the carton blank and the tray blank.

14. The combination of claim 13, wherein the at least one access feature comprises at least one tear feature in the top panel of the carton.

15. The combination of claim 14, wherein the at least one tear feature comprises a breachable line of disruption at least partially defining a plurality of access flaps in the top panel of the carton.

16. The combination of claim 15, wherein the breachable line of disruption comprises a central portion and at least one oblique portion extending from an end of the central portion.

17. The combination of claim 15, wherein the breachable line of disruption comprises a central portion and pairs of oblique portions extending from respective ends of the central portion.

18. The combination of claim 15, wherein the access flaps are each foldably connected to the top panel along a respective fold line.

19. The combination of claim 13, wherein the tray blank comprises a first tray end panel and a second tray end panel foldably connected to the tray bottom panel, and a plurality of gussets connecting a respective one of the first tray side panel and the second tray side panel to a respective one of the first tray end panel and the second tray end panel.

20. The combination of claim 19, wherein the plurality of gussets comprises four gussets, each of the four gussets being at a respective corner of the tray.

21. A method of forming a package for holding a plurality of containers, comprising:
obtaining a carton blank that comprises a plurality of panels comprising a top panel, a bottom panel, a first side panel, and a second side panel; and at least one access feature in the top panel;
obtaining a tray blank comprising a tray bottom panel for supporting a plurality of containers, the tray bottom panel is foldably connected to a first tray side panel and a second tray side panel and the tray blank comprises features for forming liquid-tight features for at least partially preventing leakage from the package formed from the carton blank and tray blank;
forming an interior of a carton at least partially defined by the plurality of panels, wherein the at least one access feature provides access to the interior of the carton; and
forming a tray at least partially defined by the tray bottom panel, the first tray side panel, and the second tray side panel; and
inserting the tray into the interior of the carton.

22. The method of claim 21, further comprising expanding an interior volume of the carton.

23. The method of claim 22, further comprising activating at least one tear feature in the top panel of the carton to at least partially separate a plurality of access flaps foldably connected to the top panel of the carton.

24. The method of claim 23, further comprising positioning the plurality of access flaps to at least partially form a compartment that is at least partially open to the interior of the carton.

25. The method of claim 23, wherein the at least one tear feature comprises a breachable line of disruption at least partially defining the plurality of access flaps in the top panel of the carton.

26. The method of claim 25, wherein the breachable line of disruption comprises a central portion and at least one oblique portion extending from an end of the central portion.

27. The method of claim 25, wherein the breachable line of disruption comprises a central portion and pairs of oblique portions extending from respective ends of the central portion.

28. The method of claim 23, further comprising folding the access flaps upwardly relative to the top panel to at least partially form the compartment.

29. The method of claim 28, further comprising positioning ice in the compartment at a location above the plurality of containers.

30. The method of claim 29, wherein one or more of the access flaps at least partially support the ice and are flexible for directing the ice and melted liquid onto the plurality of containers.

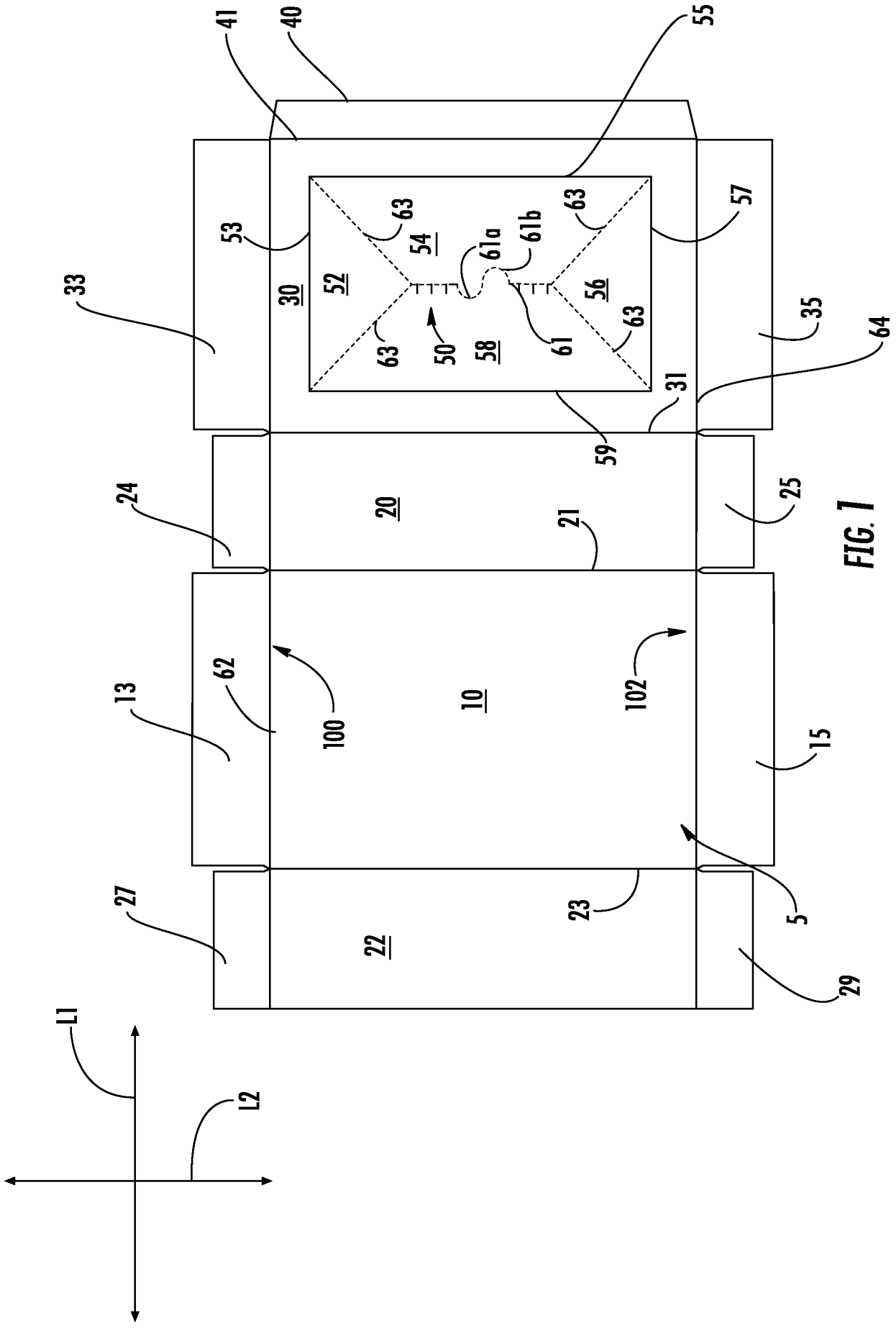
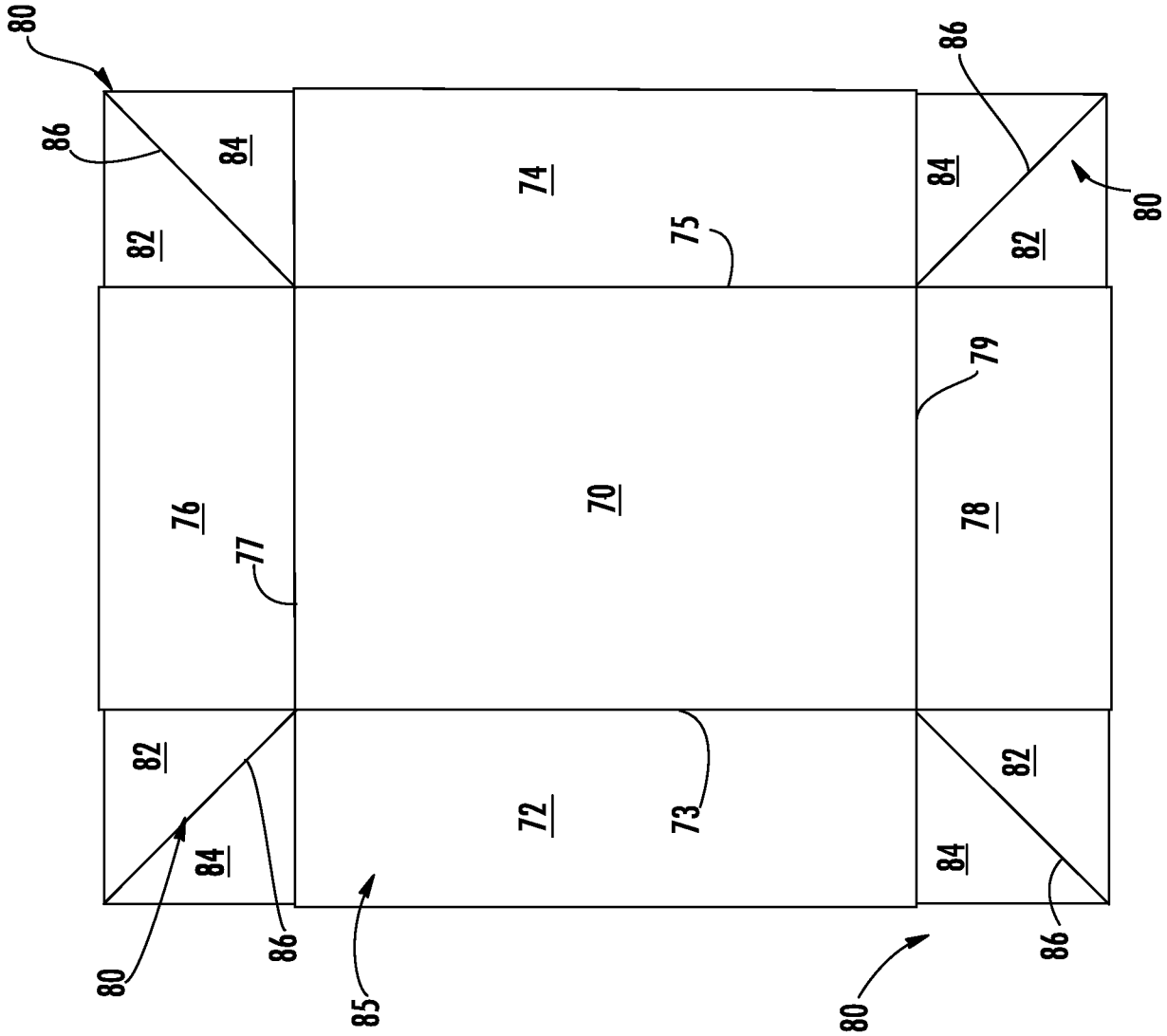

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L1
L2

FIG. 1


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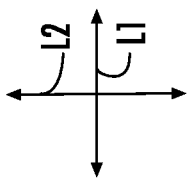

L2
L1

FIG. 2

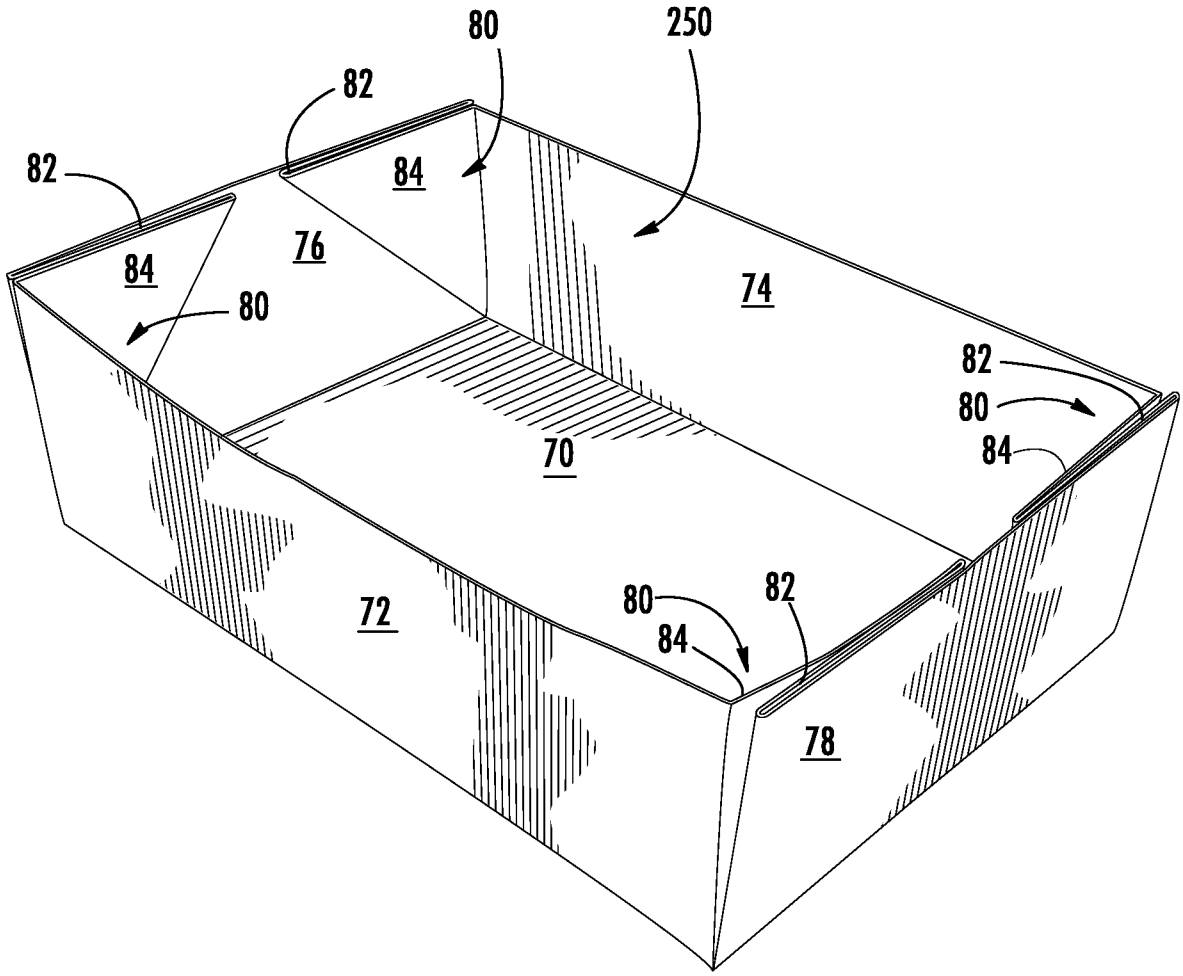


FIG. 3

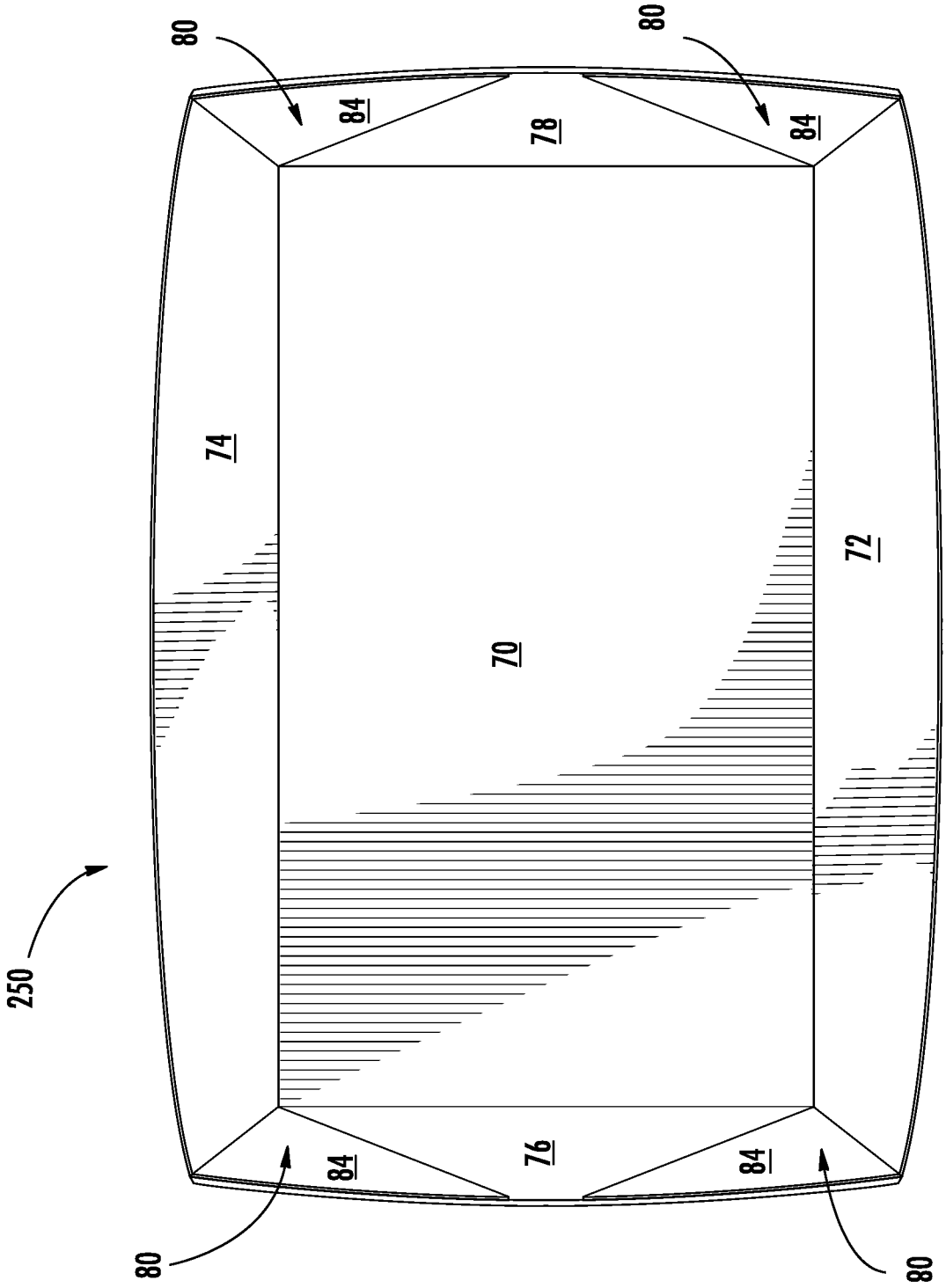


FIG. 4

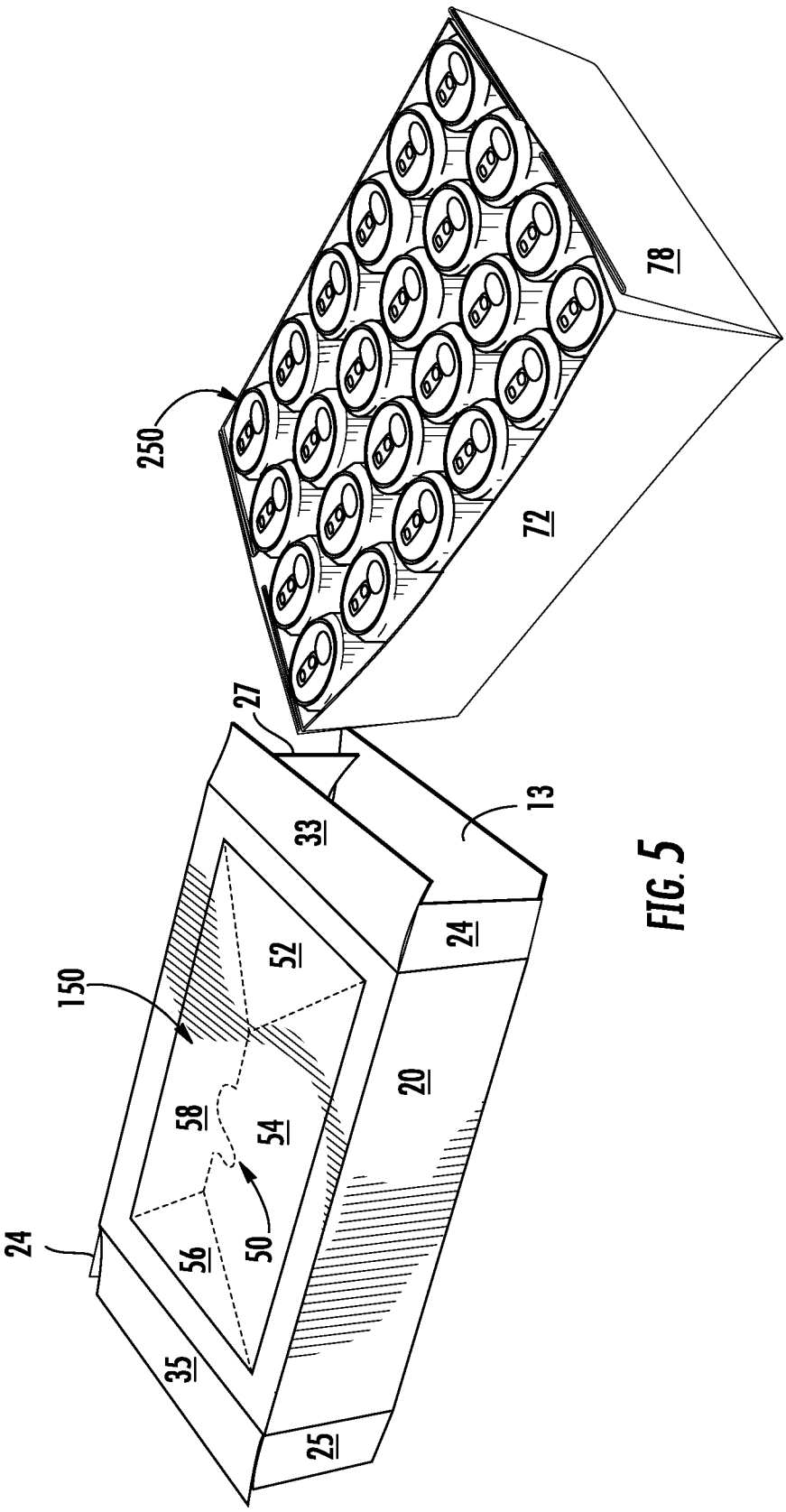


FIG. 5

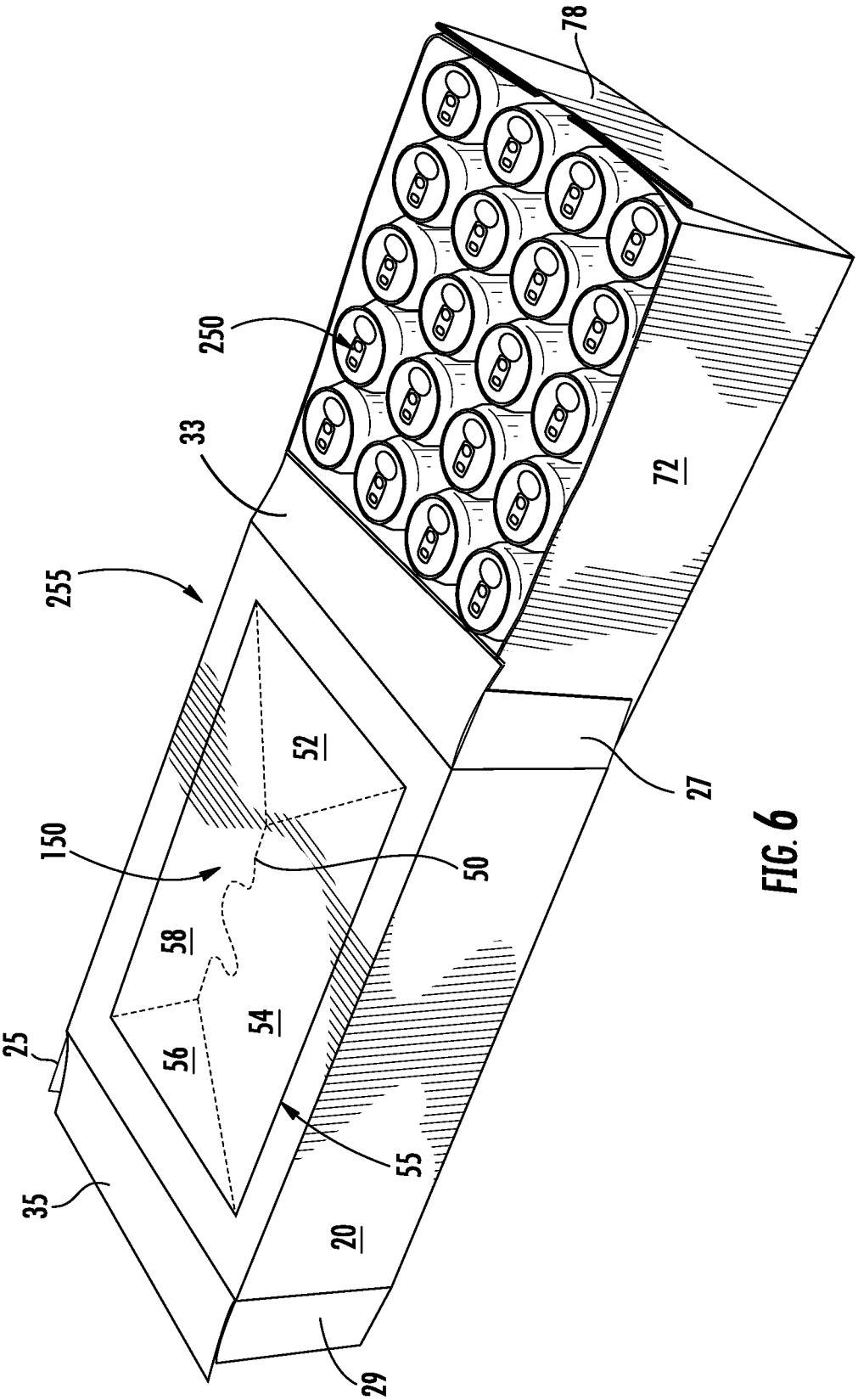


FIG. 6

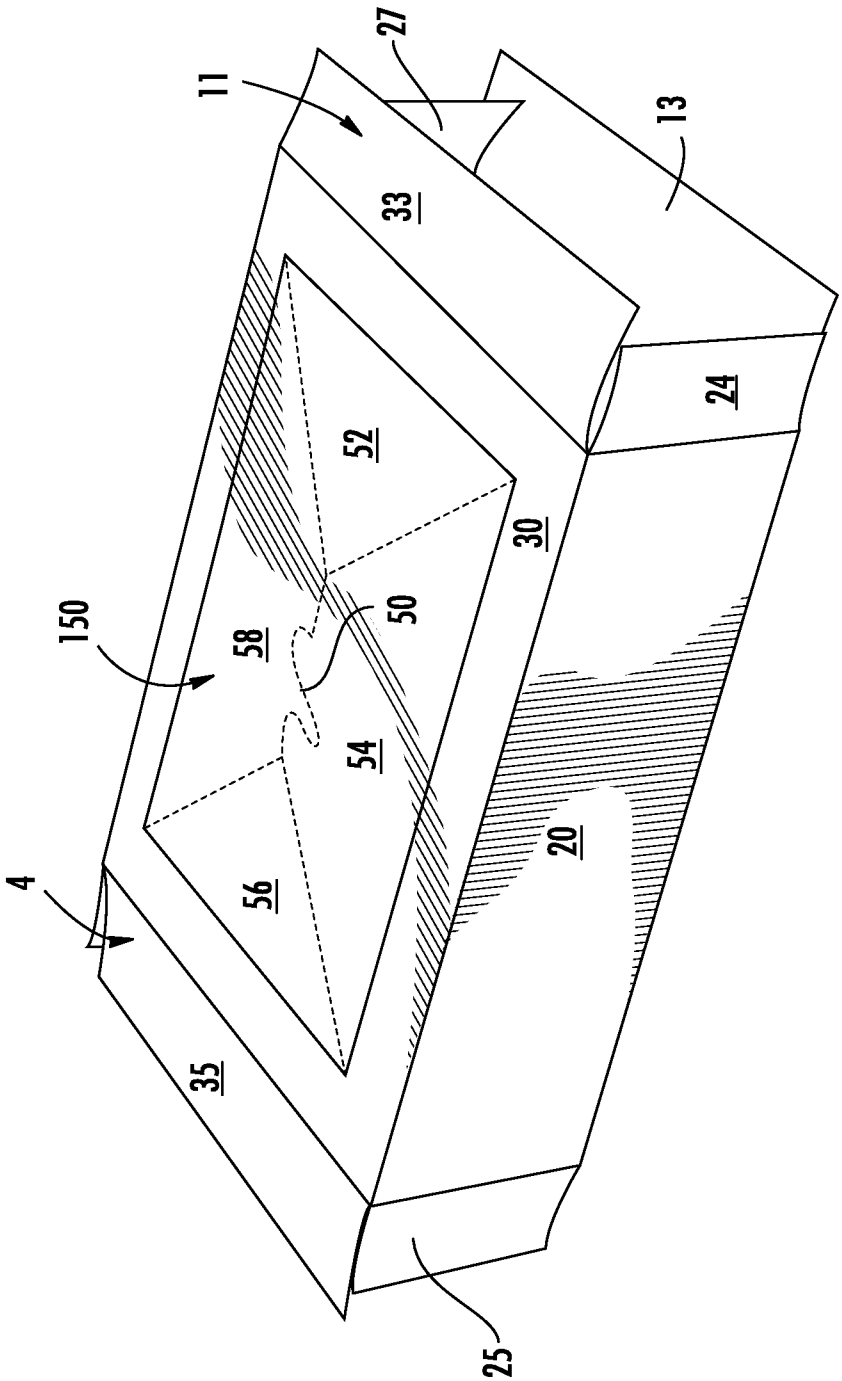


FIG. 7

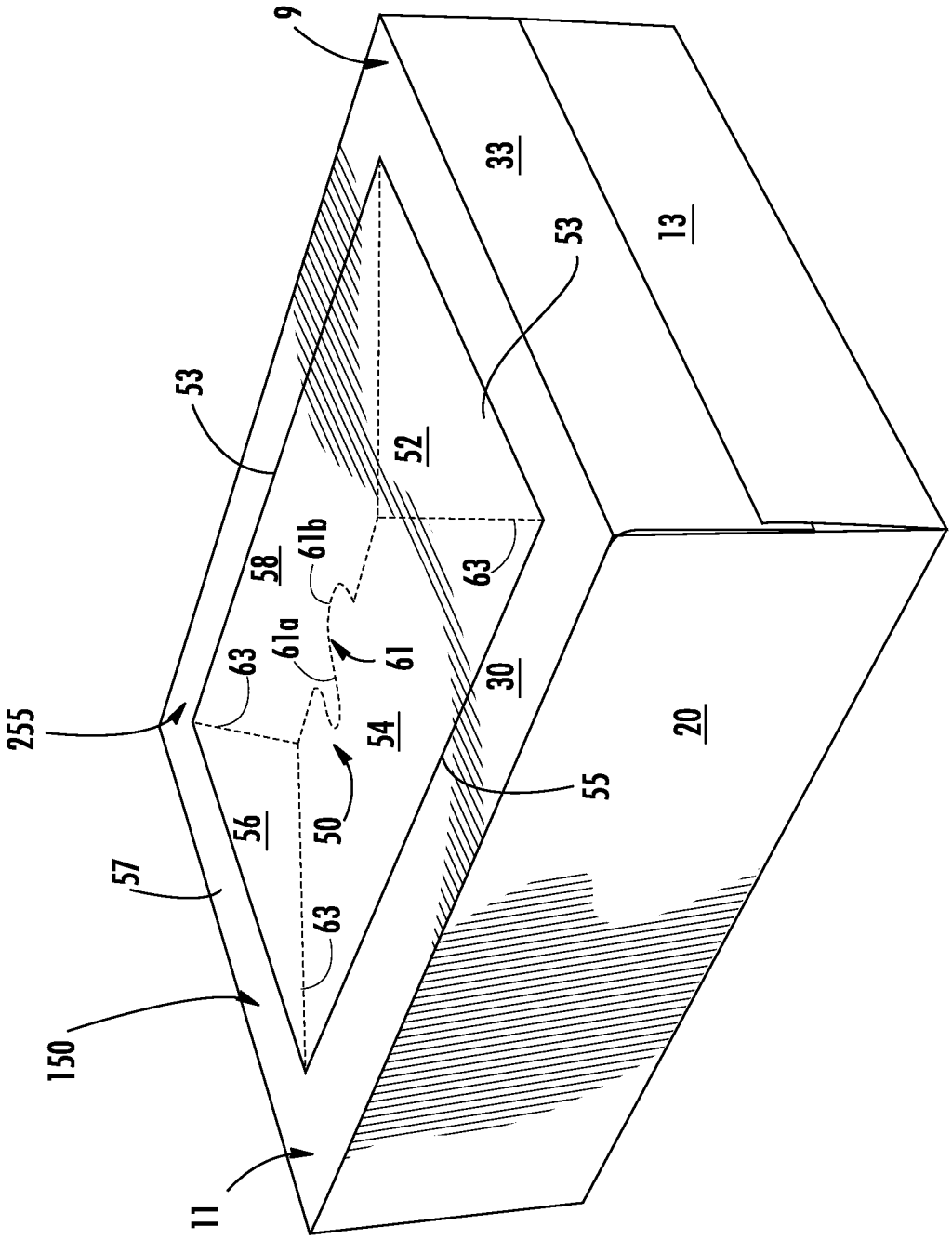


FIG. 8

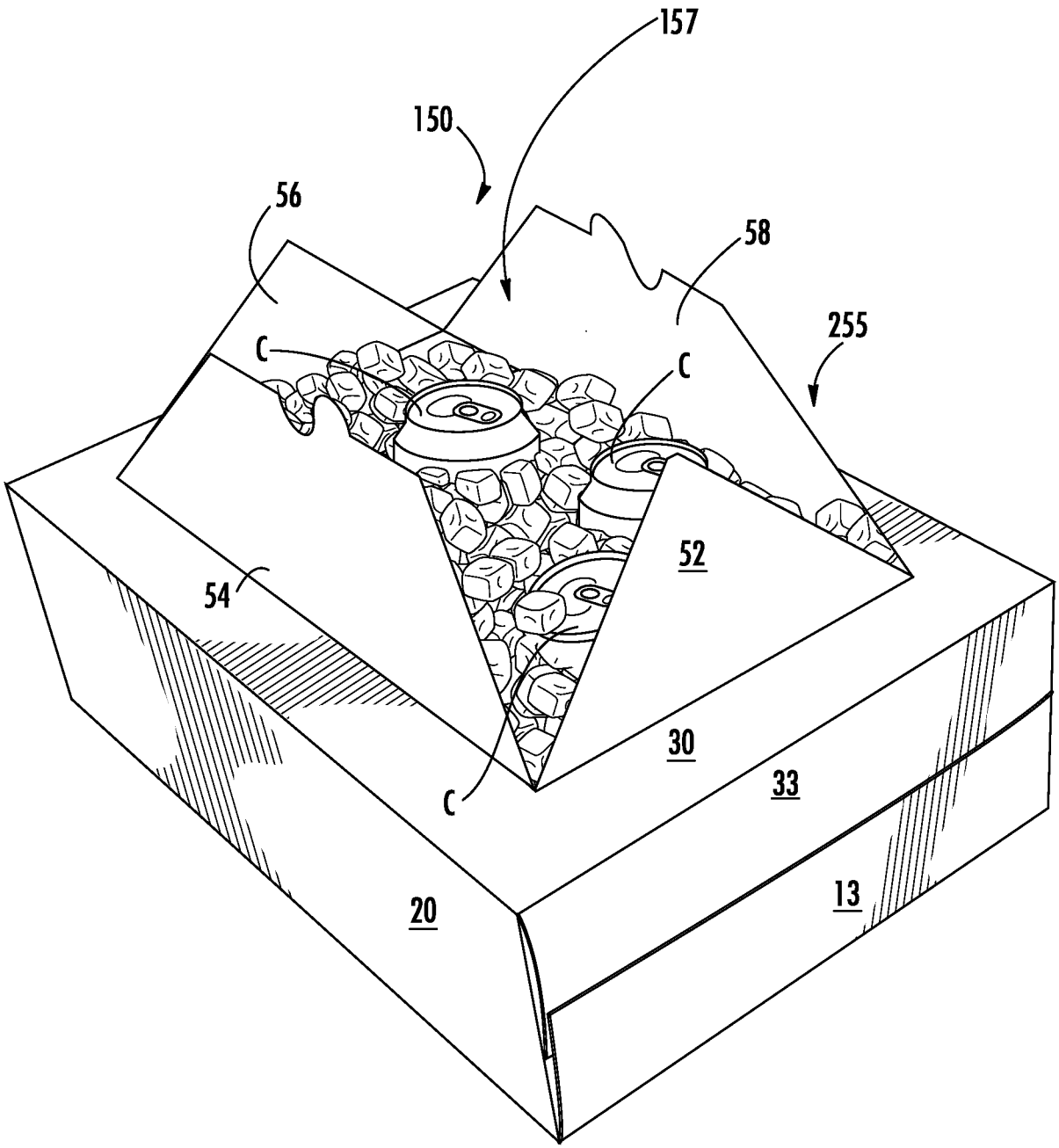


FIG. 9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2016/029958

A. CLASSIFICATION OF SUBJECT MATTER

B65D 5/54(2006.01)i, B65D 5/38(2006.01)i, B65D 5/50(2006.01)i, B65D 5/20(2006.01)i, B65D 5/24(2006.01)i, B65D 71/12(2006.01)i

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 5/54; B65D 5/42; B65D 5/60; B65D 5/36; B65D 5/24; B65B 43/10; F25D 003/08; B31B 1/16; B31B 1/25; F25D 017/02; B65D 5/38; B65D 5/50; B65D 5/20; B65D 71/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & keywords: carton, tray, panel, insertion, liquid-tight feature, and access feature

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004-0040334 A1 (RUSNOCK, KEVIN R.) 04 March 2004 See paragraphs [0023]-[0032], claim 29, and figures 1-5.	1-30
Y	JP 07-002222 U (TANIGUCHI, YOSHIKAZU) 13 January 1995 See abstract, paragraphs [0013]-[0014], and figures 1-4.	1-30
A	US 2012-0028775 A1 (HUMPHRIES et al.) 02 February 2012 See paragraphs [0022]-[0024] and figures 1A-4.	1-30
A	US 6273847 B1 (MACLEAN et al.) 14 August 2001 See column 2, lines 5-41 and figures 1-4.	1-30
A	KR 20-0356729 Y1 (ORIENTAL BREWERY COMPANY) 19 July 2004 See claims 1-2, 5 and figures 3-6.	1-30

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"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	Date of mailing of the international search report
10 August 2016 (10.08.2016)	**16 August 2016 (16.08.2016)**

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/US2016/029958

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KR 20-0356729 Y1	19/07/2004	None	