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Fuhst(10) **Pub. No.: US 2020/0055652 A1**(43) **Pub. Date: Feb. 20, 2020**(54) **PERFORATED CASE PACK TOP PANEL**(52) **U.S. Cl.**(71) Applicant: **Niagara Bottling, LLC**, Ontario, CA
(US)CPC **B65D 75/5838** (2013.01); **B65B 61/007**
(2013.01); **B65D 71/08** (2013.01)(72) Inventor: **Jason Thomas Fuhst**, Ontario, CA
(US)(57) **ABSTRACT**(73) Assignee: **Niagara Bottling, LLC**, Ontario, CA
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17, 2018.**Publication Classification**(51) **Int. Cl.****B65D 75/58** (2006.01)
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An apparatus and a method are provided for a perforated top panel disposed in a shrink-wrapped bottle pack for containing water bottles. The perforated top panel comprises an easy-open panel and a semi-circular portion disposed at a terminal end of the easy-open panel. The easy-open panel is partially bordered by an alternating series of cuts and lands that are configured to allow the easy-open panel to tear away from the top panel upon being pulled by a practitioner. The easy-open panel comprises a parallel portion that extends to one or more tapered portions that terminate at the semi-circular portion. The semi-circular portion is configured to be grasped and pulled to separate the tapered portion and the parallel portion from the top panel and thus expose the water bottles.

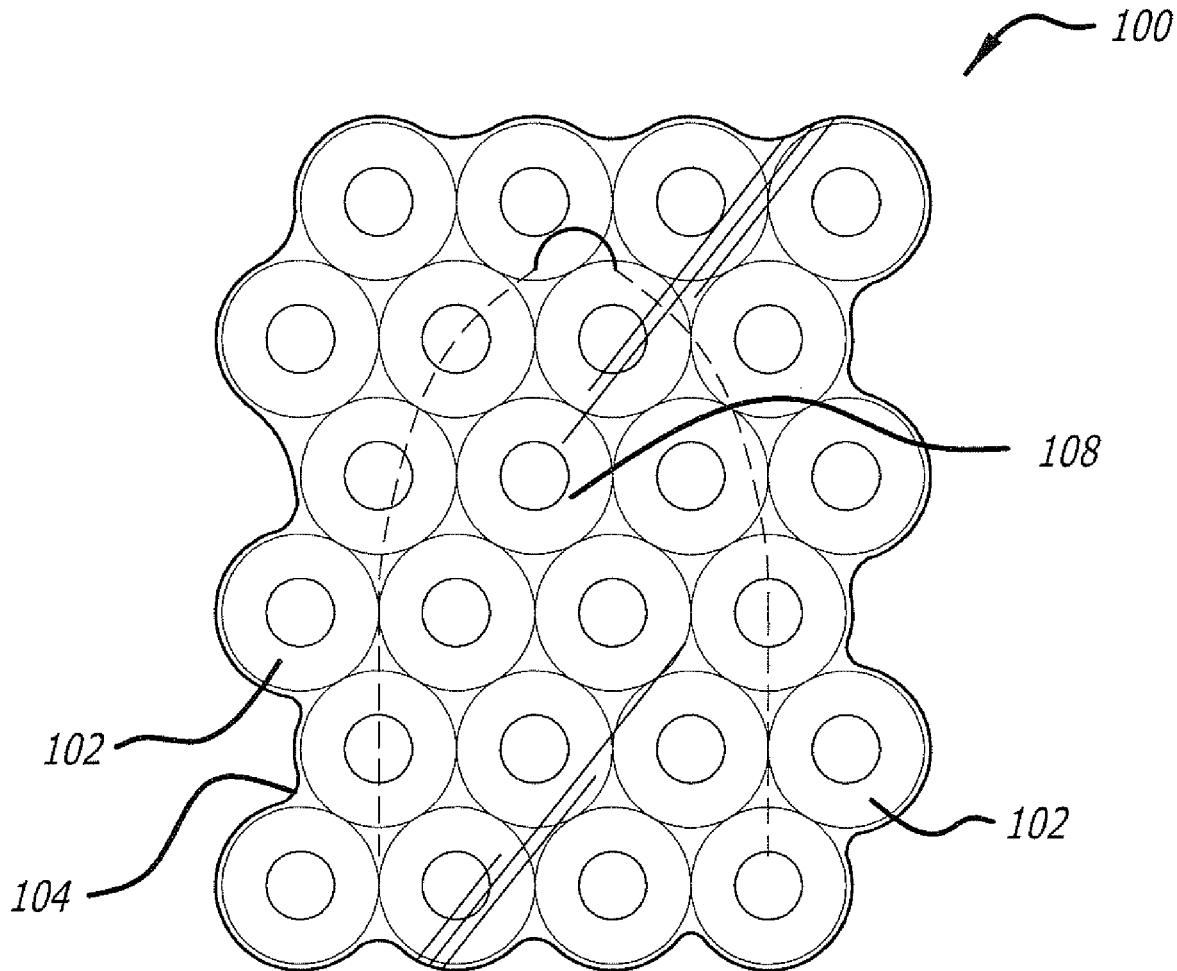


FIG. 1

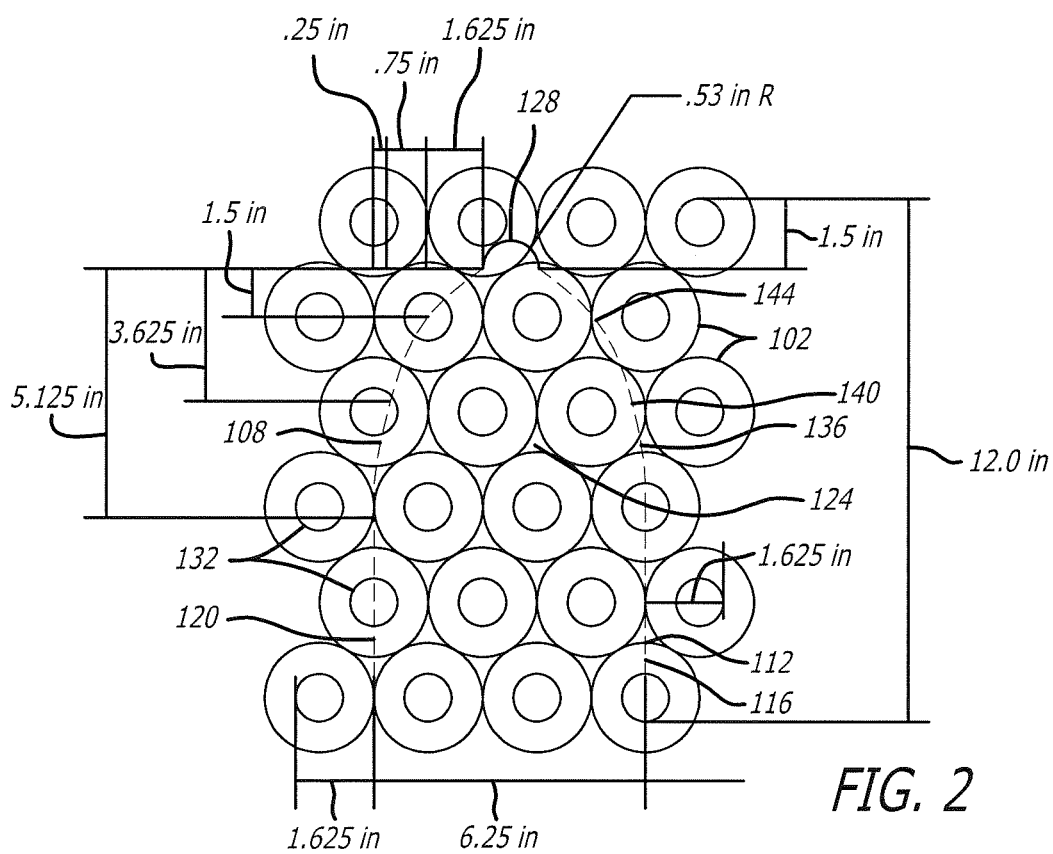
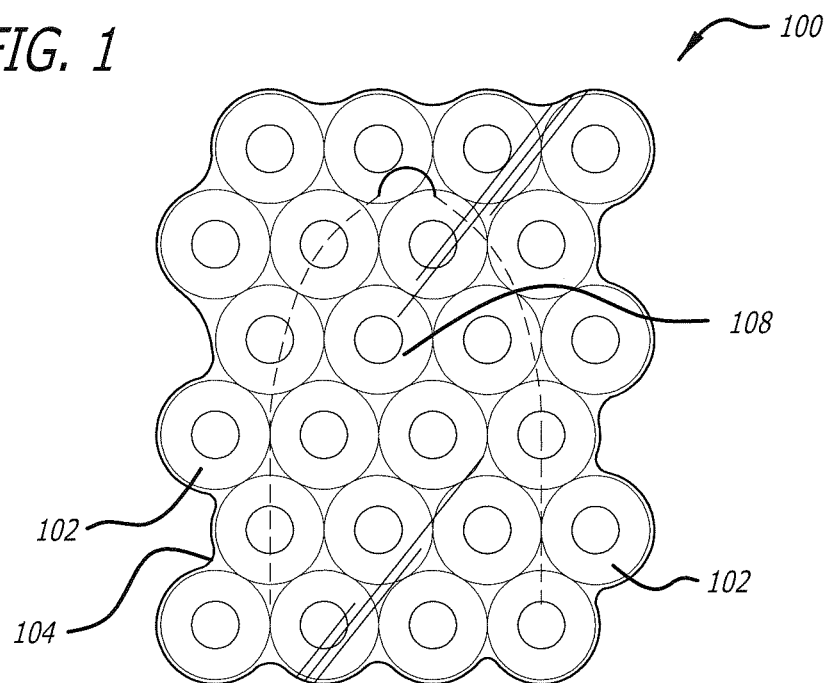


FIG. 2

FIG. 3

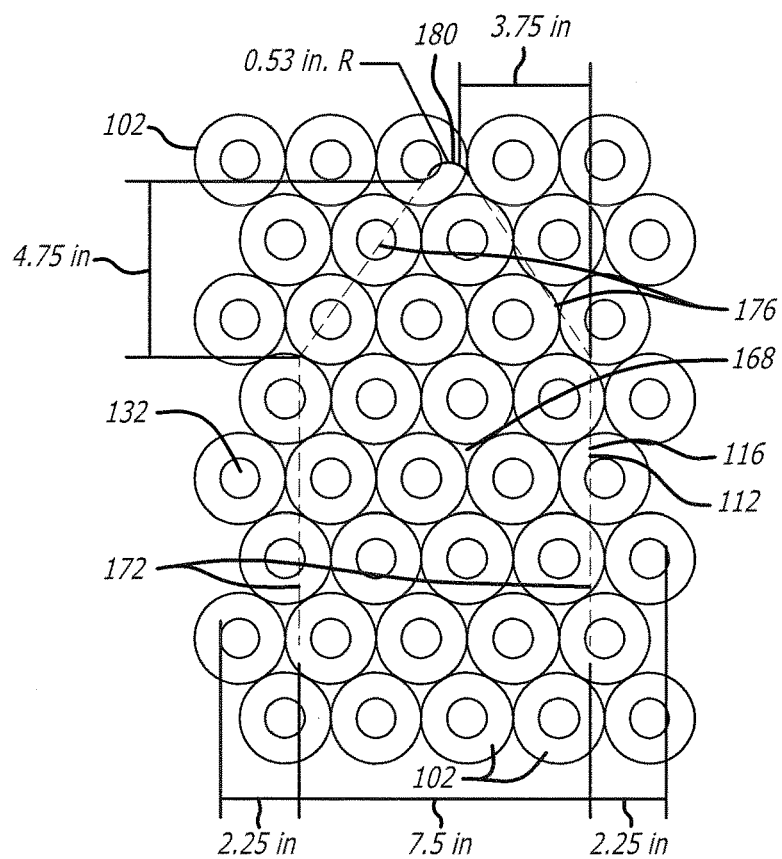
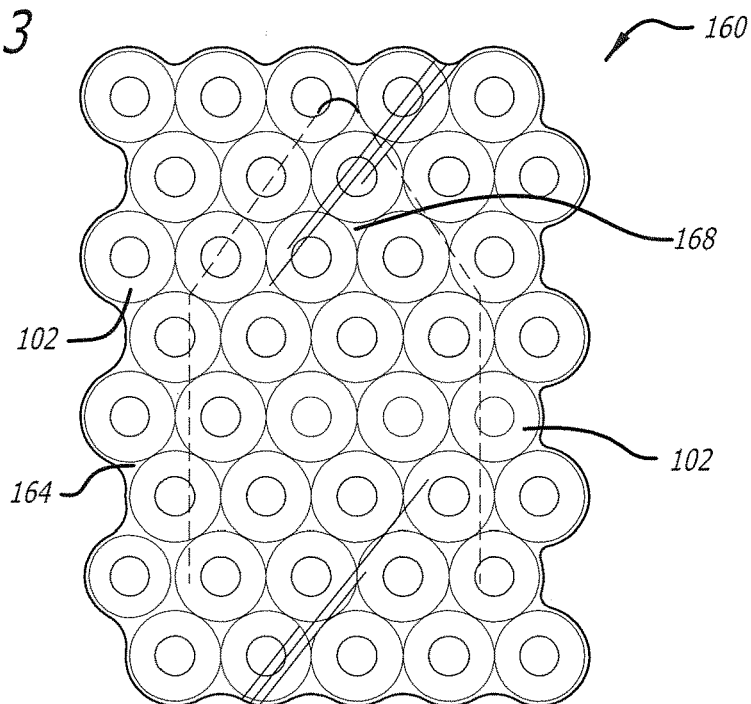


FIG. 4

PERFORATED CASE PACK TOP PANEL**PRIORITY**

[0001] This application claims the benefit of and priority to U.S. Provisional Application, entitled “Perforated Case Pack Top Panel,” filed Aug. 17, 2018 and having application Ser. No. 62/719,517, the entirety of said application being incorporated herein by reference.

FIELD

[0002] Embodiments of the present disclosure generally relate to the field of collation shrink films. More specifically, embodiments of the disclosure relate to a perforated top panel of a shrink-wrapped bottle pack.

BACKGROUND

[0003] Collation shrink films are films that are wrapped around one or more objects to be packaged and shrunk to keep the objects together. The most common use of these films is in the packaging of multiple containers, such as bottles containing beverages, food, and the like. The wrapping process generally involves a shrink oven or a shrink tunnel wherein the film and the containers covered by the film are briefly heated to cause the shrink-wrapping to occur. The plastic film then collapses around the containers and holds the units in place.

[0004] Films that are used as collation shrink films generally possess properties that make them commercially feasible. For example, films much exhibit good shrinkage, as well as possess excellent strength after shrinkage, referred to as load retention resistance. Further, films must resist puncture and must not be sticky so as to inhibit the film sticking to the packaged containers. Further, in some instances, the collation shrink films are cut during the wrapping process so amenability to cutting is important.

[0005] Sealing properties are also important. In some cases, during the wrapping process, the two sides of the film are passed around the object being wrapped and are contacted, typically underneath the product being wrapped. These two film edges must be sealed, and the seal strength needs to be high. Since the whole packaged ensemble is often carried simply by grabbing hold of the packaging film, the seal strength must ideally be strong enough to hold the weight of the packaged containers.

SUMMARY

[0006] Systems and methods for application identification in accordance with embodiments of the invention are disclosed. In one embodiment, a perforated top panel is disposed in a shrink-wrapped bottle pack for containing water bottles, the perforated top panel including an easy-open panel, and a semi-circular portion disposed at a terminal end of the easy-open panel.

[0007] In a further embodiment, the easy-open panel is partially bordered by an alternating series of cuts and lands.

[0008] In another embodiment, the alternating series of cuts and lands are configured to allow the easy-open panel to tear away from the top panel upon being pulled by a practitioner.

[0009] In a still further embodiment, each of the cuts has a length of substantially 0.125 inches and each of the lands has a length of substantially 0.250 inches.

[0010] In still another embodiment, each of the lands has a length ranging between substantially 0.250 inches and substantially 0.375 inches.

[0011] In yet another embodiment, each of the cuts has a length of substantially 0.125 inches and each of the lands has a length of substantially 0.3125 inches.

[0012] In a further embodiment again, the easy-open panel includes a parallel portion that extends to a tapered portion that terminates at the semi-circular portion.

[0013] In another embodiment again, the parallel portion has a width of 7.5 inches and is disposed substantially 2.25 inches from opposite sides of the bottle pack.

[0014] In a further additional embodiment, the semi-circular portion is configured to be grasped and pulled to separate the tapered portion and the parallel portion from the top panel and thus expose the water bottles.

[0015] In another additional embodiment, the tapered portion begins at a distance of about 4.75 inches from the semi-circular portion, opposite sides of the tapered portion each approaching the midline of the easy-open panel by a distance of substantially 3.75 inches before terminating at the semi-circular portion.

[0016] In a still yet further embodiment, the tapered portion includes one or more portions that are increasingly tapered toward the semi-circular portion.

[0017] In still yet another embodiment, the tapered portion includes a first tapered portion that begins at about 5.125 inches from the semi-circular portion, each of the opposite sides of the first tapered portion narrowing by substantially 0.25 inches.

[0018] In a still further embodiment again, the first tapered portion transitions to a second tapered portion at about 3.625 inches from the semi-circular portion, opposite sides of the second tapered portion each narrowing by about 0.75 inches.

[0019] In still another embodiment again, the second tapered portion transitions to a third tapered portion at about 1.5 inches from the semi-circular portion, opposite sides of the third tapered portion narrowing by about 1.625 inches before terminating at the semi-circular portion.

[0020] In a still further additional embodiment, the semi-circular portion includes a cutout portion of the top panel having a radius of substantially 0.53 inches and being disposed roughly 1.5 inches from a side portion of the bottle pack.

[0021] In still another additional embodiment, the semi-circular portion is centrally disposed along a midline of the easy-open panel.

[0022] In a yet further embodiment again, the parallel portion is bordered on opposite sides by parallel perforations.

[0023] In yet another embodiment again, the parallel portion has a width and a length suitable to allow access to the water bottles once the easy-open panel is torn open.

[0024] In a yet further additional embodiment, the parallel portion has a width of 6.25 inches and is disposed substantially 1.625 inches from opposite sides of the shrink-wrapped bottle pack.

[0025] In yet another additional embodiment, the length of the parallel portion extends substantially 12 inches from the side of the bottle pack nearest the semi-circular portion.

[0026] In many embodiments, a method for a perforated top panel disposed in a shrink-wrapped bottle pack containing water bottles includes shrink-wrapping a multiplicity of water bottles to form a pack of the water bottles, perforating

an easy-open panel in a top panel including the shrink-wrapped bottle pack, and forming a semi-circular portion at a terminal end of the easy-open panel.

[0027] In a further additional embodiment again, forming the semi-circular portion includes cutting the semi-circular portion into the shrink-wrapping by way of a blade or a laser coder.

[0028] In another additional embodiment again, perforating includes forming cuts in the shrink-wrapping by way of a blade or a laser coder.

[0029] In a still yet further embodiment again, forming includes for fling 0.125 inch-long cuts in the shrink-wrapping, adjacent cuts being separated by lands ranging between substantially 0.250 inches and substantially 0.375 inches.

[0030] In still yet another embodiment again, perforating includes including a parallel portion and a tapered portion including the easy-open panel, the tapered portion terminating at the semi-circular portion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0031] The drawings refer to embodiments of the present disclosure in which:

[0032] FIG. 1 illustrates a top view of an exemplary embodiment of a shrink-wrapped bottle pack that includes a perforated top panel according to the present disclosure;

[0033] FIG. 2 illustrates a top plan view of the shrink-wrapped bottle pack of FIG. 1;

[0034] FIG. 3 illustrates a top view of an exemplary embodiment of a shrink-wrapped bottle pack that includes a perforated top panel according to the present disclosure; and

[0035] FIG. 4 illustrates a top plan view of the shrink-wrapped case pack of FIG. 3.

[0036] While the present disclosure is subject to various modifications and alternative forms, specific embodiments thereof have been shown by way of example in the drawings and will herein be described in detail. The invention should be understood to not be limited to the particular forms disclosed, but on the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the present disclosure.

DETAILED DESCRIPTION

[0037] A drawback to conventional collation shrink films, however, is they are often strong enough to hinder a consumer opening shrink-wrapped packages. A knife or scissors generally are required to cut open the shrink-wrapped package. In absence of such a tool, the consumer is left with pulling, ripping and tearing at the film to access the containers within the package. Embodiment presented herein correct these drawbacks and provide consumers with shrink-wrapped beverage packages that are easy to open without falling apart beforehand.

[0038] In the following description, numerous specific details are set forth in order to provide a thorough understanding of the present disclosure. It will be apparent, however, to one of ordinary skill in the art that the invention disclosed herein may be practiced without these specific details. In other instances, specific numeric references such as “first panel,” may be made. However, the specific numeric reference should not be interpreted as a literal sequential order but rather interpreted that the “first panel” is different from a “second panel.” Thus, the specific details set forth are

merely exemplary. The specific details may be varied from and still be contemplated to be within the spirit and scope of the present disclosure. The term “coupled” is defined as meaning connected either directly to the component or indirectly to the component through another component. Further, as used herein, the terms “about,” “approximately,” or “substantially” for any numerical values or ranges indicate a suitable dimensional tolerance that allows the part or collection of components to function for its intended purpose as described herein.

[0039] In general, the present disclosure provides a perforated pattern disposed on a top panel of a shrink-wrapped bottle pack configured to provide an easy-open feature for consumers. The perforated pattern may be applied after the bottle pack is shrink-wrapped. Further, the perforated pattern may be formed by way of various blades, or by way of one or more laser coders.

[0040] Both the perforation pattern and the shape of the easy-open panel are critical to the functionality of the perforated pattern. If the perforations, or “cuts,” or the distance between the cuts, called “lands,” is too large, the ease of opening may be adversely influenced. For example, if the perforation pattern is too aggressive there is risk that the easy-open feature may operate prematurely, whereas if the perforation pattern is too conservative the feature may be difficult to open and result in jagged edges on the film. The shape of the easy-open panel also is crucial to performance. Experimentation has demonstrated that a tapered configuration generally provides optimal results, as shown and described herein.

[0041] Turning specifically to the drawings, FIG. 1 illustrates a top view of an exemplary embodiment of a shrink-wrapped bottle pack **100** that comprises 24 water bottles **102** and includes a perforated top panel **104** according to the present disclosure. FIG. 2 illustrates a top plan view of the bottle pack **100** of FIG. 1 in absence of the shrink-wrapped film. The perforated top panel **104** comprises an easy-open panel **108** that is partially bordered by an alternating series of cuts **112** and lands **116**. The series of cuts **112** and lands **116** is configured to allow the easy-open panel **108** to tear away from the top panel **104** upon being pulled by a practitioner. In the illustrated embodiment of FIGS. 1-2, each of the cuts **112** has a length of substantially 0.125 inches and each of the lands **116** has a length of substantially 0.250 inches. In some embodiments, however, each of the lands may range between substantially 0.250 inches and substantially 0.375 inches, without limitation.

[0042] With continuing reference to FIGS. 1-2, the easy-open panel **108** comprises a parallel portion **120** that extends to a tapered portion **124**, which in turn terminates at a semi-circular portion **128**. It is contemplated that a practitioner desiring access to the bottles **102** may grasp the semi-circular portion **128** and pull to separate the tapered portion **124** and the parallel portion **120** from the top panel **104** and thus expose the bottles **102**. In an embodiment, the semi-circular portion **128** comprises a cutout portion of the top panel **104** having a radius of substantially 0.53 inches and being disposed roughly 1.5 inches from a side portion of the bottle pack **100**. As will be appreciated, the semi-circular portion **128** preferably is centrally disposed along a midline of the easy-open panel **108**.

[0043] The parallel portion **120** is bordered on opposite sides by parallel perforations (i.e., the cuts **112** and lands **116**), as shown in FIG. 2. The parallel portion **120** generally

has a width and a length suitable to allow a practitioner to access the bottles **102** once the easy-open panel **108** is torn open, as described above. In the illustrated embodiment of FIG. 2, the parallel portion **120** has a width of 6.25 inches and is disposed substantially 1.625 inches from opposite sides of the bottle pack **100**. Further, the length of the parallel portion **120** extends substantially 12 inches from the side of the bottle pack **100** nearest the semi-circular portion **128**. Upon inspection of FIG. 2, it should be understood that the sides of the bottle pack **100** are defined by the edges of bottle caps **132**, or closures, that are coupled with the tops of the bottles **102**.

[0044] As mentioned hereinabove, the parallel portion **120** extends of a tapered portion **124** that terminates at the semi-circular portion **128**. It is contemplated, however, that the tapered portion **124** may include one or more portions that are increasingly tapered toward the semi-circular portion **128**. For example, in the illustrated embodiment of FIG. 2, the tapered portion **124** comprises a first tapered portion **136** that begins at about 5.125 inches from the semi-circular portion **128**. The first tapered portion **136** transitions to a second tapered portion **140** at about 3.625 inches from the semi-circular portion **128**. Continuing, at about 1.5 inches from the semi-circular portion **128**, the second tapered portion **140** transitions to a third tapered portion **144** that terminates at the semi-circular portion **128**.

[0045] As will be recognized, opposite sides of the first, second, and third tapered portions **136**, **140**, **144** approach the midline of the easy-open panel **108** with increasing degrees of taper. As shown in FIG. 2, each of the opposite sides of the first tapered portion **136** taper, or narrow, by substantially 0.25 inches. The opposite sides of the second tapered portion **140** each narrow by about 0.75 inches and each of the opposite sides of the third tapered portion **144** narrow by roughly 1.625 inches before terminating at the semi-circular portion **128**. It should be understood, however, that more than or less than three tapered portions may be incorporated into other embodiments of the tapered portion **124**, without limitation.

[0046] FIGS. 3-4 illustrate an exemplary embodiment of a shrink-wrapped bottle pack **160** that comprises 40 water bottles **102** and includes a perforated top panel **164** according to the present disclosure. The perforated top panel **164** is substantially similar to the perforated top panel **104** of FIGS. 1-2, with the exception that the perforated top panel **164** includes a size and shape advantageously configured to allow a practitioner to easily access the 40 water bottles **102**.

[0047] The perforated top panel **164** comprises an easy-open panel **168** that is partially bordered by an alternating series of cuts **112** and lands **116**. The series of cuts **112** and lands **116** are configured to allow the easy-open panel **168** to tear away from the top panel **164** upon being pulled by a practitioner. In the illustrated embodiment of FIGS. 3-4, each of the cuts **112** has a length of substantially 0.125 inches, and each of the lands **116** has a length of substantially 0.3125 inches. As mentioned hereinabove, however, in some embodiments, each of the lands **116** may range between substantially 0.250 inches and substantially 0.375 inches, without limitation.

[0048] The easy-open panel **168** comprises a parallel portion **172** that extends to a tapered portion **176** that terminates at a semi-circular portion **180**. As will be appreciated, a practitioner desiring access to the bottles **102** may grasp the semi-circular portion **180** and pull to separate the

tapered portion **176** and the parallel portion **172** from the top panel **164** to expose the bottles **102**. The semi-circular portion **180** is substantially similar to the semi-circular portion **128** and thus comprises a cutout portion of the top panel **164** having a radius of substantially 0.53 inches. Further, the semi-circular portion **180** may be disposed roughly 1.5 inches from a side portion of the bottle pack **160** and is centrally disposed along a midline of the easy-open panel **168**.

[0049] The parallel portion **172** is bordered on opposite sides by parallel perforations, as shown in FIG. 4. The parallel portion **172** has a width and a length suitable to allow a practitioner to access the bottles **102** once the easy-open panel **168** is pulled open from the perforated top panel **164**. In the illustrated embodiment of FIGS. 3-4, the parallel portion **172** has a width of 7.5 inches and is disposed substantially 2.25 inches from opposite sides of the bottle pack **160**. The length of the parallel portion **172** preferably extends across a majority of the top panel **164** to allow easy access to the bottles **102**.

[0050] The tapered portion **176** extends from the parallel portion **172** and terminates at the semi-circular portion **180**. In the illustrated embodiment of FIGS. 3-4, the tapered portion **176** begins at a distance of about 4.75 inches from the semi-circular portion **180**. Opposite sides of the tapered portion **176** each approach the midline of the easy-open panel **168** by a distance of substantially 3.75 inches before terminating at the semi-circular portion **180**. As will be recognized, the tapered portion **176** includes a single tapered portion, unlike the three tapered portions comprising the tapered portion **128** of FIG. 2. It should be understood, therefore, that any number of tapered portions may be incorporated into other embodiments of the easy-open panels **128**, **168**, as is found to be advantageous, and without limitation.

[0051] While the invention has been described in terms of particular variations and illustrative figures, those of ordinary skill in the art will recognize that the invention is not limited to the variations or figures described. In addition, where methods and steps described above indicate certain events occurring in certain order, those of ordinary skill in the art will recognize that the ordering of certain steps may be modified and that such modifications are in accordance with the variations of the invention. Additionally, certain of the steps may be performed concurrently in a parallel process when possible, as well as performed sequentially as described above. To the extent there are variations of the invention, which are within the spirit of the disclosure or equivalent to the inventions found in the claims, it is the intent that this patent will cover those variations as well. Therefore, the present disclosure is to be understood as not limited by the specific embodiments described herein, but only by scope of the appended claims.

What is claimed is:

1. A perforated top panel disposed in a shrink-wrapped bottle pack for containing water bottles, the perforated top panel comprising:

an easy-open panel; and

a semi-circular portion disposed at a terminal end of the easy-open panel.

2. The perforated top panel of claim 1, wherein the easy-open panel is partially bordered by an alternating series of cuts and lands.

3. The perforated top panel of claim 2, wherein the alternating series of cuts and lands are configured to allow the easy-open panel to tear away from the top panel upon being pulled by a practitioner.

4. The perforated top panel of claim 2, wherein each of the cuts has a length of substantially 0.125 inches and each of the lands has a length of substantially 0.250 inches.

5. The perforated top panel of claim 2, wherein each of the lands has a length ranging between substantially 0.250 inches and substantially 0.375 inches.

6. The perforated top panel of claim 2, wherein each of the cuts has a length of substantially 0.125 inches and each of the lands has a length of substantially 0.3125 inches.

7. The perforated top panel of claim 1, wherein the easy-open panel comprises a parallel portion that extends to a tapered portion that terminates at the semi-circular portion.

8. The perforated top panel of claim 7, wherein the parallel portion has a width of 7.5 inches and is disposed substantially 2.25 inches from opposite sides of the bottle pack.

9. The perforated top panel of claim 7, wherein the semi-circular portion is configured to be grasped and pulled to separate the tapered portion and the parallel portion from the top panel and thus expose the water bottles.

10. The perforated top panel of claim 7, wherein the tapered portion begins at a distance of about 4.75 inches from the semi-circular portion, opposite sides of the tapered portion each approaching the midline of the easy-open panel by a distance of substantially 3.75 inches before terminating at the semi-circular portion.

11. The perforated top panel of claim 7, wherein the tapered portion includes one or more portions that are increasingly tapered toward the semi-circular portion.

12. The perforated top panel of claim 11, wherein the tapered portion comprises a first tapered portion that begins at about 5.125 inches from the semi-circular portion, each of the opposite sides of the first tapered portion narrowing by substantially 0.25 inches.

13. The perforated top panel of claim 12, wherein the first tapered portion transitions to a second tapered portion at

about 3.625 inches from the semi-circular portion, opposite sides of the second tapered portion each narrowing by about 0.75 inches.

14. The perforated top panel of claim 13, wherein the second tapered portion transitions to a third tapered portion at about 1.5 inches from the semi-circular portion, opposite sides of the third tapered portion narrowing by about 1.625 inches before terminating at the semi-circular portion.

15. The perforated top panel of claim 1, wherein the semi-circular portion comprises a cutout portion of the top panel having a radius of substantially 0.53 inches and being disposed roughly 1.5 inches from a side portion of the bottle pack.

16. The perforated top panel of claim 1, wherein the semi-circular portion is centrally disposed along a midline of the easy-open panel.

17. The perforated top panel of claim 1, wherein the parallel portion is bordered on opposite sides by parallel perforations.

18. The perforated top panel of claim 1, wherein the parallel portion has a width and a length suitable to allow access to the water bottles once the easy-open panel is torn open.

19. The perforated top panel of claim 18, wherein the parallel portion has a width of 6.25 inches and is disposed substantially 1.625 inches from opposite sides of the shrink-wrapped bottle pack.

20. The perforated top panel of claim 18, wherein the length of the parallel portion extends substantially 12 inches from the side of the bottle pack nearest the semi-circular portion.

21. A method for a perforated top panel disposed in a shrink-wrapped bottle pack containing water bottles, the method comprising:

shrink-wrapping a multiplicity of water bottles to form a pack of the water bottles;

perforating an easy-open panel in a top panel comprising the shrink-wrapped bottle pack; and

forming a semi-circular portion at a terminal end of the easy-open panel.

* * * * *