



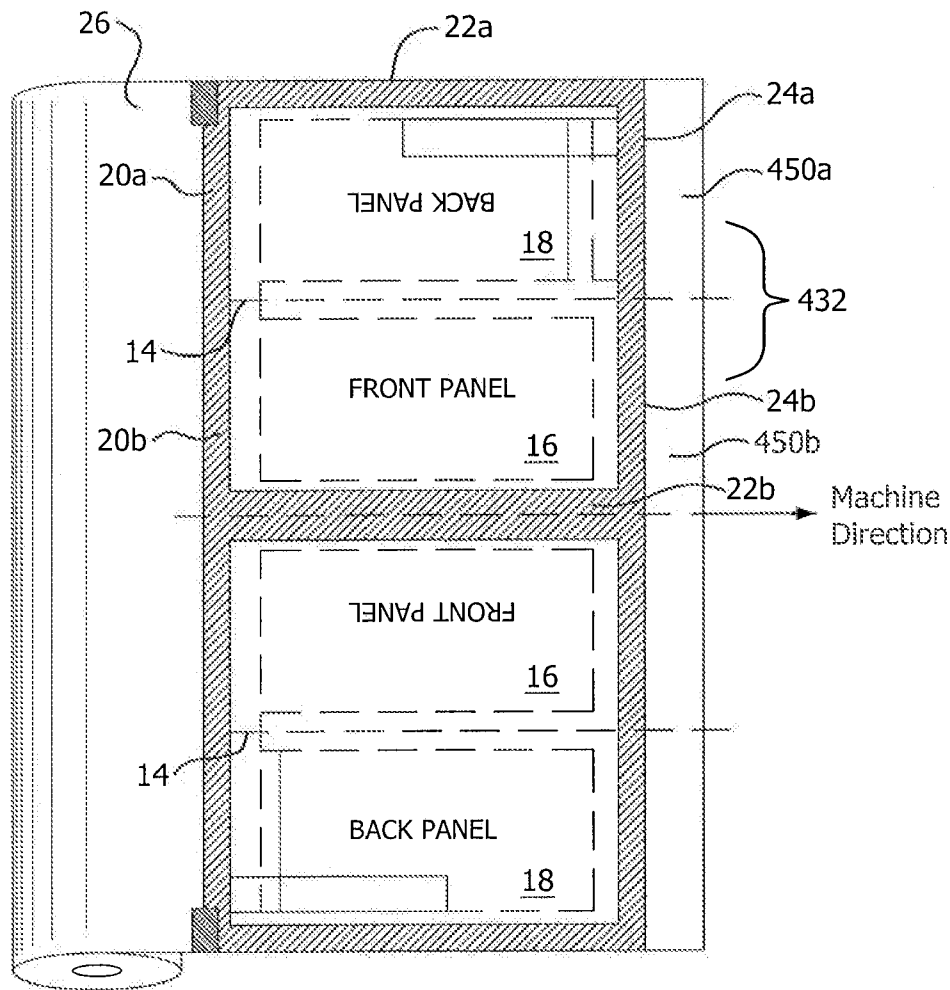
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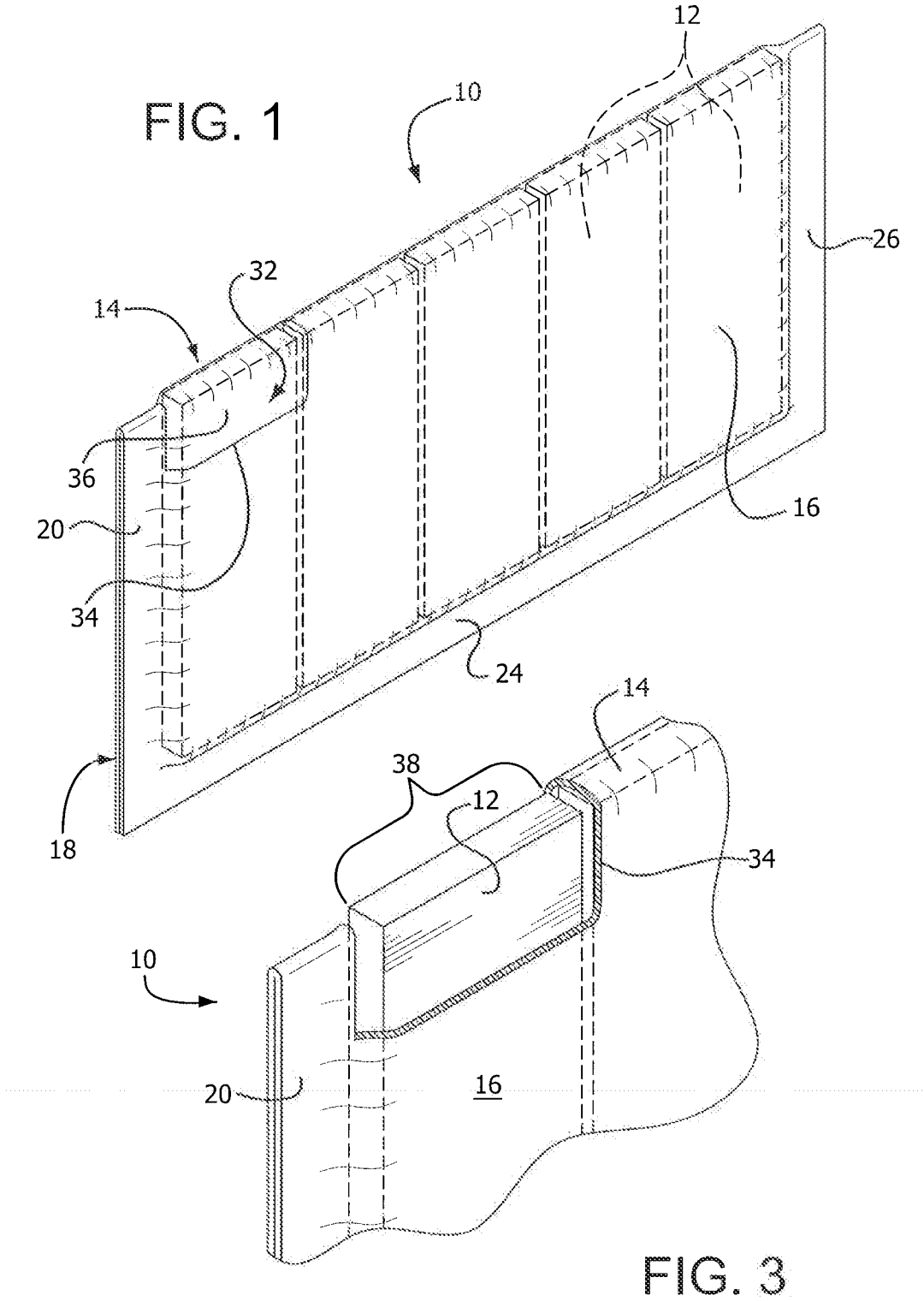
(19) **United States**(12) **Patent Application Publication**
Gagne et al.(10) **Pub. No.: US 2013/0182977 A1**(43) **Pub. Date: Jul. 18, 2013**(54) **FLEXIBLE PACKAGE****Publication Classification**(71) Applicant: **Sonoco Development, Inc.**, Hartsville, SC (US)(51) **Int. Cl.**
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CPC **B65D 33/00** (2013.01)
USPC **383/107**(73) Assignee: **Sonoco Development, Inc.**, Hartsville, SC (US)(21) Appl. No.: **13/741,764**(22) Filed: **Jan. 15, 2013****Related U.S. Application Data**

(60) Provisional application No. 61/587,787, filed on Jan. 18, 2012.

(57) **ABSTRACT**

A package for retaining consumable products is formed by a planar sheet or web of a flexible material that is folded about a plurality of aligned products. The fold of the sheet defines one side edge of the package. The other three side edges of the package are formed by sealing the front and back panel portions of the sheet to one another. An opening mechanism is provided for exposing at least a portion of the products retained within the package. The opening mechanism may be provided along the folded side edge of the package, at a corner of the package, adjacent to one of the sealed side edges. Other forms of opening means may also be formed along one of the seal edges along with means for resealing the opened package.





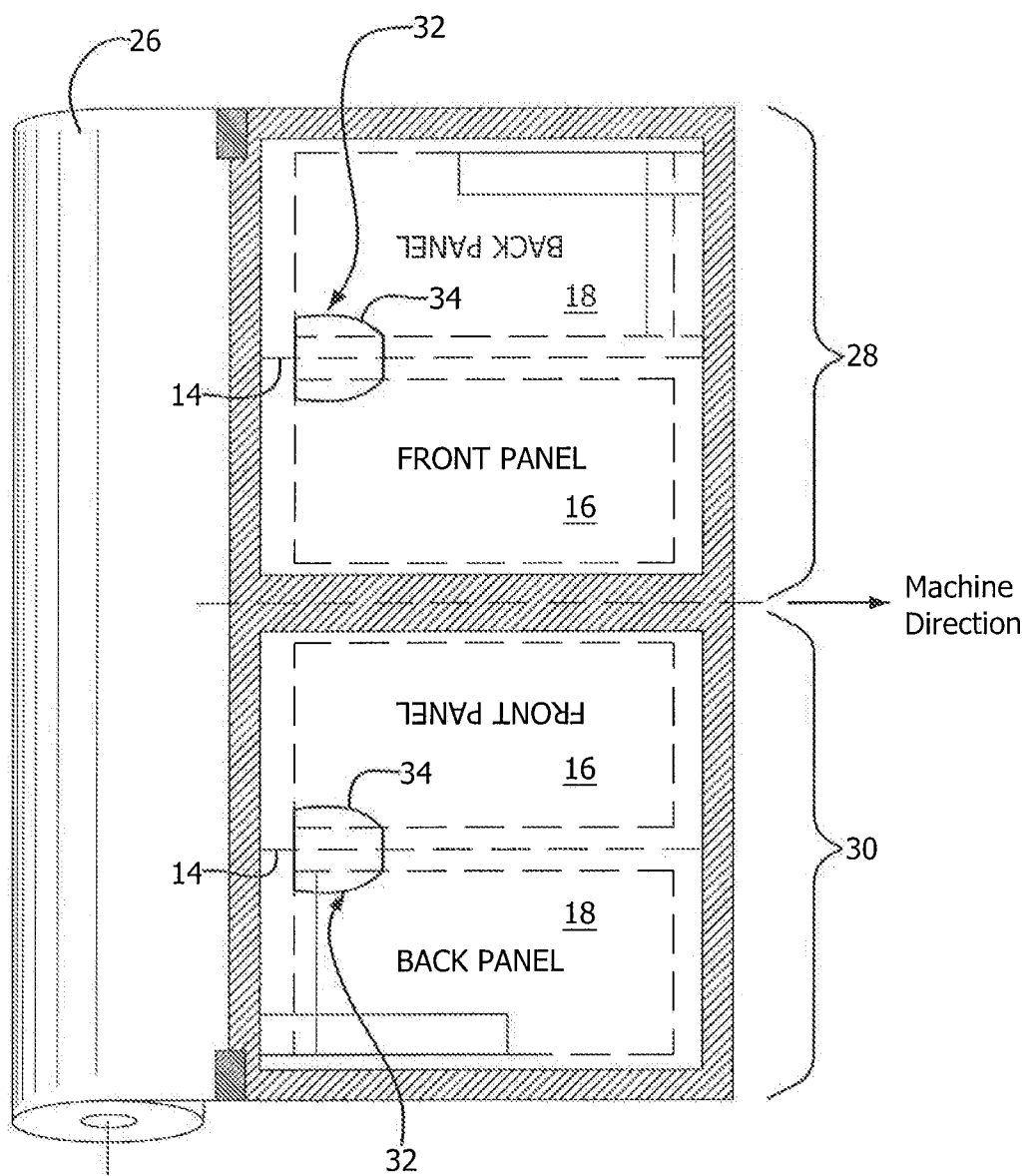


FIG. 2

FIG. 4

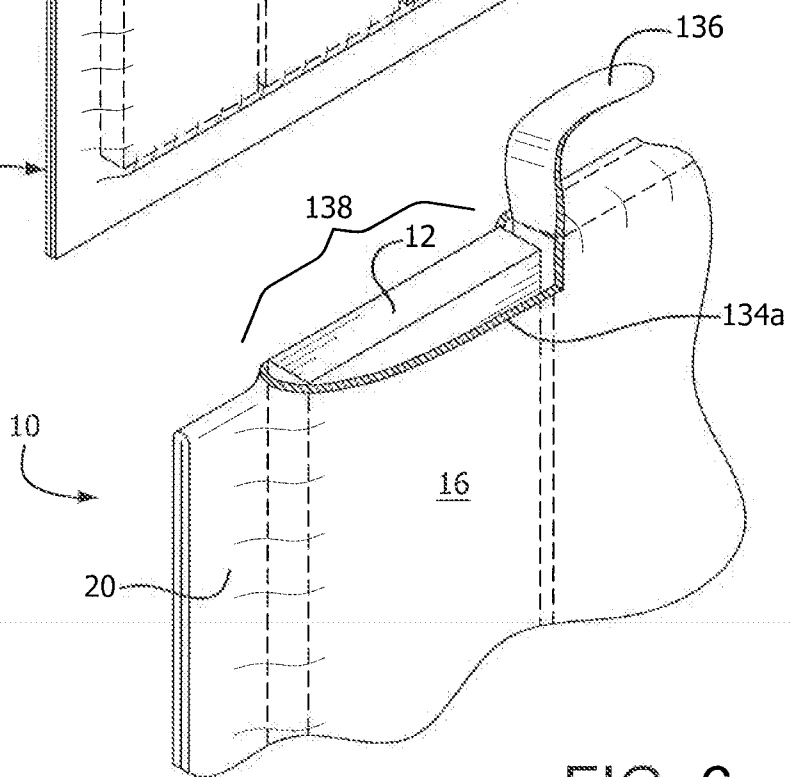
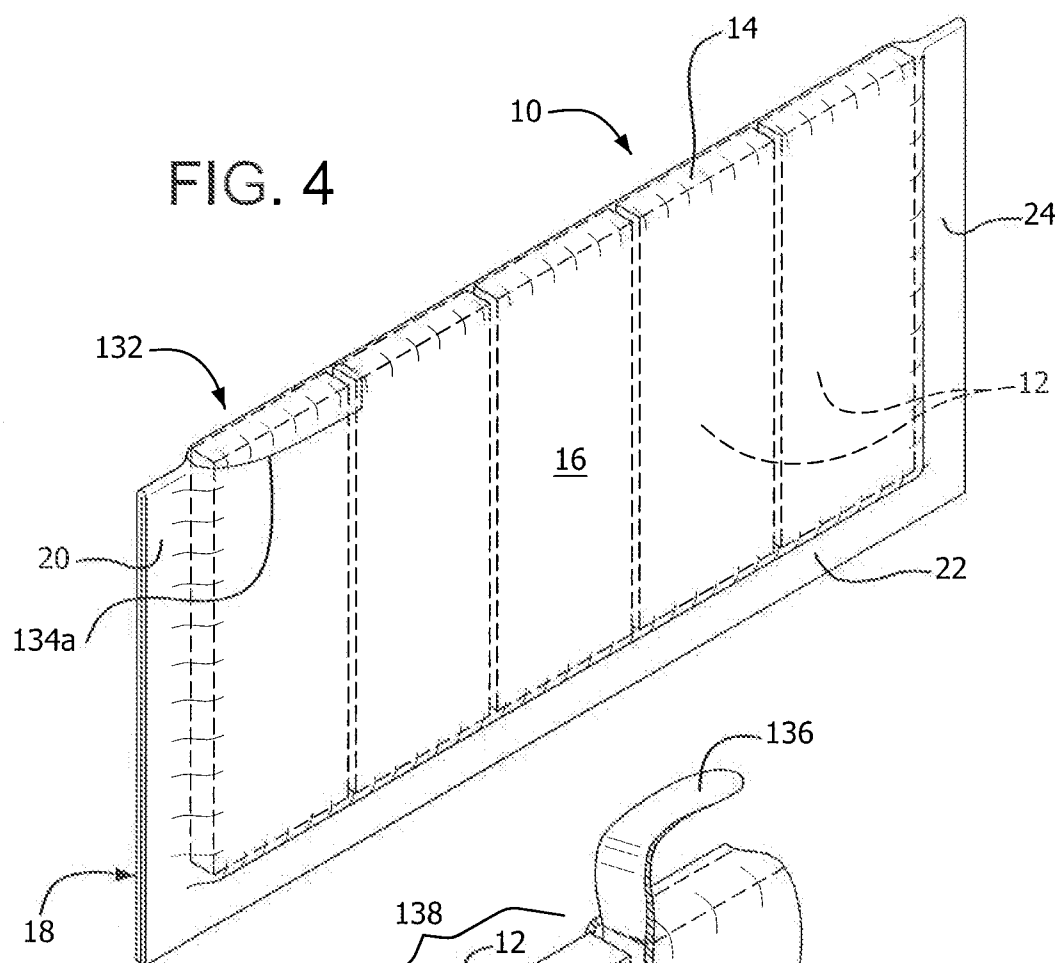


FIG. 6

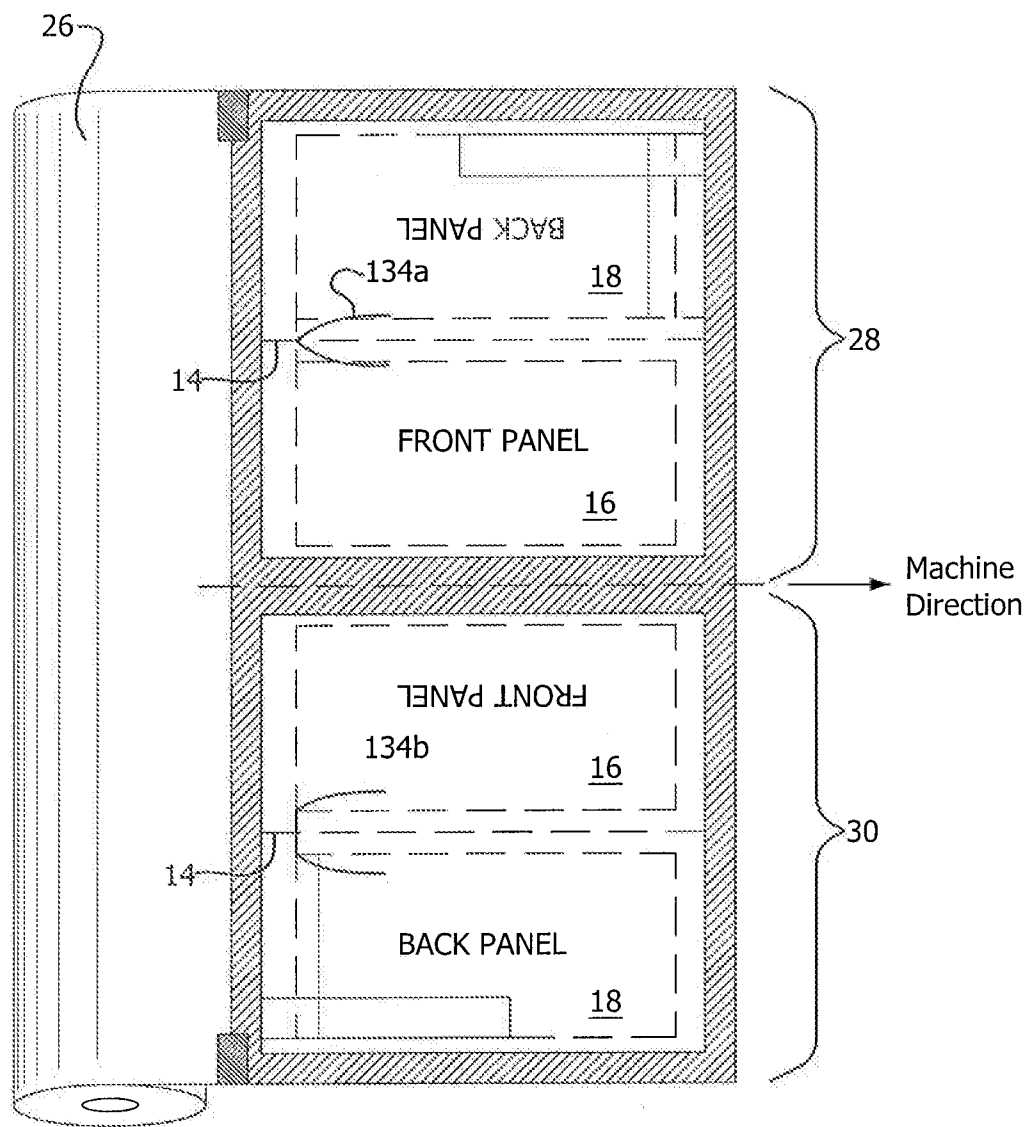
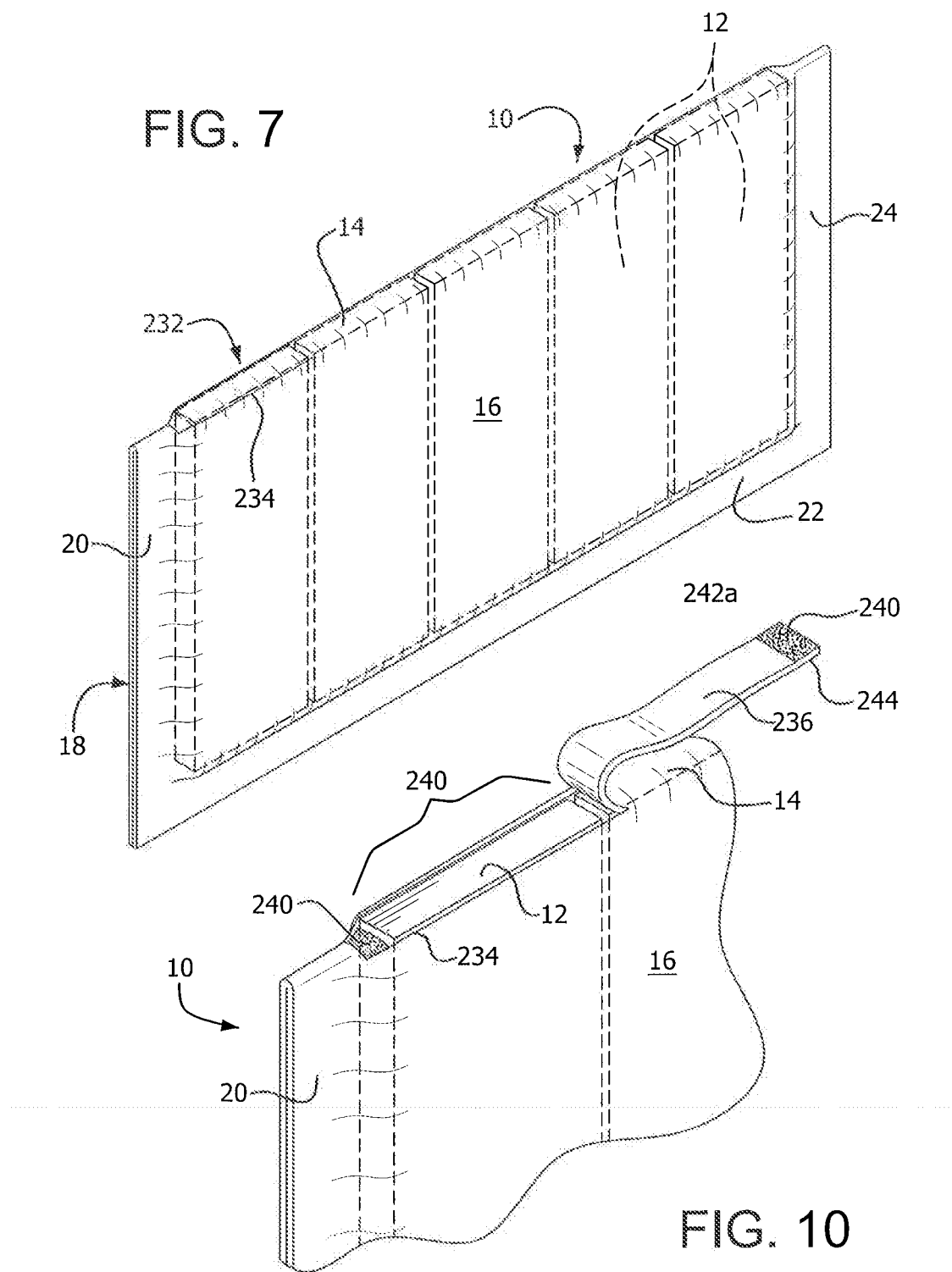


FIG. 5



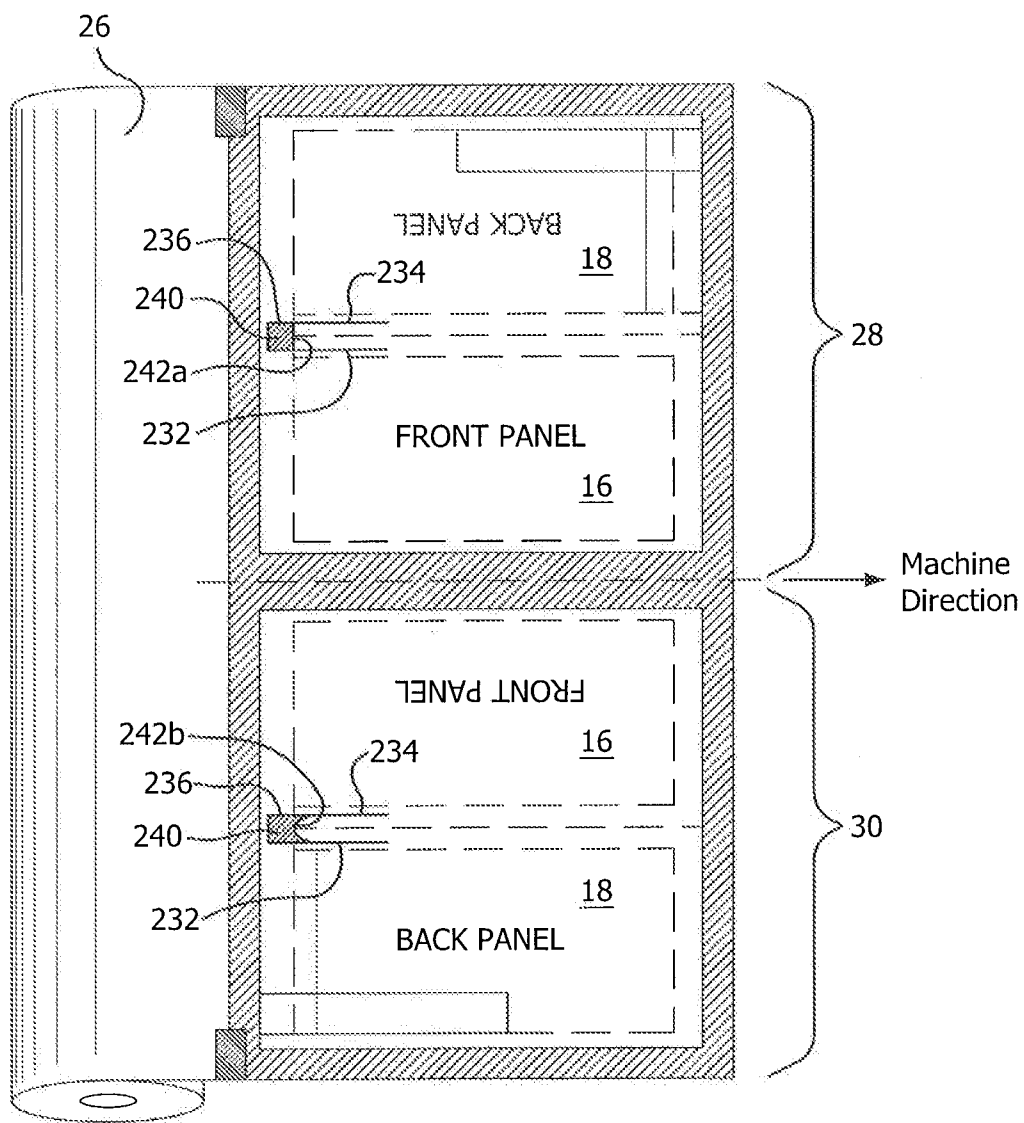


FIG. 8

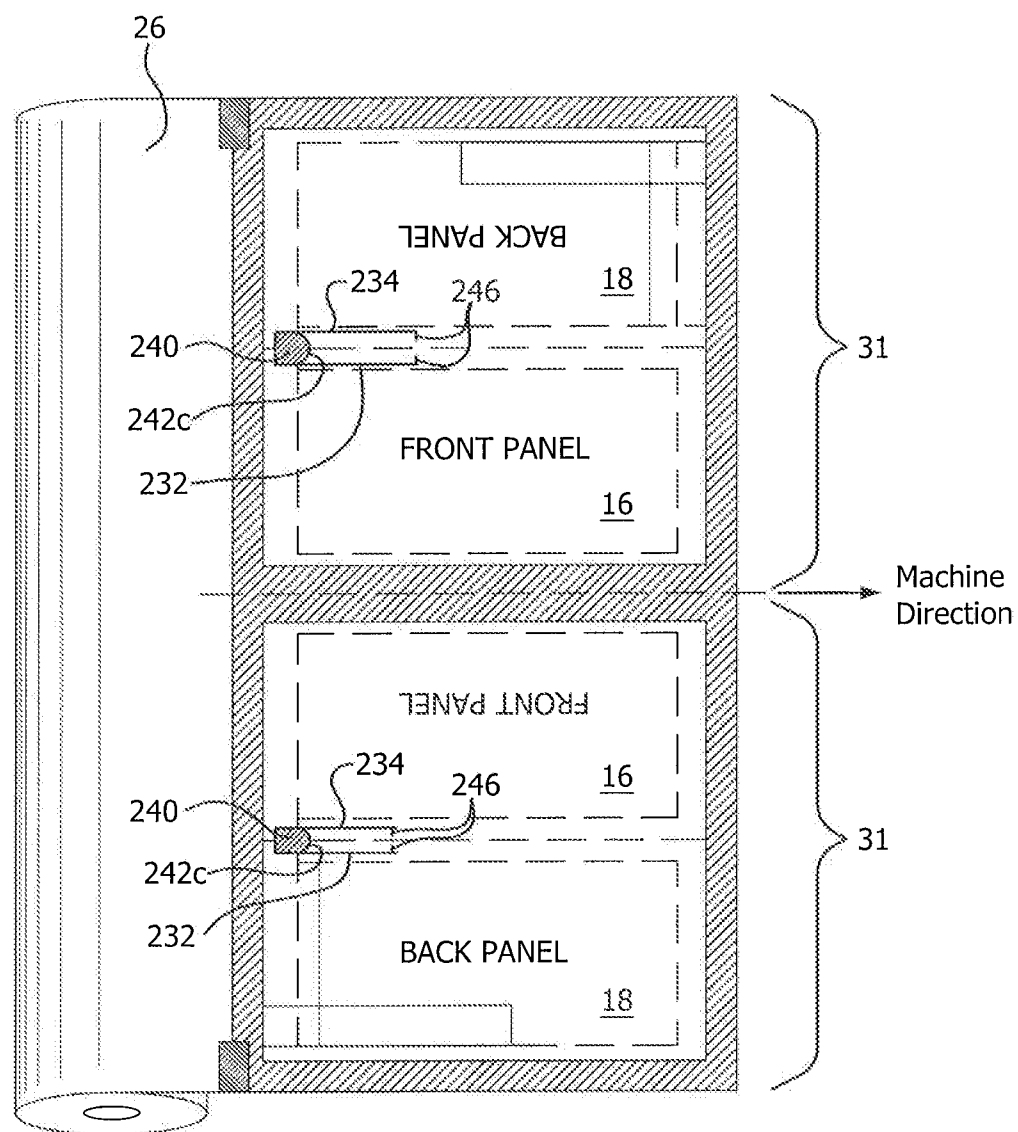
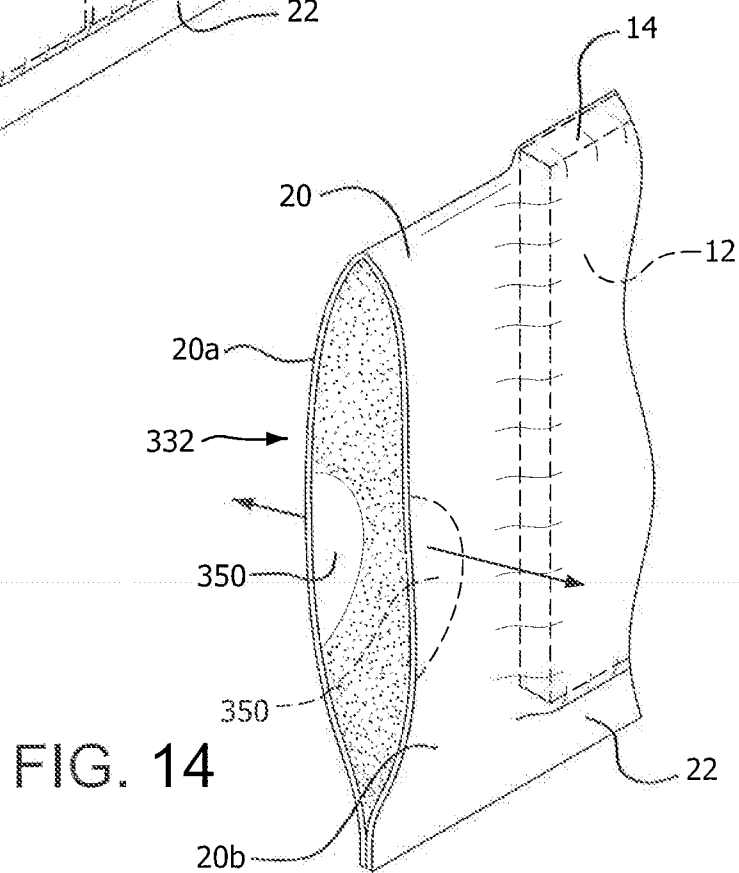
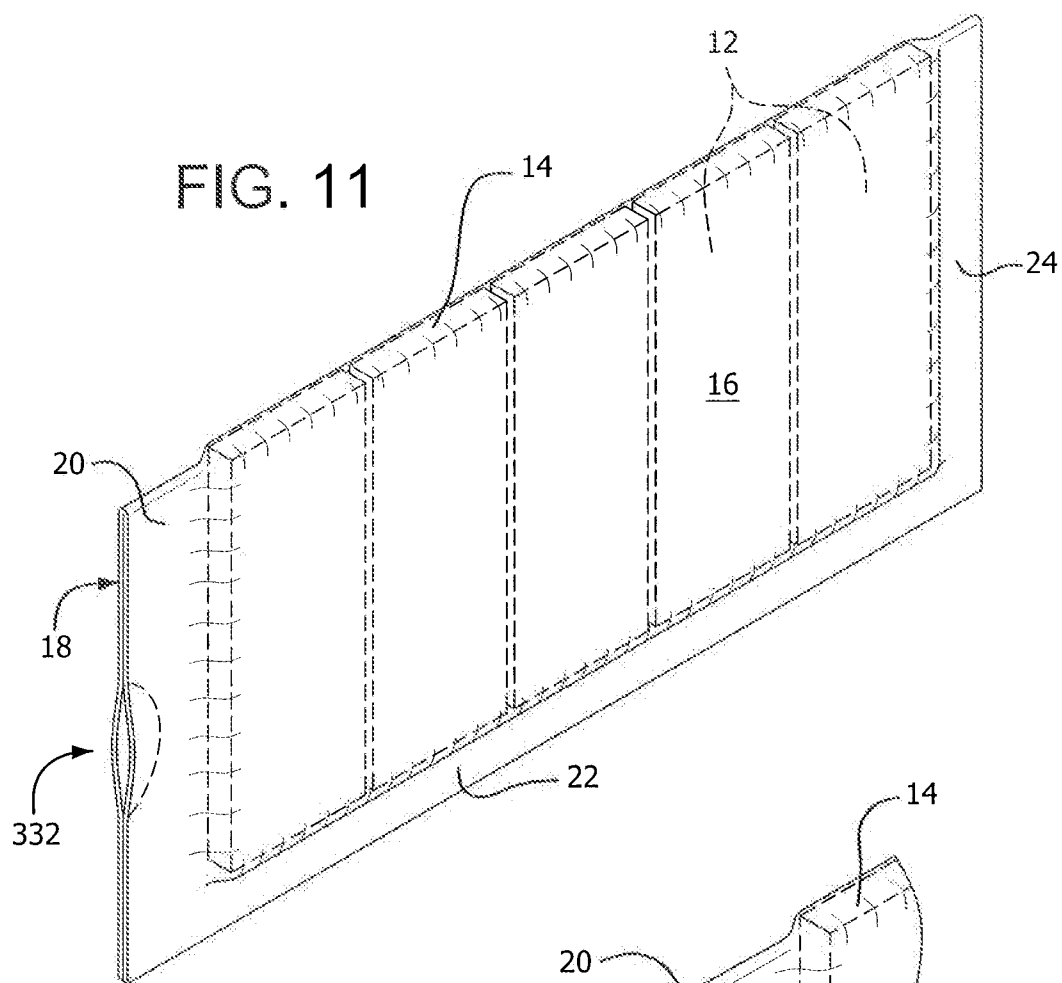


FIG. 9



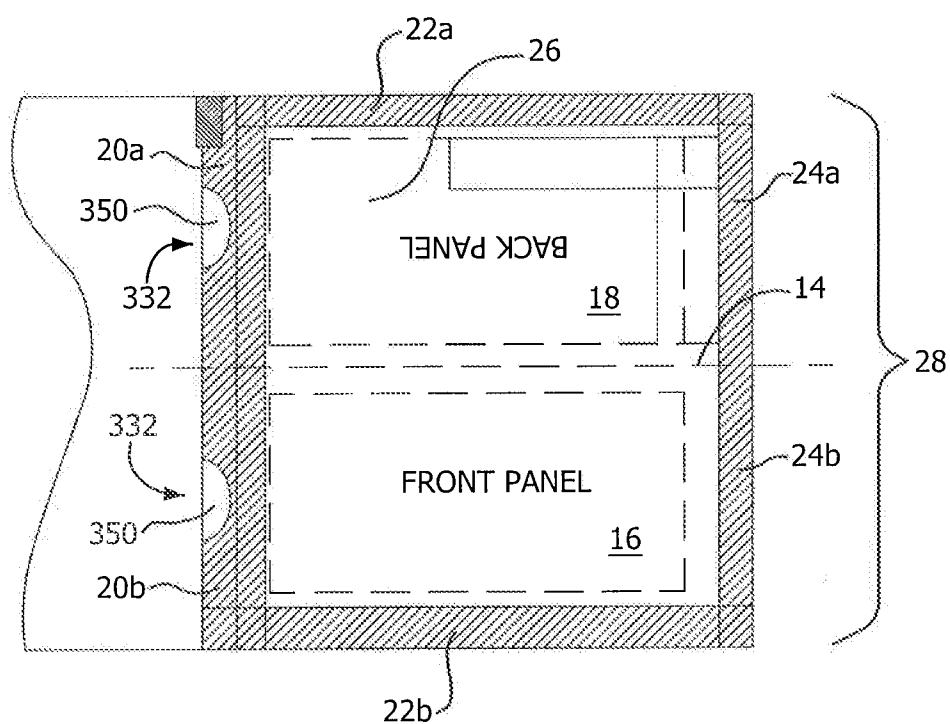


FIG. 12

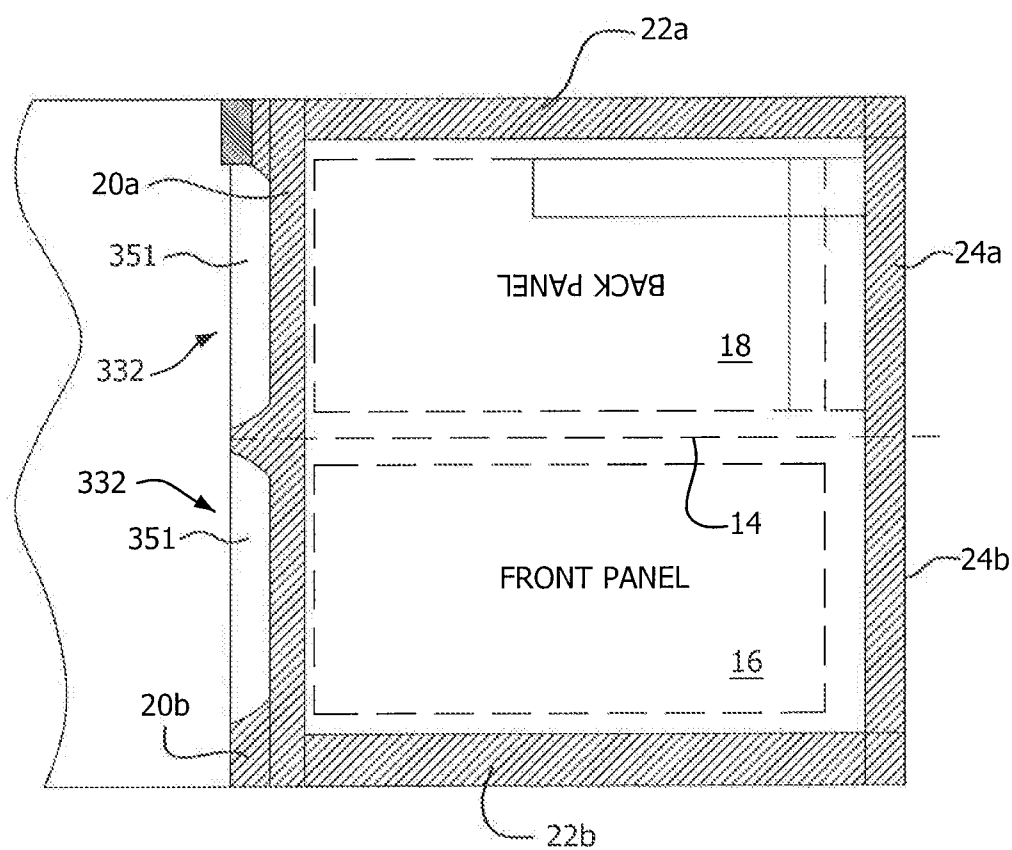


FIG. 13

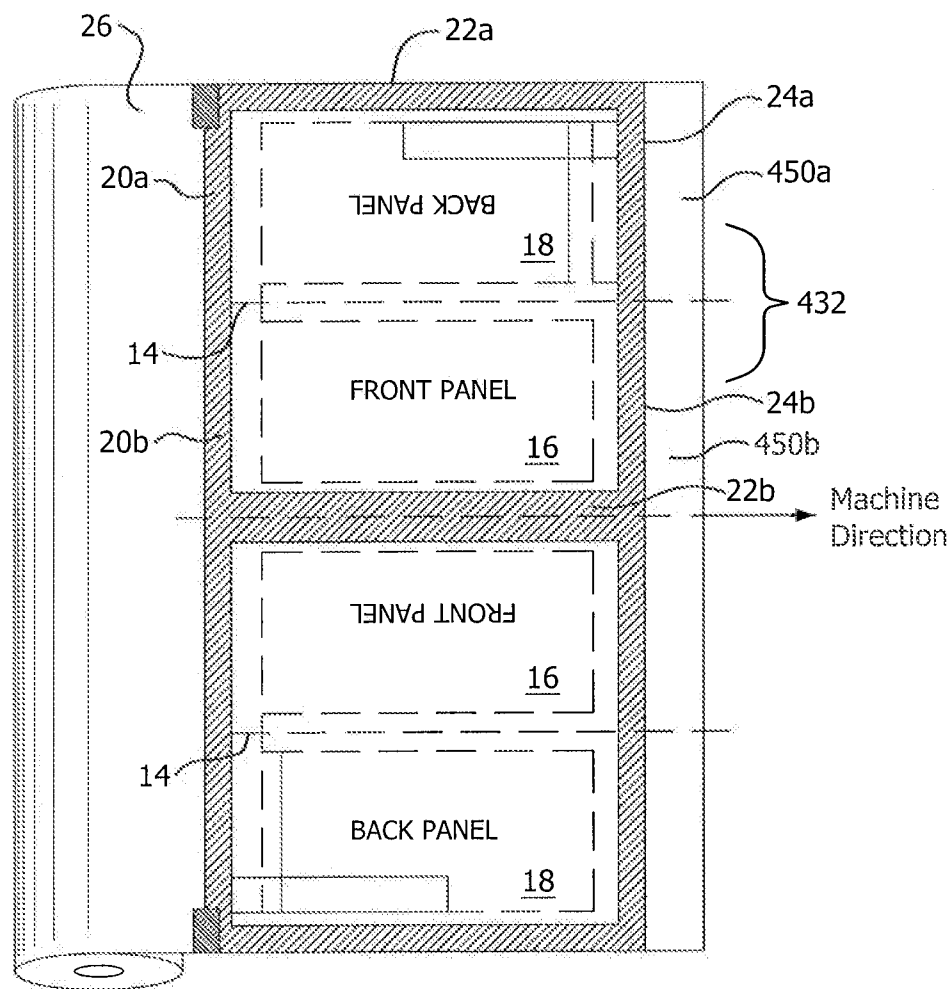


FIG. 15

FLEXIBLE PACKAGE

RELATED APPLICATIONS

[0001] The present disclosure claims the benefit of the filing date of provisional application Ser. No. 61/587,787, filed Jan. 18, 2012.

FIELD OF THE INVENTION

[0002] The present disclosure relates to a package formed from a flexible sheet material for retaining one or more product therein.

BACKGROUND OF THE INVENTION

[0003] Packages made of flexible sheet materials are known. Such packages are formed to hold and retain a variety of products. Certain package forms may be easily opened, but are not always resealable.

[0004] Flexible packages for the storage of consumable products, such as chewing gum in the form of sticks or slabs, are known. One such package includes a folded sheet of flexible material. The folded edge of the sheet forms one side of the package, while the other sides are sealed together using an adhesive, a heat seal or the like. The products retained may be of similar shape and size, with the package surrounding and retaining the products in the aligned fashion.

SUMMARY OF THE INVENTION

[0005] In accordance with the present disclosure a package for consumable products (or the like) is disclosed. The package is formed by a planar sheet or web that is folded about the products. The fold of the sheet defines one side edge of the package. The other three side edges of the package are formed by sealing the front and back panel portions to one another. Opening means is provided for exposing at least a portion of the products retained within the package.

[0006] The opening means may be provided along the folded side edge of the package, preferably at a corner of the package, adjacent to one of the sealed side edges. The opening means may also be formed along one of the seal edges. In addition, means for resealing the opened package may be provided adjacent the opening means.

[0007] Other features of the present invention and combinations of features will become apparent from the detailed description to follow, taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] For the purpose of the present disclosure, drawings are provided that show various forms. It should be understood that the invention is not limited to the precise arrangements and instrumentalities shown in the drawings.

[0009] FIG. 1 shows a perspective view of an embodiment of a package.

[0010] FIG. 2 shows a schematic view of a formation process for the package of FIG. 1.

[0011] FIG. 3 shows a partial perspective view of the package of FIGS. 1 and 2, with a portion of the package in an opened condition.

[0012] FIG. 4 shows a perspective view of another embodiment of a package.

[0013] FIG. 5 shows a schematic view of a formation process for the package of FIG. 4 along with a variation thereof.

[0014] FIG. 6 shows a partial perspective view of the package of FIGS. 3 and 4, with a portion of the package in an opened condition.

[0015] FIG. 7 shows a perspective view of further embodiment of a package.

[0016] FIG. 8 shows a schematic view of a formation process for the package of FIG. 7 along with a variation thereof.

[0017] FIG. 9 shows a schematic view of a formation process of a further variation of the package of FIG. 7.

[0018] FIG. 10 shows a partial perspective view of the package of FIGS. 7 and 8, with a portion of the package in an opened condition.

[0019] FIG. 11 shows a perspective view of further embodiment of a package.

[0020] FIG. 12 shows a schematic view of a formation process for the package of FIG. 11.

[0021] FIG. 13 shows a schematic view of a formation process of a further variation of the package of FIG. 11.

[0022] FIG. 14 shows a partial perspective view of the package of FIGS. 11 and 12, with a portion of the package in an opened condition.

[0023] FIG. 15 shows a schematic view of a formation process of a further embodiment of a package.

DETAILED DESCRIPTION

[0024] In the figures, where like numerals identify like elements, there is shown a number of embodiments of a package or pouch for consumable products, such as chewing gum sticks or slabs. As generally shown in FIG. 1, the package 10 is comprised of flexible sheet or web material that retains five sticks of gum 12 in an aligned, planar formation. The sheet that forms the package 10 is folded along one edge 14. The folded sheet forms a front panel 16 and back panel 18. The front and back panels 16, 18 are sealed to one another along three side edges 20, 22, 24. The bottom side edge 22 is positioned opposite of the folded edge 14.

[0025] As shown in FIG. 2, the package 10 is produced from a roll 26 of flexible material. The sheet roll 26 is preferably the width of two package blanks 28, 30. The sheet 26 is slit down the middle to make the two separate blanks 28, 30. To make a package 10, the sheet 26 portion of each blank 28, 30 is folded in half in the machine direction, around the product sticks 12. The folded blanks 28, 30 are then sealed on three side edges 22, 24, 26.

[0026] Referring again to FIG. 1, the product sticks 12 are accessed inside the sealed package 10 by an opening means 32, which as shown is formed on the folded edge 14 of the package 12. The opening means 32 in the present embodiment is preferably formed at a corner of the package, adjacent to one of the sealed side edges 20. The opening means 32 is formed by a score line 34 within the flexible sheet material 26 that forms the package blanks 28, 30. (See also FIG. 2.) The score line 34 extends partially through the material 26 and, as shown, forms a closed loop. When the package 10 is formed, the score line 34 extends over the top fold 14 of the package 10 and is positioned on both the front panel 16 and back panel 18. The score line 34, which may be formed by a laser, rotary die cut or other device, creates a weakness in the sheet material 26 of the package 10, such that a flap portion 36 of the opening means 30 may be separated from the main body of the sheet material 26. As shown in FIG. 3, the flap 36 has been removed from the folded edge 14 of the package 10, creating a notch in the folded edge 14 of the package 10 and exposing one product stick 12. The formed opening or notch 38, which

is defined by the position of the score line loop 34. The opening 38 is sufficient to expose a portion of the side surface of one stick 12 and long enough for the stick to be removed from the package 10 through the opening. The remaining sticks 12 are left in the package 10 upon removal of the first stick. If additional sticks are desired to be removed, they may be pushed towards the sealed side edge 20 and moved into alignment with the position of the notch opening. The package side edge 20 may be rolled closed for storage or otherwise sealed, such as by providing a resealable adhesive on one or more surfaces within the package 10.

[0027] The sheet material 26 of the present embodiment, and the others discussed below, may take the form of a laminate material having multiple layers. One example of a laminate for the present purpose is a combination of polyethylene terephthalate (PET), foil and Surlyn material. (Surlyn is a registered trademark of E.I. duPont de Nemours and Company.) Alternatives to these materials include oriented polypropylene (OPP) as a substitute for the PET. The foil layer may be replaced by a metalized polyester (MPET). The Surlyn material may be replaced, for example, by a polyethylene having a low heat sealing temperature.

[0028] The combination of the PET and foil provide the strength necessary for retaining product. The Surlyn material is contemplated to be an extrusion coating on the inside of the foil. The Surlyn material is typically used as a food contact or seal layer in flexible packaging. In the contemplated embodiment, the Surlyn material is used to form heat seals along the three side edges 20, 22 and 24. The PET layer in the lamination may be about 48 gauge (ga). The thickness of the alternative OPP material is contemplated to be 60 ga. The foil layer maybe in the range of 50 to 100 ga. The Surlyn seal coating may be fairly thin, such as being about 25 ga. A "permanent" laminating adhesive may be used to secure the PET to the foil, and may be a urethane based adhesive product. Ink may be (reverse) printed on the inside surface of the PET material and covered by the foil. The score line is contemplated to extend through the PET material, but not onto the foil layer. Appropriate graphics may be provided to identify the opening mean and the contemplated method for opening the package. The printing may be provided on the PET material by means of a rotogravure process, which is presently preferred, by a flexographic printing process or by some other known method.

[0029] An alternate embodiment of the package 10 is shown in FIGS. 4-6. In these figures, the package 10 is generally formed in the same manner as that in FIGS. 1-3, with an alternate form of an opening means provided, which is generally designated with the numeral 132. In FIG. 4, the package 10 includes a top folded edge 14 and three sealed edges 20, 22, 24. A score line 134a is shown in FIG. 4, adjacent the folded edge 14 of the package 10. The score line 134a serves to define the opening means 132. As shown in FIG. 5, the score line 134a is formed across the fold line 14 on one package blank 28 extending from the roll of sheet material 26. The score line 134a is a concave curve extending in the machine direction. In the second package blank 30, there is a score line 134b shown that is relatively wider than that shown in blank 28.

[0030] In FIG. 6, the flap 136 formed by the score line 134a is separated from the main body of the package 10, forming the notch 138 and exposing a stick 12. Because of the concave formation of the score line 134a, the flap 136 remains attached at the concave end to the folded spine of the top edge

14 of the package 10. As shown, the side surfaces of the stick are exposed by the open notch 138. It is contemplated that the wider arc of the score line 134b from blank 30 (FIG. 5) would expose a greater amount of the side surface of the stick 12 through the open notch 138. It is preferred that the materials used for the package resist the continued tearing by the flap 136 along the folded edge 14 of the package 10. Maintaining the flap connected to the package 10 may be considered advantageous as a means for reducing waste material that would need disposal after opening. In addition, the flap may serve as a cover for the opening, restricting entry of dust or other material into and out of the package. The materials of the present embodiment are contemplated to be the same as that discussed relative to FIGS. 1-3.

[0031] In FIGS. 7-10 there is shown a package 10 of the type contemplated having further examples of opening means for access to the stored product 12. In FIG. 7, the package 10 is shown with the folded edge 14 and three seal edges 20, 22, 24. The edges in combination with the front and back panels 16, 28 enclose the aligned product sticks 12. The opening means 232 is defined by a score line 234 formed along the folded edge 14, adjacent one sealed side edge 20. In FIGS. 8 and 9, there is shown the initial assembly of the package from the sheet roll 26. The top package blank 28 shows the opening means 232 formed from the score line 234. The score line 232 is shown having relatively straight sides, a transverse end line at one end and an open, non-scored opposite end. A patterned adhesive 240 is provided under the transverse end of the score line. The adhesive 240 is contemplated to be a pressure sensitive adhesive (PSA) and to be releasable. Another possible example is a cold seal adhesive. The adhesive 240 includes a transition line 242a where the releasable adhesive transitions into the permanent, lamination adhesive. The combination of the score line 234 and the adhesive 240 creates a lifting tab 244 on the cut end of the flap 236 formed by the score line 234. (See also FIG. 10.) The adhesive 240 is preferably resealable and provides a means for resealing the package after initial opening.

[0032] As shown in FIG. 8 on blank 28, the adhesive 240 ends at line 242a, which is shown as perpendicular to the side edges of the remainder of the score line 234. In the blank 30 shown in FIG. 8, the transition line 242b for the adhesive 240 is a concave curve in the direction of the open end of the score line 234 (and in the machine direction). In the blanks 31 in FIG. 9, the adhesive forms a transition line 242c that is convex in the direction of the open end of the score line (and in the machine direction). These variations in the form of the adhesive 240 under the starting tab 244 are intended to vary the initiation of the tear created by the flap portion 236 as it is separated from the package body. Depending on the materials used for the lamination (and possibly the form of the flap as defined by the score lines) the initiation of the tear of the non-scored materials may need to be adjusted. Certain formations of the adhesive transition may serve to encourage separation. Others may need to make the separation more controlled, and resist un-intended separation of the flap.

[0033] Also shown in FIG. 9, the open ends of the score line 234 are provided with inwardly directed stop cuts 246. These transverse cuts deflect the tearing motion as the flap is separated. The tear deflection may serve to stop the tearing action along the folded edge 14. Alternatively, depending on the properties of the materials used for the package, the stop cuts may serve to cause a separation of the flap 236 from the package body.

[0034] In FIG. 10, the flap portion 236 is shown separated from the package 10 to define the notch 240, although remaining attached at the open end of the score line pattern 234. The adhesive 240 is shown on the tab 44 and is also provided on a portion of the folded edge 14, adjacent the sealed edge 20. The adhesive, in combination with the score line, creates a start-up tab for easy separation of the top surface of the laminate from the underlying layers. The user would separate the tab and pull upwardly (and back). The pulling force preferably tears the underlying layers along the score line in the upper laminate layer. The tearing of the underlying layers begins at the transition line 242a. Once the flap 236 is opened, the notch 240 is exposed and the stick 12 can be removed there-through. As discussed above relative to other variations, changes in the form and position of the score lines may expose additional amounts of the side wall of the product, which may serve to assist in removal of the stick 12 from the package 10. The laminate materials of the present embodiment are contemplated to be the same as that discussed relative to the other figures herein. The adhesive utilized for the tab may take a number of forms or may be an adhesive void, leaving the tab free from engagement with the underlying layers. Further, the tab portion, along with other structures may be formed in registration with the graphics on the package to provide an identification of the opening means and its operation.

[0035] In FIGS. 11-14, there is shown the package 10 with an opening means 332 provided along the side seal 20. In FIG. 11, the package 10 is shown in the same form as above, with the folded top edge and three sealed side edges 20, 22, 24. The edges of the package along with the front and back panels 16, 18 serve to retain a plurality of product sticks 12 in an aligned format. The opening means 332 is formed by a non-sealed area between the two plies of the sealed edge 20. The non-seal area creates a thumb opening for engaging the two plies and for applying a transverse force to open the side seal 20.

[0036] In FIG. 12, the structure of the package blank 28 is shown. The sheet material 26 creates the front and rear panels 16, 18 of the package 10. Upon folding the sheet 26 about the fold line 14, the side edges of the back panel 20a, 22a and 24a are brought into contact with the side edges 20b, 22b, 24b of the front panel 16. The side edges may be sealed together by a heat seal or by an adhesive. The opening means 332 is formed by a peelable seal being formed along the side edges 20. The peelable seal may be created by adjusting the heat sealing process or by using a releasable adhesive along the side edge. As shown, the side edge 20 is provided with an extended width seal, as compared to the other side edges 22, 24. Sealing voids 350 are provided on each side edge portion 20a, 20b and are centered along the edge of the sheet 26. When the sheet is folded, the voids are preferably brought into alignment to create the thumb opening 348 (FIG. 11).

[0037] In the variation of FIG. 13, the sealing voids 351 are relatively larger than those shown in FIG. 12. Hence the size of the thumb opening 348 along the side edge of the package is relatively longer, making the plies of the side edge easier to separate.

[0038] In FIG. 14, the opening means 332 is shown after separation of the sealed edge 20. The opening force is shown by the diverging arrows. The force is applied by grabbing the plies 20a, 20b of the side edge 20 within the thumb opening 348 (FIG. 11) created by the voids 350. Resealing means may be provided in the form of a resealable adhesive adjacent to or as part of the side seal 20. The resealing means is provided for

resealing the two plies back together, after withdraw of one or more product pieces. A portion of the extended seal 20 may be formed by heat sealing the two plies together and by providing a resealable adhesive adjacent the relatively stronger seal. Once the stronger seal is separated or eliminated, the resealable sealing portion may be used for closing the package.

[0039] In FIG. 15 there is shown a further variation of a side seal separation opening means, which is generally designated by the numeral 432. The package is formed from a sheet material 26 having a width that forms two blanks, as discussed above. The side edge portion 24 is formed from the two plies creating the front and rear panels 16, 18. Two extension flaps 450a, 450b are provided adjacent the side seal portions 24a, 24b. The extension flaps are not sealed together when the package is created. Hence, the flaps 450a, 450b may be separated by a transverse force, which is applied to peel open the sealed edge 24. Again, the side seam may be created by a peelable heat seal or a releasable adhesive. An adhesive may also be provided adjacent the separated edge to provide means for resealing the package after opening. A resealable cold seal adhesive is one option for this type structure. The materials of the present embodiment are contemplated to be the same as that discussed relative to the other figures above.

[0040] The present disclosure includes a number of exemplary embodiments. It should be understood by those skilled in the art from the foregoing that various other changes, omissions and additions may be made therein, without departing from the spirit and scope of the contemplated invention. The various embodiments are intended to provide a range of opening options for a folded-side, sealed or similar type package. The opening options have a number of individualized structures that are relatively simple to identify and that provide easy opening of the package and withdrawal of the product contents.

What is claimed is:

1. A package for retaining a product comprising: a planar sheet folded along a first edge and defining front and back panels about the products, the folded first edge of the sheet defining one side edge of the package, three side edges formed by sealing the front and back panels to one another, the folded edge and the three sealed side edges defining an interior package volume for storing product therein, and opening means formed on at least one of the side edges, the opening means for selectively exposing a portion of the product retained within the package volume.
2. The package as in claim 1 wherein the opening means is provided along the folded first edge.
3. The package of claim 2 wherein the opening means is provided inwardly on the side edge from a package corner defined by the folded first edge and one of the sealed side edges.
4. The package of claim 3 further comprising means for resealing the opened package, the resealing means provided adjacent the opening means.
5. The package of claim 3 wherein the opening means comprises a score line within the planar sheet, the score line formed for separation of a flap portion of the folded first edge, the separation of the flap portion creating a notch in a portion of the folded first edge for discharge of product from the package volume.
6. The package of claim 5 wherein the score line is curved and wraps over the folded first edge.

7. The package of claim 5 wherein the score line is formed such that the flap portion remains attached to the package after separation along the score line.

8. The package of claim 7 further comprising means for resealing the flap portion after separation along the score line

9. The package of claim 8 wherein the resealing means is provided adjacent the opening means and inwardly of the package corner.

10. The package of claim 1 wherein the opening means is formed along one of the sealed side edges.

11. The package of claim 10 wherein the opening means is formed by a sealing void that is surrounded by the sealed portion of the one sealed side edge, and wherein the sealed portion is defined by a peelable seal.

12. The package of claim 11 wherein the peelable seal is formed by one of the following:

heat sealing and pressure sensitive adhesive.

13. The package of claim 11 further comprising means for resealing the opened package, the resealing means provided adjacent the opening means.

14. A package for retaining a plurality of individual products in an aligned formation, the package comprising:

a body portion formed from

a planar sheet folded along a first edge and defining front and back panels, the folded first edge of the sheet defining one side edge of the body, and

three side edges formed by sealing the periphery of the front and back panels to one another, the folded edge

and the three sealed side edges defining a package volume for storing the aligned products therein, and an opening mechanism formed along the folded first edge for selectively exposing at least a portion of the aligned products retained within the package volume, the opening mechanism provided inwardly from a package corner defined by the folded first edge and one of the sealed side edges.

15. The package of claim 14 wherein the opening mechanism comprises a score line provided within the planer sheet, the score line extending over the folded first edge and along a portion within each of the front and back panels, the score line providing for the separation of a flap portion on the folded first edge, the separation of the flap portion creating a notch in a portion of the folded first edge for discharge of one of the aligned products from within the package volume.

16. The package of claim 15 wherein at least a portion of the score line is curved.

17. The package of claim 15 wherein the score line is formed such that the flap portion remains attached to the package after separation along the score line.

18. The package of claim 17 further comprising means for resealing the flap portion after separation along the score line.

19. The package of claim 18 wherein the resealing means is provided adjacent the flap portion, adjacent the package corner.

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