



(51) International Patent Classification:
B65D 30/10 (2006.01) **B65D 33/25** (2006.01)

(21) International Application Number:
PCT/US2009/036280

(22) International Filing Date:
6 March 2009 (06.03.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/044,681 14 April 2008 (14.04.2008) US
61/057,036 29 May 2008 (29.05.2008) US
12/229,700 25 August 2008 (25.08.2008) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

[Continued on next page]

(54) Title: VARIOUS GUSSET SEALS OR TREATMENTS FOR RECLOSABLE PACKAGES

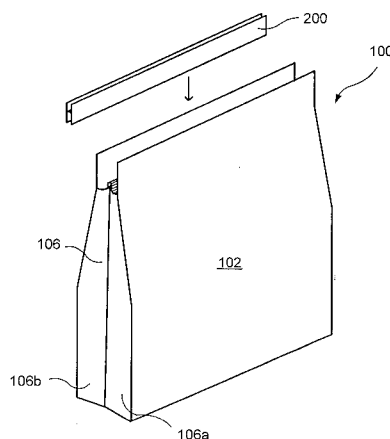


FIG. 15

(57) Abstract: Reclosable gusseted packages or bags have improved resistance to leaking or spilling through the gussets by sealing the gussets together through apertures in the gusset walls, by sealing the zipper flanges together through apertures passing through the gussets in the package or bag, by folding portions of the gussets, or by sewing the gussets shut in areas proximate to the zipper.



Published:

— *without international search report and to be republished
upon receipt of that report (Rule 48.2(g))*

VARIOUS GUSSET SEALS OR TREATMENTS FOR RECLOSABLE PACKAGES

This application is a continuation-in-part of application serial number 11/789,262 filed on April 24, 2007, the contents of which are hereby incorporated by reference, and further claims priority under 35 U.S.C. §119(e) of provisional application serial number 61/044,681 filed on April 14, 2008 and provisional application serial number 61/057,036 filed on May 29, 2008, the contents of both provisional applications are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to improving the leak-proof or spill-resistant quality, as well as the breakage-resistant quality, of gussets in reclosable packages, particularly those made with multi-wall paper or woven polypropylene. This is achieved by sealing the gussets together through apertures in the gusset walls, by sealing the zipper flanges together through apertures passing through the gussets, by sewing the gusset shut, by folding the gussets or by similar methods.

Description of the Prior Art

In the prior art of reclosable packages or bags, it is well known to use gussets between the front and rear walls to increase the capacity of the package or bag with only a small increase in the packaging material, such as multi-wall paper or polypropylene.

However, the use of gussets can increase the tendency for the contents of the reclosable package or bag to leak from the gusset area proximate to the intersection of the package or bag walls and the zipper. More specifically, the contents can travel up the center of the package or bag, between the zipper profiles and out the gusset.

Additionally, particularly with packages or bags with heavier capacities (e.g., 15 pounds or more), it is important for the packages or bags to maintain their integrity during routine impacts or environmental changes, typically as tested as described in application serial no. 11/728,477 entitled "High Burst Zipper Assembly for Large

Reclosable Packages” filed on March 26, 2007, the contents of which are hereby incorporated by reference.

OBJECTS AND SUMMARY OF THE INVENTION

It is therefore an object of the present invention to eliminate or reduce the leakage of contents of a gusseted reclosable package or bag through the gussets proximate to the intersection of the zipper profiles and the package or bag walls, as well as to eliminate or reduce the breakage or tearing of the reclosable package or bag.

This and other objects are attained by sealing the gussets together through apertures in the gusset walls, by sealing the zipper flanges together through apertures passing through the gussets, by sewing the gussets shut in areas proximate to the zipper, or by similar methods.

DESCRIPTION OF THE DRAWINGS

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a plan view, partially in phantom, of a prior art gusseted package or bag, showing the route through which contents may inadvertently escape.

Figure 2 is a cross-sectional view along plane 2-2 of Figure 1.

Figure 3 is a cross-sectional view along plane 3-3 of Figure 1.

Figure 4 is a perspective view of the expanded walls of the package or bag of the first embodiment of the present invention prior to the installation of the reclosable zipper.

Figure 5 is a perspective view, partially in phantom, of the collapsed walls of the package or bag of the first embodiment of the present invention prior to the installation of the reclosable zipper.

Figure 6 is a plan view, partially in phantom, of the package or bag of the first embodiment of the present invention after installation of the reclosable zipper. This plan view is likewise applicable to the second embodiment of the present invention.

Figure 6a is a more detailed plan view of Figure 6.

Figure 6b is a cross-sectional view along plane 6b-6b of Figure 6a.

Figure 6c is an alternative cross-sectional view along plane 6b-6b of Figure 6a, in the absence of gussets.

Figure 7 is a perspective view, partially in phantom, of the expanded walls of the package or bag of the second embodiment of the present invention prior to the installation of the reclosable zipper.

Figure 8 is a perspective view, partially in phantom, of the collapsed walls of the package or bag of the second embodiment of the present invention prior to the installation of the reclosable zipper.

Figure 9 is a perspective view of the expanded walls of the package or bag of the third embodiment of the present invention prior to the installation of the reclosable zipper.

Figure 10 is a perspective view, partially in phantom, of the collapsed walls of the package or bag of the third embodiment of the present invention prior to the installation of the reclosable zipper.

Figure 11 is a plan view, partially in phantom, of the package or bag of the third embodiment of the present invention after installation of the reclosable zipper.

Figure 12 is a perspective view of a first step in the manufacture of a fourth embodiment of the present invention.

Figure 13 is a perspective view of a second step in the manufacture of a fourth embodiment of the present invention.

Figure 14 is a perspective view of a third step in the manufacture of a fourth embodiment of the present invention.

Figure 15 is a perspective view of a fourth step in the manufacture of a fourth embodiment of the present invention.

Figure 16 is a perspective view of a fifth step in the manufacture of a fourth embodiment of the present invention, showing the finished product.

Figure 17 is a perspective view of a first step in the manufacture of a fifth embodiment of the present invention.

Figure 18 is a perspective view of a second step in the manufacture of a fifth embodiment of the present invention.

Figure 19 is a perspective view of a third step in the manufacture of a fifth embodiment of the present invention.

Figure 20 is a perspective view of a fourth step in the manufacture of a fifth embodiment of the present invention.

Figure 21 is a perspective view of a fifth step in the manufacture of a fifth embodiment of the present invention.

Figure 22 is a perspective view of a first step in the manufacture of a sixth embodiment of the present invention.

Figure 23 is a perspective view of a second step in the manufacture of a sixth embodiment of the present invention.

Figure 24 is a perspective view of a third step in the manufacture of a sixth embodiment of the present invention.

Figure 25 is a perspective view of a step in the manufacture of a seventh embodiment of the present invention.

Figure 26 is a perspective view of a further step in the manufacture of a seventh embodiment of the present invention.

Figure 27 is a plan view of an eighth embodiment of the present invention, with the folded gussets shown in phantom.

Figure 28 is a plan view of the zipper inserted into the folded gusset of an eighth embodiment of the present invention.

Figure 29 is a perspective view of a ninth embodiment of the present invention.

Figure 30 is a perspective view of a tenth embodiment of the present invention.

Figure 31 is a plan view of an eleventh embodiment of the present invention.

Figure 32 is a perspective view of a twelfth embodiment of the present invention.

Figure 33 is a perspective view of a variation of the twelfth embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings in detail wherein like numerals indicate like elements throughout the several views, one sees that Figure 1 is a plan view, partially in phantom, of a prior art reclosable package or bag 100 and that Figures 2 and 3 are cross-sectional views thereof. The package or bag 100 is formed from co-extensive front wall 102 and rear wall 104 which are typically formed from polymeric materials (such as, but not limited to, polyethylene or polypropylene, including woven polypropylene), multi-wall paper or laminates. Gussets 106, 108 (illustrated in phantom in Figure 1 and in cross section in Figure 2) are formed as inwardly pointing folds between the side edges of front and rear walls 102, 104, typically integral with, or at least of the same material as, front and rear walls 102, 104. Gusset 106 is formed from gusset walls 106a, 106b in an inwardly pointing V-shaped configuration while gusset 108 is formed from gusset walls 108a, 108b in an inwardly pointing V-shaped configuration. The bottom edges of front and rear walls 102, 104 are sealed or otherwise closed or joined to form bottom 110 or attached to a panel or bottom gusset (not shown). Mouth 112 is formed between the top edges of front and rear walls 102, 104. Zipper assembly 200 is sealed, glued or otherwise secured to the upper exterior of front and rear walls 102, 104. As shown best in Figure 3, zipper assembly 200 includes first profile 202 and second profile 204. First profile 202 includes first interlocking element 206 and first flange 210. Second profile 204 includes second interlocking element 208 and second flange 212. First and second flanges 210, 212 are sealed, glue or otherwise secured to the upper exterior of front and rear walls 102, 104, respectively. Typically, zipper assembly 200 includes slider 214 mounted on first and second profiles 202, 204. Slider 214 operates in a conventional manner of interlocking first and second interlocking elements 206, 208 with each other when moved in a first direction and separating first and second interlocking elements 206, 208 when moved in a second direction. However, alternatively, first and second interlocking elements 206, 208 may have a “press-to-close” configuration in which no slider is required.

As shown by the circuitous path indicated by the arrow in Figure 1, this design is susceptible to contents within package or bag 100 traveling up the center of the package or bag 100, between the first and second flanges 210, 212 and out of the top of the gussets 106, 108. This leakage or spillage is illustrated for the first gusset 106 but is equally applicable to the second gusset 108.

This deficiency can be minimized or eliminated by closing the gussets 106, 108 proximate to the zipper assembly 200 as illustrated in the embodiments of the present invention.

Figure 4 illustrates a first embodiment of the present invention wherein apertures 120, 122, 130, 132 are formed in gusset walls, 106a, 106b, 108a, 108b, respectively. When the gussets 106, 108 are collapsed as shown in Figure 5, apertures 120, 122 align with each other so that a portion of front wall 102 contacts a portion of rear wall 104 through the aligned apertures 120, 122. Similarly, apertures 130, 132 align with each other so that a portion of front wall 102 contacts a portion of rear wall 104 through the aligned apertures 130, 132. When the first and second flanges 210, 212 of zipper assembly 200 are placed over front and rear walls 102, 104 and sealed thereto, front wall 102 is sealed to rear wall 104 through aligned apertures 120, 122 and through aligned apertures 130, 132 thereby closing the upper ends of the gussets 106, 108 and eliminating or reducing the spillage described above. The sealing can be heat sealing by ultrasonic or conduction, or can be by adhesive. Alternatively, grommets (not shown) can pass through aligned apertures 120, 122 and 130, 132. The resulting package or bag 100 is illustrated in Figure 6. The parenthetical notations to numerals 118, 124, 128, 134 apply to the extent that Figure 6 likewise illustrates the second embodiment of the present invention. Figures 6a-6c include further detail or alternatives regarding Figure 6.

Figure 7 illustrates a second embodiment of the present invention wherein apertures 118, 124 (in phantom) are formed in front and rear walls 102, 104 respectively, so as to align with apertures 120, 122. Likewise, apertures 128, 134 are formed in front and rear walls 102, 104, respectively so as to align with apertures 130, 132. When the gussets 106, 108 are collapsed as shown in Figure 8, apertures 118, 120, 122, 124 align with each other. Similarly, apertures 128, 130, 132, 134 align with each other. When the first and second flanges 210, 212 of zipper assembly 200 are placed over front and rear walls 102, 104 and sealed thereto, portions of first flange 210 are sealed to portions of second flange 212 through aligned apertures 118, 120, 122, 124 and through aligned apertures 128, 130, 132, 134 thereby closing the upper ends of the gussets 106, 108 and eliminating or reducing the spillage described above. The resulting package or bag 100 is illustrated in Figure 6, as is the first previously

described first embodiment. Alternatively, grommets (not shown) can pass through aligned apertures 118, 120, 122, 124 and 128, 130, 132, 134.

Additionally, a subset of the apertures illustrated in Figure 7 can be formed. For instance, as shown in Figure 4, some embodiments may include only apertures 120, 122, 130, 132 as formed in gusset walls, 106a, 106b, 108a, 108b without apertures formed on the front and rear walls 102, 104. Likewise, some embodiments may include only apertures 118, 124, 128, 134, on the front and rear walls 102, 104 without apertures formed on gusset walls 106a, 106b, 108a, 108b. Additionally, various apertures illustrated in Figure 7 can be omitted, such as 118 and 128 on front wall 102 (or substantially equivalently, 124 and 134 on rear wall 104, see Figure 30). Similarly, apertures 122, 124, 132, 134 can be omitted as shown in Figure 32, wherein apertures 118, 120, 128, 130 are shown, or, inversely, apertures 118, 120, 128, 130 can be omitted as shown in Figure 33, wherein apertures 122, 124, 132, 134 are shown. Moreover, as shown in Figure 29, apertures 122, 124 can be horizontally (likewise, and/or vertically) offset from apertures 118, 120 (alternatively, one pair of apertures can be omitted). This causes a portion of an exterior zipper flange to extend through apertures 122, 124 and be sealed to a portion of gusset wall 106a and, likewise, a portion of the opposing exterior zipper flange to extend through apertures 118, 120 and be sealed to a portion of gusset wall 106b.

Similarly, as shown in Figure 30, aligned apertures 118, 120, 122 can be formed in front wall 102, and gusset walls 106a, 106b, respectively, while aperture 124 can be omitted, so that no apertures are formed in rear wall 104.

Similarly, as shown in Figure 31, first slot 230 can be formed on front wall 102 and gusset wall 106a and second slot 232 can be formed on gusset wall 106b and rear wall 104. First and second slots 230, 232 are vertically offset from each other so that portions of the exterior zipper flanges can be sealed through the slots to the opposite gusset walls. In most or all of these embodiments, glue is typically inserted within the gussets.

The embodiments shown in Figures 29-33 are particularly well adapted to the use of flanged zippers with sliders, with the flanges extending over the various apertures, similar to the configuration shown in Figure 7.

Figures 9 and 10 illustrate a third embodiment of the present invention wherein thread or similar material is used to form first and second stitched seams 150, 152. First stitched seam 150 stitches together gusset walls 106a, 106b with the portions of front and rear walls 102, 104 which contact the gusset walls 106a, 106b. Likewise, second stitched seam 152 stitches together gusset walls 108a, 108b with the portions of front and rear walls 102, 104 which contact the gusset walls 108a, 108b. Stitched seams 150, 152 close the upper ends of the gussets 106, 108 thereby eliminating or reducing the leakage described above. As shown in phantom in Figure 11, typically, stitched seams 150, 152 are formed in an area of front and rear walls 102, 104 which is covered by the zipper flanges 210, 212.

Figures 12-16 illustrate the manufacturing process for a fourth embodiment of the present invention. As shown in Figure 12, gussets 106, 108 are lower than the top of the package or bag 100, so that the top portions of front and rear walls 102, 104 extend above gussets 106, 108. As shown in Figures 13 and 14, gusset 106 is folded thereby bringing gusset walls 106a and 106b together (similarly unillustrated gusset 108 is folded inwardly thereby bringing gusset walls 108a, 108b together) and tape loop 300 secures or seals the top edges of gusset walls 106a, 106b together (a second tape loop securing or sealing the top edges of unillustrated gusset walls 108a, 108b together). The tape loops 300 could be made from the same material as the package walls 102, 104, possibly from the material that was removed to make the gussets 106, 108 shorter than the package walls 102, 104. A rigid clip could be substituted for tape loop 300. As shown in Figure 15, zipper 200 is then inserted and sealed (such as by heat or ultrasonic energy or by other joining methods such as adhesives or rivets) to the interior of the top edges (or glued to the exterior) of front and rear walls 102, 104, immediately above gussets 106, 108 thereby forming the package or bag 100 illustrated in Figure 16. For bottom fill or fill-through-the-zipper applications, zipper 200 would be sealed to both front and rear walls 102, 104. However, for fill-behind-the-zipper applications, zipper 200 would be sealed to only one wall, with the subsequent sealing of the zipper to the second wall after the package or bag 100 is filled with contents. The zipper 200 typically includes end seals between the ends of the respective first and second profiles 202, 204. These end seals may be formed before or after zipper 200 is inserted.

Figures 17-21 illustrate the manufacturing process for a fifth embodiment of the present invention. Initially, as shown in Figure 17, the front wall 102, rear wall 104 and

unfolded gussets 106, 108 form a rectangular shape. As shown in Figure 18, three vertical slits 310, 312, and 314 are formed on each gusset – slit 310 being formed at the intersection or fold between the front wall 102 and the respective gusset 106 or 108, slit 312 being formed in the middle of respective gusset 106 or 108 and slit 314 being formed at the intersection or fold between the rear wall 104 and the respective gusset 106 or 108, thereby forming upper flaps 106c, 106d at the top of gusset 106 and upper flaps 108c, 108d at the top of gusset 108. As shown in Figure 19, upper flaps 106c, 106d, 108c, 108d are then folded down 180 degrees to abut the exterior of the respective gusset 106, 108. As shown in Figure 20, as gussets 106, 108 are folded, the faces of upper flaps 106c and 106d (shown as outwardly facing in Figure 19) are brought together and sealed together, and the faces of upper flaps 108c, 108d are likewise brought together and sealed together. As shown in Figure 21, zipper 200 is then inserted and sealed (or otherwise secured, such as by gluing) to the interior of the top edges (or glued to the exterior) of front and rear walls 102, 104, immediately above gussets 106, 108.

Figures 22-24 illustrate the first three steps of the manufacture of a sixth embodiment of the present invention, which substitute for Figures 17-19 of the fifth embodiment. Initially, as shown in Figure 22 (similar to Figure 17), the front wall 102, rear wall 104 and unfolded gussets 106, 108 form a rectangular shape. As shown in Figure 23, two vertical slits 310 and 314 are formed on each gusset – slit 310 being formed at the intersection or fold between the front wall 102 and the respective gusset 106 or 108, and slit 314 being formed at the intersection or fold between the rear wall 104 and the respective gusset 106 or 108, thereby forming upper flap 106e at the top of gusset 106 and upper flap 108e at the top of gusset 108. As shown in Figure 24, upper flaps 106e and 108e are then folded outwardly and down 180 degrees into the gusseted area of the package or bag 100, so that the sealing layer of the bag film is facing itself. The gussets 106, 108 are collapsed so that the halves of the flaps 106e or 108e (folded about the center fold of the respective gusset 106, 108) are facing each other, putting the halves in a position to be sealed together. The zipper 200 can then be placed into the package or bag 100 above the folded down gussets. The folded down gussets can be sealed to themselves to form a robust seal along the zipper 200, while the zipper 200 will only need to be sealed through one layer of film along the whole top of the package

or bag. After filling, making the last seal is simplified again due to the gusset material all being below the zipper 200.

Figures 25 and 26 illustrate steps in the manufacture of a seventh embodiment of the present invention. As shown in Figure 25, vertical slits 310, 314 are formed on each gusset similar to the embodiment illustrated in Figure 23. However, horizontal slits 316, 318 extend inwardly from the lower portions of respective vertical slits 310, 314. Vertical slits 310, 314 do not join each other and neck 320 is formed thereby retaining upper flaps 106e, 108e on respective gussets 106, 108. As gussets 106, 108 are folded inwardly, upper flaps 106e, 108e are pushed inwardly and downwardly so as to fold over the top edges of the respective gussets 106, 108 and are then sealed to respective gussets 106, 108.

Figures 27 and 28 illustrate steps in the manufacture of an eighth embodiment of the present invention. As shown in Figure 27, gussets 106, 108 are folded at the top so that the fold between gusset walls 106a, 106b is redirected to fold portion 106f which is parallel with the upper edge of package 100 and, likewise, the fold between gusset walls 108a, 108b is redirected to fold portion 108f which is parallel to the upper edge of package 100. Areas 106g, 108g are open thereby forming a pocket to receive the zipper 200 as shown in Figure 28. Lines 106h, 108h show the folding of the gussets 106, 108, respectively. The gussets 106, 108 are illustrated as being folded at forty-five degrees, but other angles, such as sixty degrees, are envisioned within this embodiment.

Thus the several aforementioned objects and advantages are most effectively attained. Although preferred embodiments of the invention have been disclosed and described in detail herein, it should be understood that this invention is in no sense limited thereby and its scope is to be determined by that of the appended claims.

CLAIMS

What is Claimed is:

1. A reclosable package or bag including:
 - a front wall and a rear wall;
 - a first gusset between a first side of the front wall and a first side of the rear wall, the first gusset including a first front gusset wall and a first rear gusset wall;
 - a second gusset between a second side of the front wall and a second side of the rear wall, the second gusset including a second front gusset wall and a second rear gusset wall;
 - wherein a portion of the front wall and a portion of the rear wall extends above the first and second gussets;
 - a first fastening device joining the first front gusset wall and the first rear gusset wall; and
 - a second fastening device joining the second front gusset wall and the second rear gusset wall.
2. The reclosable package or bag of Claim 1 wherein the portion of the front wall and the portion of the rear wall are brought together.
3. The reclosable package or bag of Claim 2 further including a zipper attached to the portion of the front wall and the portion of the rear wall.
4. The reclosable package or bag of Claim 1 wherein the first and second fastening devices are first and second clips.
5. The reclosable package or bag of Claim 1 wherein the first and second fastening devices are first and second pieces of tape.
6. A reclosable package or bag including:
 - a front wall and a rear wall;
 - a first gusset between a first side of the front wall and a first side of the rear wall;

a second gusset between a second side of the front wall and a second side of the rear wall;

a first front slit between a portion of the first gusset and the front wall;

a first rear slit between a portion of the first gusset and the rear wall;

a second front slit between a portion of the second gusset and the front wall;

a second rear slit between a portion of the second gusset and the rear wall;

a first gusset slit in a central portion of the first gusset, thereby dividing a portion of the first gusset into a first front gusset flap and a first rear gusset flap; and

a second gusset slit in a central portion of the second gusset, thereby dividing a portion of the second gusset into a second front gusset flap and a second rear gusset flap.

7. The reclosable package or bag of Claim 6 wherein the first front gusset flap and the first rear gusset flap are folded against the first gusset and wherein the second front gusset flap and the second rear gusset flap are folded against the second gusset.

8. The reclosable package or bag of Claim 7 wherein the first front gusset flap and the first rear gusset flap are sealed to the first gusset and the second front gusset flap and the second rear gusset flap are sealed to the second gusset.

9. The reclosable package or bag of Claim 7 further including a zipper attached to the upper edges of the front wall and the rear wall.

10. The reclosable package or bag of Claim 7 wherein the first front gusset flap is sealed to the first rear gusset flap and the second front gusset flap is sealed to the second rear gusset flap.

11. The reclosable package or bag of Claim 6 wherein the first front gusset flap and the first rear gusset flap are folded against the exterior of the first gusset and the second front gusset flap and the second rear gusset flap are folded against the exterior of the second gusset.

12. The reclosable package or bag of Claim 10 wherein the first front gusset flap and the first rear gusset flap are sealed to the exterior of the first gusset and wherein the second front gusset flap and the second rear gusset flap are sealed to the exterior of the second gusset.
13. The reclosable package or bag of Claim 10 further including a zipper attached to the upper edges of the front wall and the rear wall.
14. A reclosable package or bag including:
 - a front wall and a rear wall;
 - a first gusset between a first side of the front wall and a first side of the rear wall;
 - a second gusset between a second side of the front wall and a second side of the rear wall;
 - a first front slit between a portion of the first gusset and the front wall;
 - a first rear slit between a portion of the first gusset and the rear wall thereby forming a first gusset flap;
 - a second front slit between a portion of the second gusset and the front wall; and
 - a second rear slit between a portion of the second gusset and the rear wall thereby forming a second gusset flap.
15. The reclosable package or bag of Claim 14 wherein the first gusset flap is folded against the first gusset and the second gusset flap is folded against the second gusset.
16. The reclosable package or bag of Claim 15 wherein the first and second gusset flaps are folded against a center fold of the respective first and second gussets, thereby creating opposing front and rear gusset flap faces which are sealed together.
17. The reclosable package or bag of Claim 14 wherein the first gusset flap is sealed to the first gusset and the second gusset flap is sealed to the second gusset.

18. The reclosable package or bag of Claim 14 further including a zipper attached to the upper edges of the front wall and the rear wall.

19. The reclosable package or bag of Claim 14 wherein the first gusset flap is folded against the exterior of the first gusset and wherein the second gusset flap is folded against the exterior of the second gusset.

20. The reclosable package or bag of Claim 19 wherein the first front gusset flap and the first rear gusset flap are sealed to the exterior of the first gusset and the second front gusset flap and the second rear gusset flap are sealed to the exterior of the second gusset.

21. The reclosable package or bag of Claim 19 further including a zipper attached to the upper edges of the front wall and the rear wall.

22. A reclosable package or bag including:

- a front wall and a rear wall;

- a first gusset between a first side of the front wall and a first side of the rear wall;

- a second gusset between a second side of the front wall and a second side of the rear wall;

- a first front slit between a portion of the first gusset and the front wall;

- a first rear slit between a portion of the first gusset and the rear wall;

- a second front slit between a portion of the second gusset and the front wall;

- a second rear slit between a portion of the second gusset and the rear wall;

- a first front gusset slit in the first gusset extending from an end of the first front slit into the first gusset;

- a first rear gusset slit in the first gusset extending from an end of the first rear slit into the first gusset thereby forming a first gusset flap;

- a second front gusset slit in the second gusset extending from an end of the second front slit into the second gusset; and

- a second rear gusset slit in the second gusset extending from an end of the second rear slit into the second gusset thereby forming a second gusset flap.

23. The reclosable package or bag of Claim 22 wherein the first front gusset slit is essentially perpendicular to the first front slit, the first rear gusset slit is perpendicular to the first rear slit, the second front gusset slit is essentially perpendicular to the second front slit, and the second rear gusset slit is perpendicular to the second rear slit.
24. The reclosable package or bag of Claim 22 wherein the first front gusset slit approaches the first rear gusset slit thereby forming a first neck therebetween, joining the first gusset flap to the first gusset and wherein the second front gusset slit approaches the second rear gusset slit thereby forming a second neck therebetween, joining the second gusset flap to the second gusset.
25. The reclosable package or bag of Claim 24 wherein the first gusset flap is folded against the first gusset and the second gusset flap is folded against the second gusset.
26. The reclosable package or bag of Claim 25 wherein the first gusset flap is sealed to the first gusset and the second gusset flap is sealed to the second gusset.
27. The reclosable package or bag of Claim 25 further including a zipper attached to the upper edges of the front wall and the rear wall.
28. The reclosable package or bag of Claim 24 wherein the first front gusset flap and the first rear gusset flap are folded against the interior of the first gusset and the second front gusset flap and the second rear gusset flap are folded against the interior of the second gusset.
29. The reclosable package or bag of Claim 28 wherein the first front gusset flap and the first rear gusset flap are sealed to the interior of the first gusset and the second front gusset flap and the second rear gusset flap are sealed to the interior of the second gusset.
30. The reclosable package or bag of Claim 28 further including a zipper attached to the upper edges of the front wall and the rear wall.

31. A reclosable package or bag including:
- a front wall and a rear wall;
 - a first gusset between a first side of the front wall and a first side of the rear wall;
 - a second gusset between a second side of the front wall and a second side of the rear wall;
 - a first central fold in the first gusset, parallel to the first side of the front and rear walls;
 - a second central fold in the second gusset, parallel to the second side of the front and rear walls;
 - wherein a portion of the first gusset and the second gusset are folded whereby upper folded portions of the first and second gussets are parallel to an upper edge of the front and rear walls; and
 - a zipper inserted into the upper folded portions of the first and second gussets.

32. A reclosable package or bag including:
- a front wall and a rear wall;
 - a first gusset between a first side of the front wall and a first side of the rear wall;
 - a second gusset between a second side of the front wall and a second side of the rear wall;
 - a first front slot in the front wall and a front portion of the first gusset;
 - a second front slot in the front wall and a front portion of the second gusset;
 - a first rear slot in the rear wall and a rear portion of the first gusset;
 - a second rear slot in the rear wall and a rear portion the second gusset; and
 - a zipper with flanges which extend over the slots.

33. The reclosable package or bag of Claim 32 wherein the zipper includes flanges which are attached to a portion of the exterior faces of the front and rear walls.

34. The reclosable package or bag of Claim 32 wherein the first front slot is offset from the first rear slot and the second front slot is offset from the second rear slot.

35. The reclosable package or bag of Claim 32 wherein the first front slot is vertically offset from the first rear slot and the second front slot is vertically offset from the second rear slot.
36. The reclosable package or bag of Claim 32 wherein the zipper includes a slider.
37. A reclosable package or bag including:
a front wall and a rear wall,
a first gusset between a first side of the front wall and a first side of the rear wall;
a second gusset between a second side of the front wall and a second side of the rear wall;
a first pair of aligned apertures in the front wall and the first gusset;
a second pair of aligned apertures in the front wall and the second gusset;
a third pair of aligned apertures in the rear wall and the first gusset;
a fourth pair of aligned apertures into the rear wall and the second gusset; and
a zipper with flanges which extend over the aligned apertures in the front and rear walls.
38. The reclosable package or bag of Claim 37 wherein the zipper includes flanges which are attached to a portion of the exterior faces of the front and rear walls, and wherein a portion of the flanges extend through the aligned apertures.
39. The reclosable package or bag of Claim 37 wherein the first pair of aligned apertures is free of alignment with the third pair of aligned apertures and the second pair of aligned apertures is free of alignment with the fourth pair of aligned apertures.
40. The reclosable package or bag of Claim 37 wherein the first pair of aligned apertures is horizontally offset from the third pair of aligned apertures and the second pair of aligned apertures is horizontally offset from the fourth pair of aligned apertures.

41. The reclosable package or bag of Claim 37 wherein the first pair of aligned apertures is vertically offset from the third pair of aligned apertures and the second pair of aligned apertures is vertically offset from the fourth pair of aligned apertures.
42. The reclosable package or bag of Claim 37 wherein the zipper includes a slider.
43. A reclosable package or bag including:
a first wall and a second wall,
a first gusset between a first side of the first wall and a first side of the second wall;
a second gusset between a second side of the first wall and a second side of the second wall;
a first set of aligned apertures in the first wall, a first portion of the first gusset and a second portion of the first gusset, respectively;
a second set of aligned apertures in the first wall, a first portion of the second gusset and a second portion of the second gusset, respectively; and
a zipper with at least one flange which extends over the apertures in the first wall.
44. The reclosable package or bag of Claim 43 wherein the second wall is free of the first and second set of aligned apertures.
45. The reclosable package or bag of Claim 43 wherein the zipper includes a slider.
46. A reclosable package or bag including:
a first wall and a second wall,
a first gusset between a first side of the first wall and a first side of the second wall;
a second gusset between a second side of the first wall and a second side of the second wall;
a first aperture in the first wall adjacent to the first side, aligned with a second aperture formed in the first gusset, adjacent to the first side of the first wall;

a third aperture in the first wall adjacent to the second side, aligned with a fourth aperture formed in the second gusset, adjacent to the second side of the first wall; and

a zipper with at least one flange which extends over the first and third apertures in the first wall.

47. The reclosable package or bag of Claim 46 wherein the second wall is free of apertures aligned with any of the first, second, third and fourth apertures.

48. The reclosable package or bag of Claim 46 wherein the zipper includes a slider.

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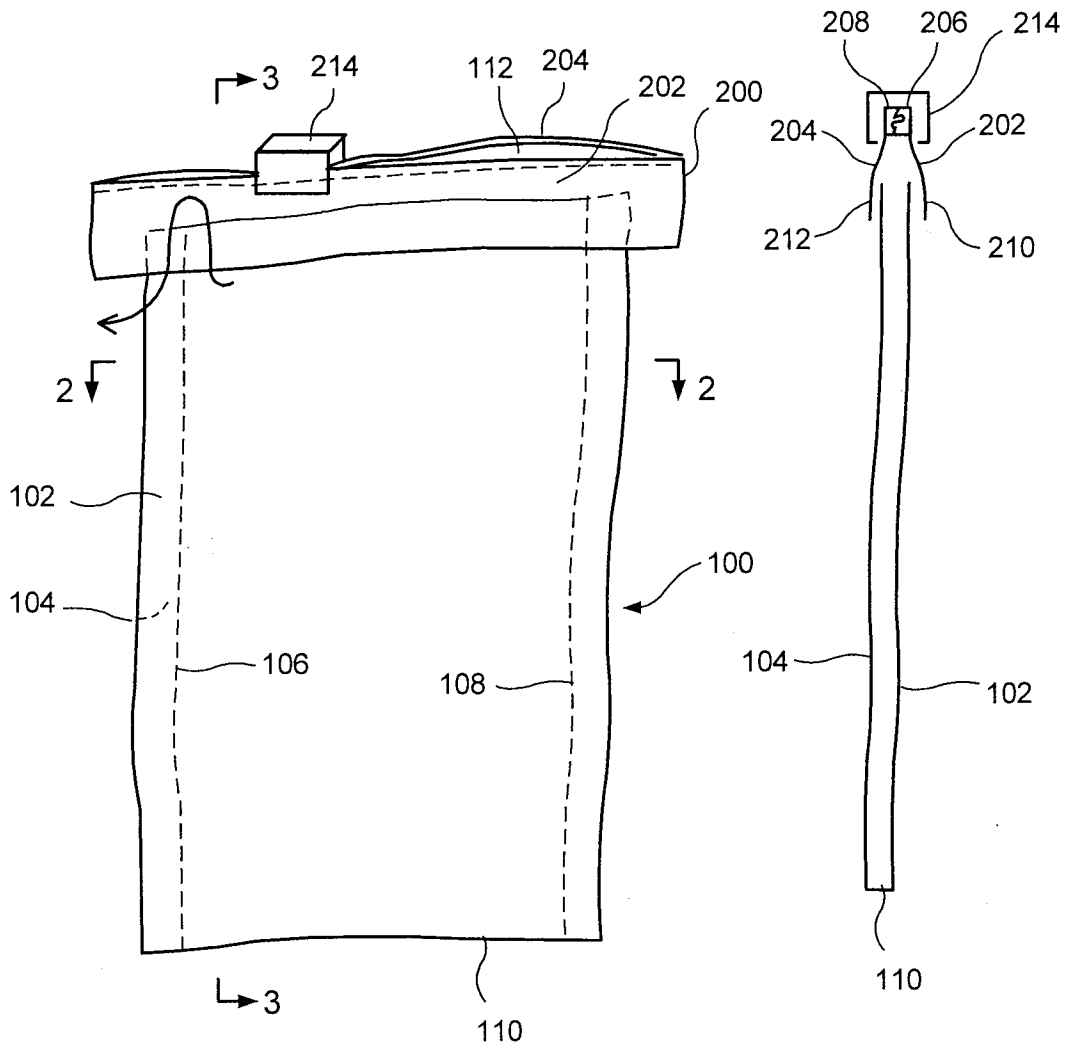


FIG. 1
PRIOR ART

FIG. 3

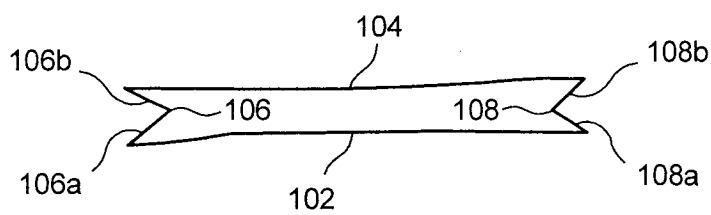


FIG. 2

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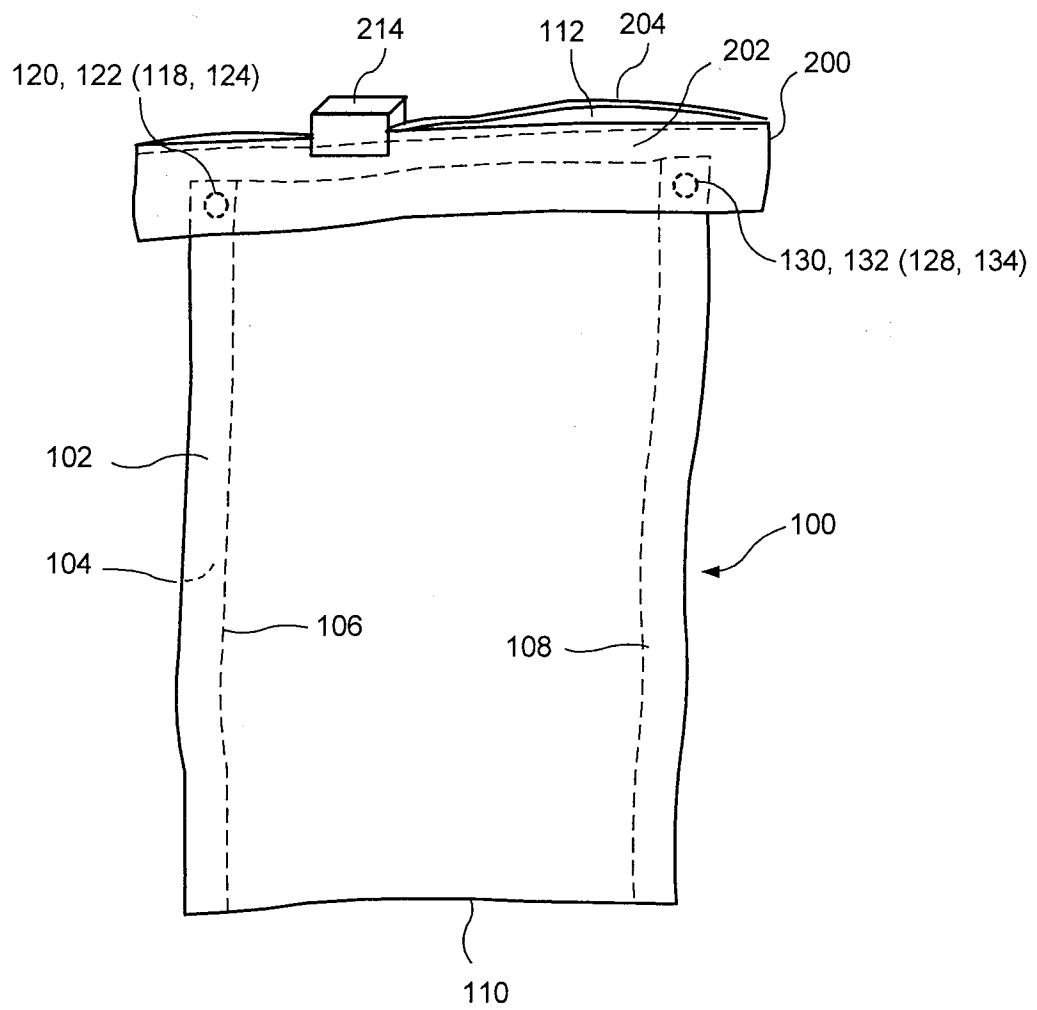


FIG. 6

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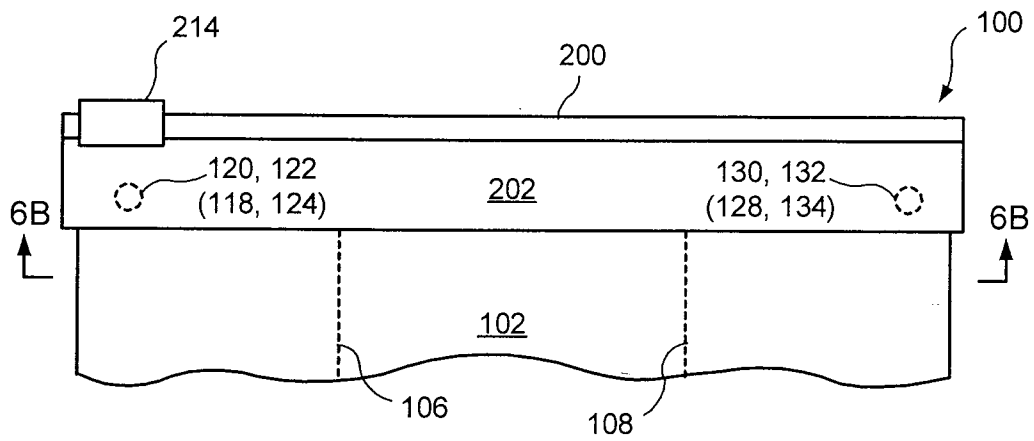


FIG. 6A

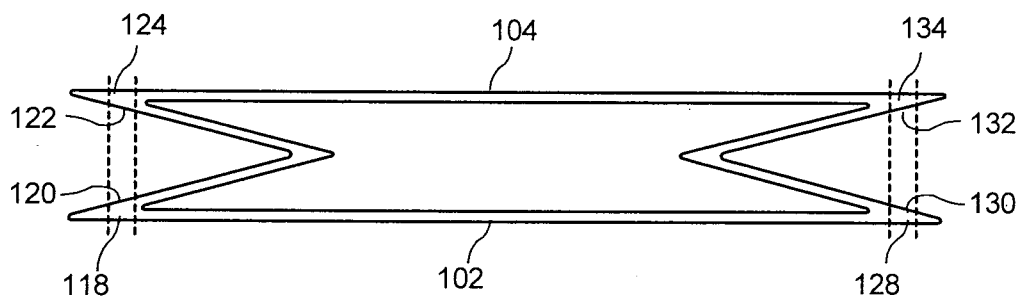


FIG. 6B

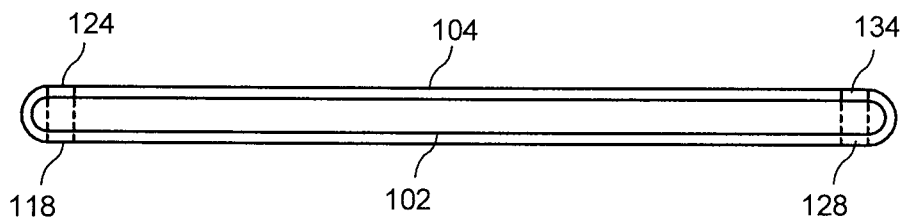
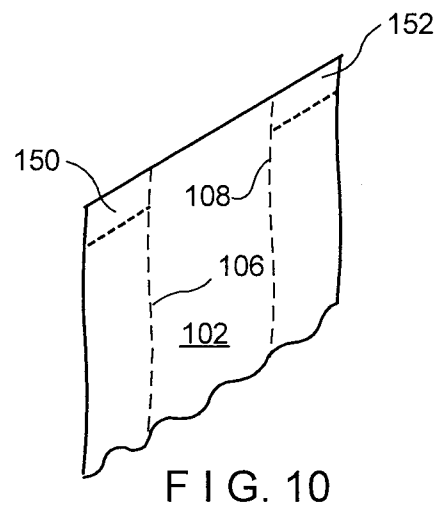
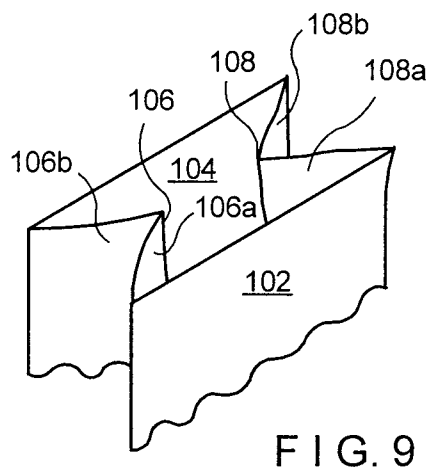
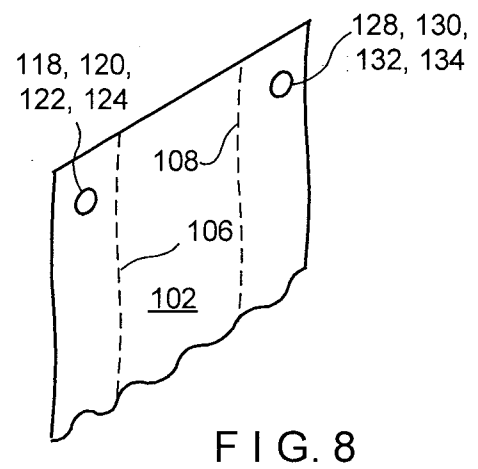
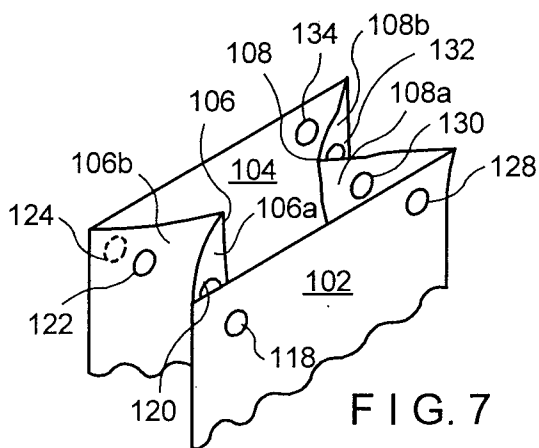
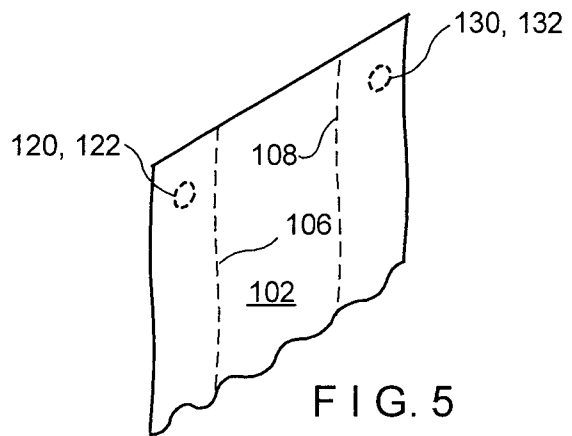
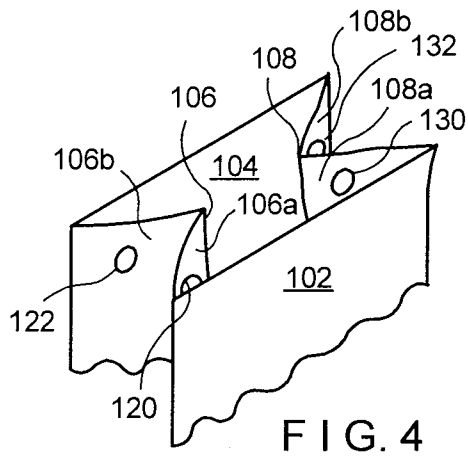


FIG. 6C



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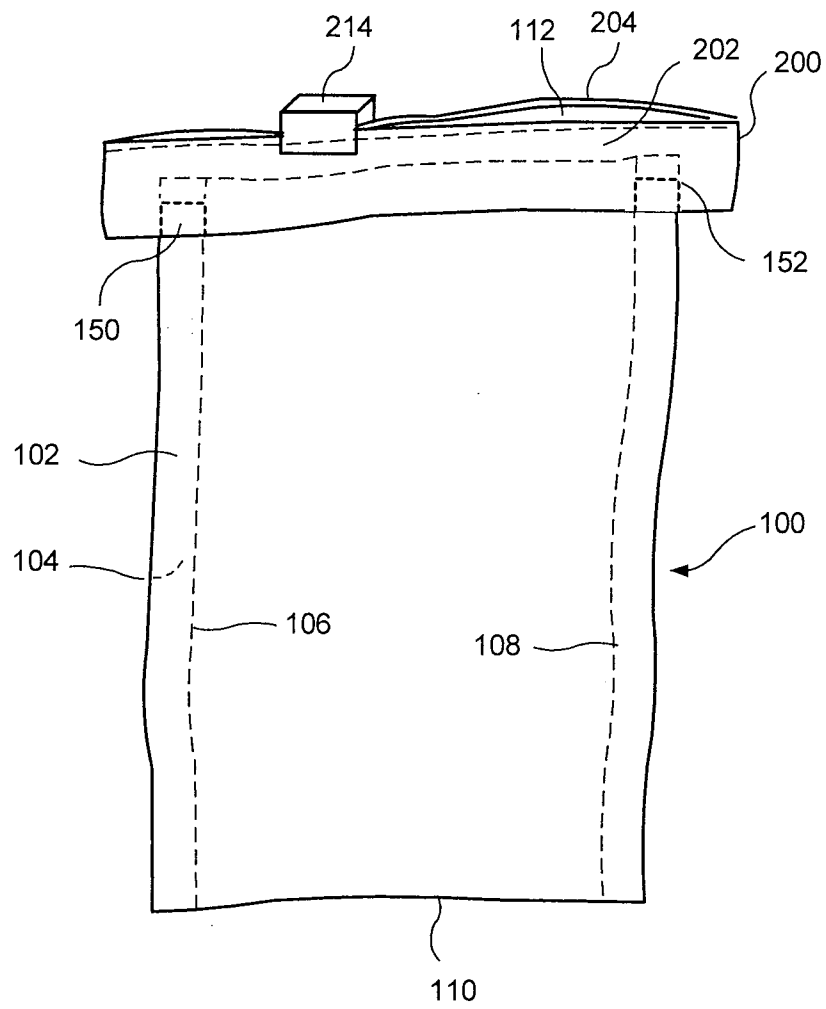


FIG. 11

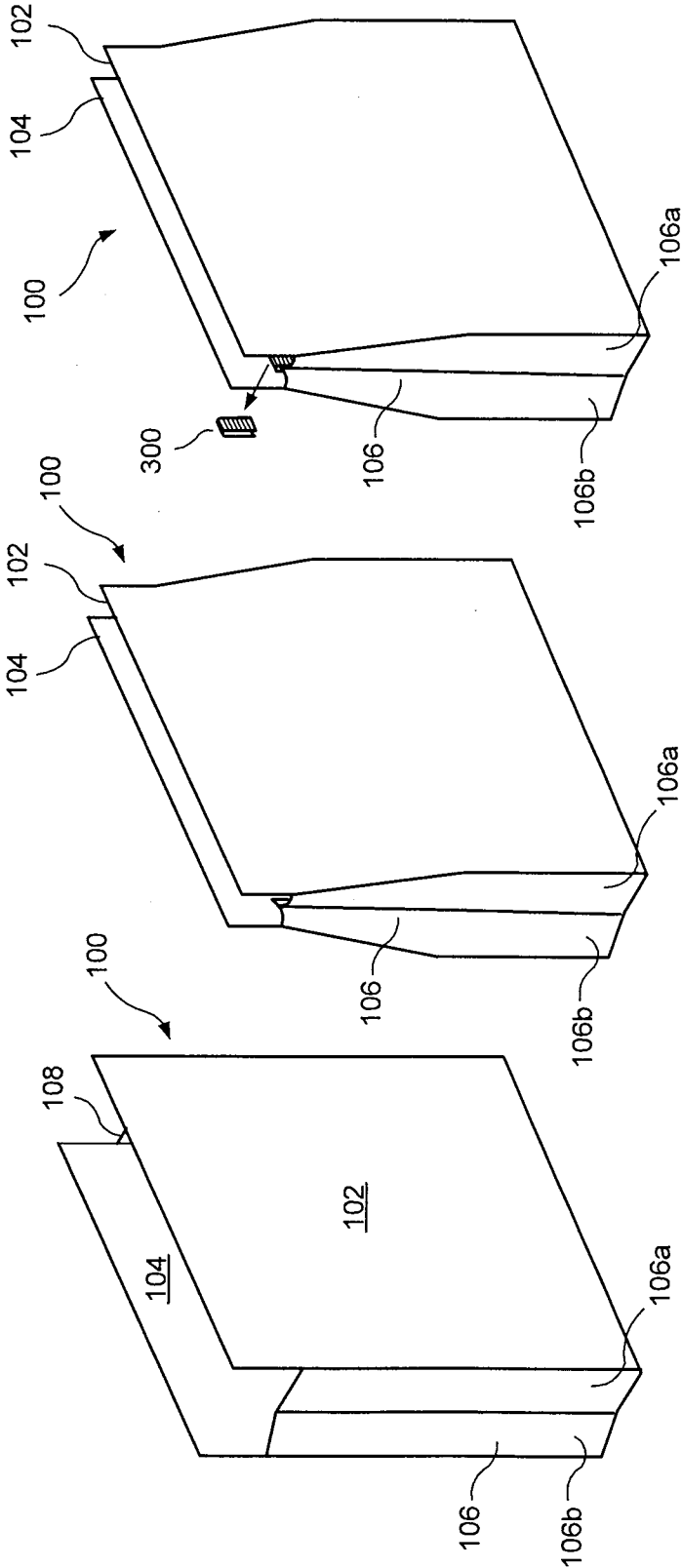


FIG. 14

FIG. 13

FIG. 12

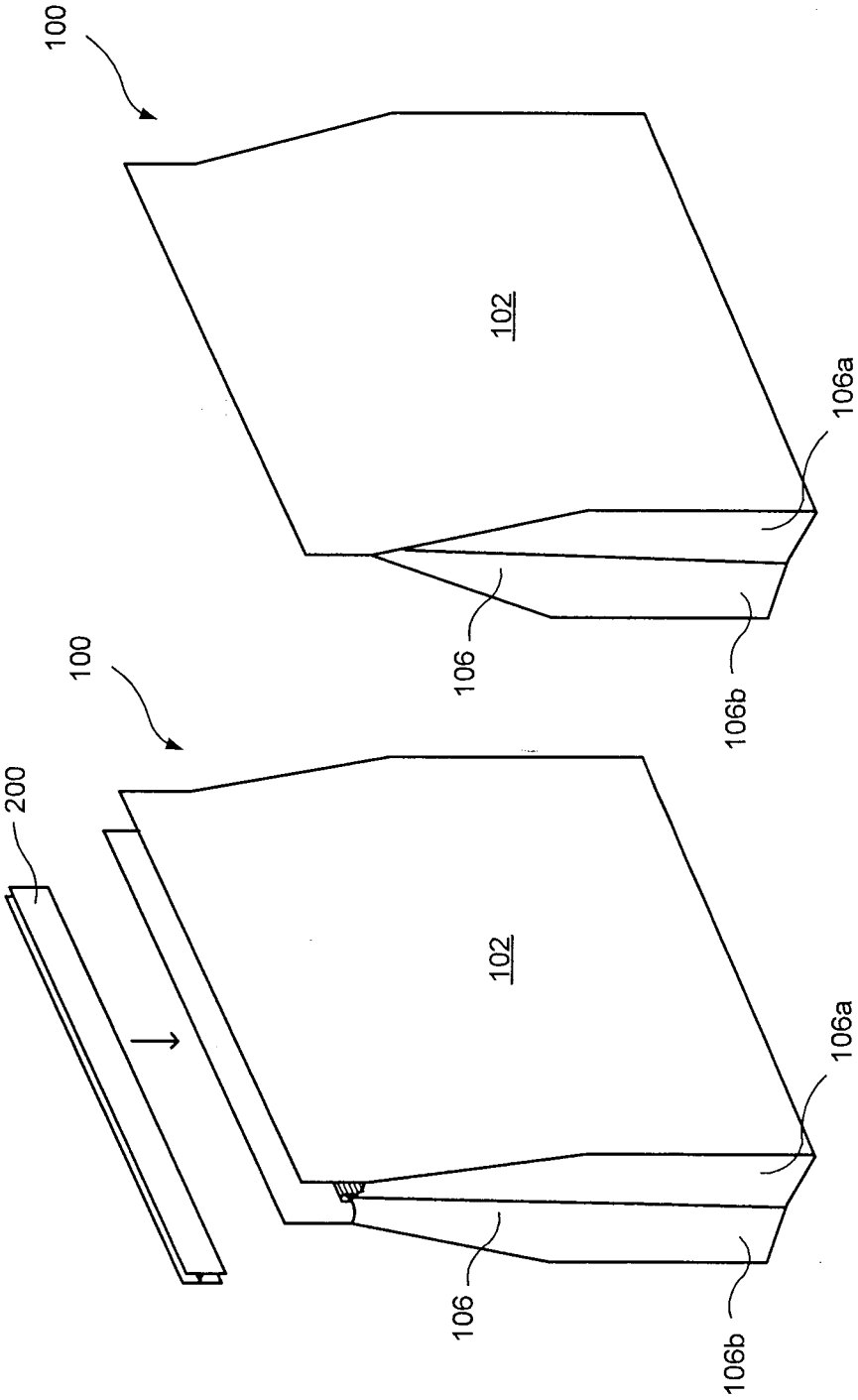


FIG. 16

FIG. 15

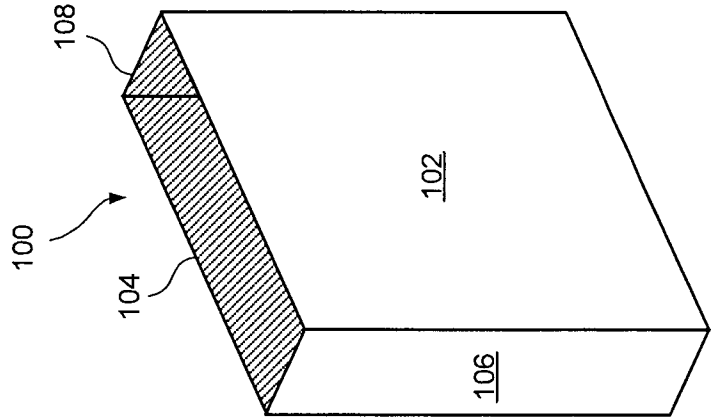


FIG. 17

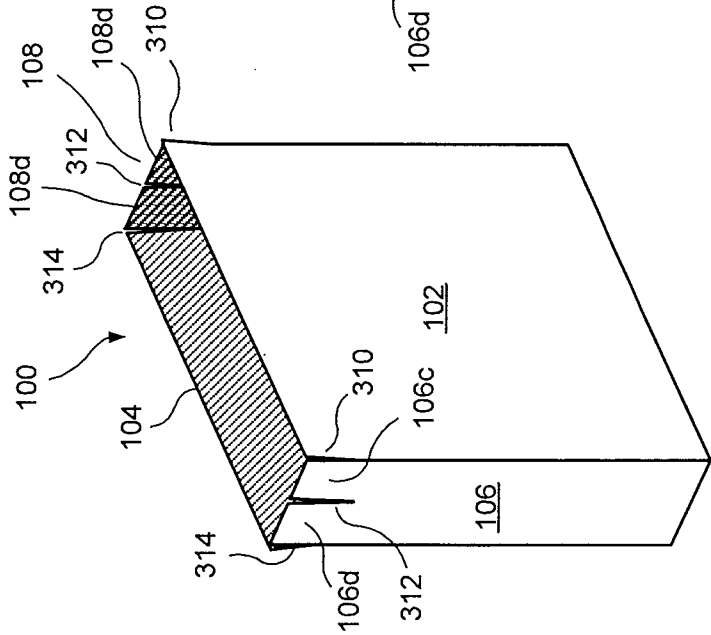


FIG. 18

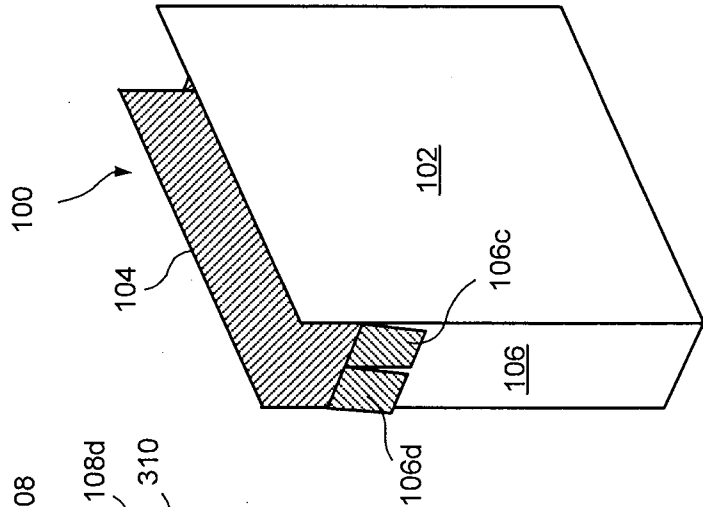


FIG. 19

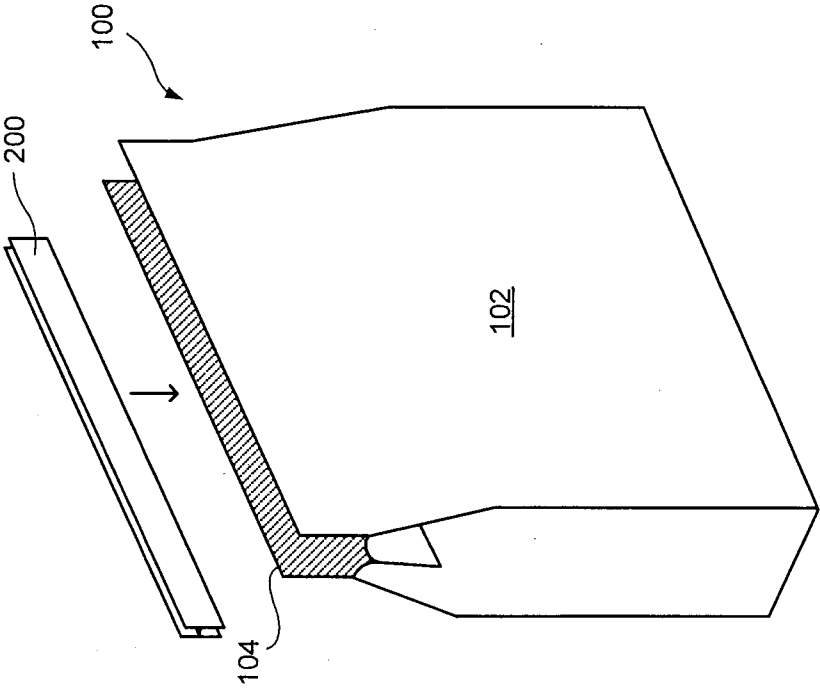


FIG. 20

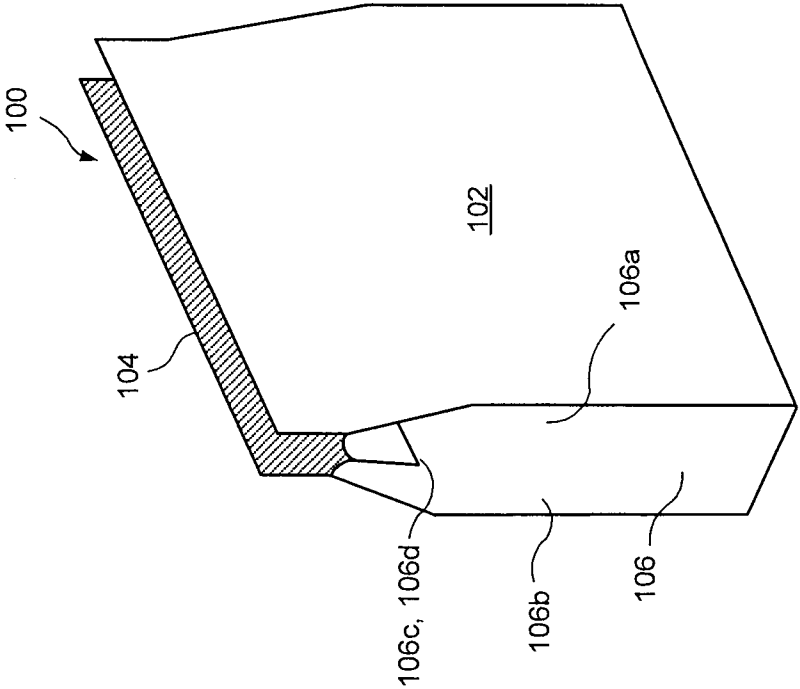


FIG. 21

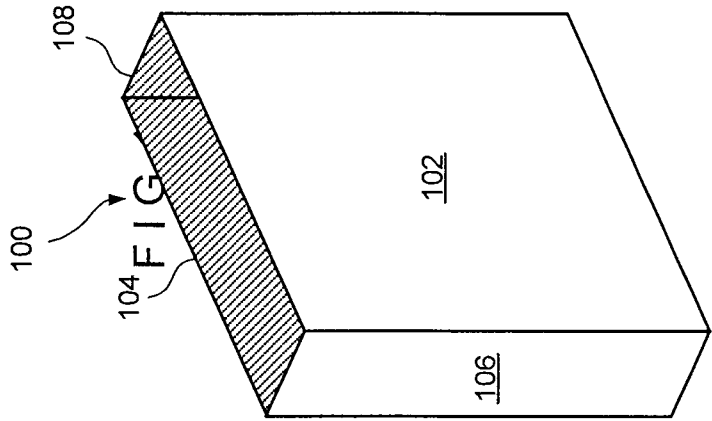


FIG. 22

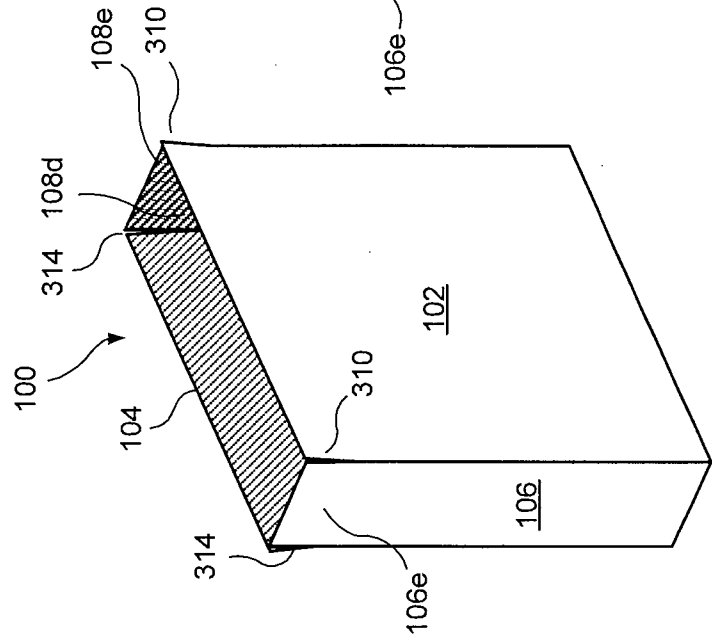


FIG. 23

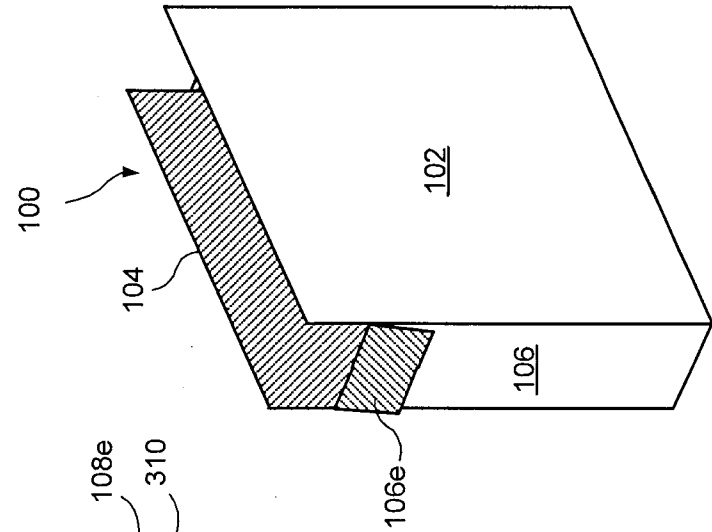


FIG. 24

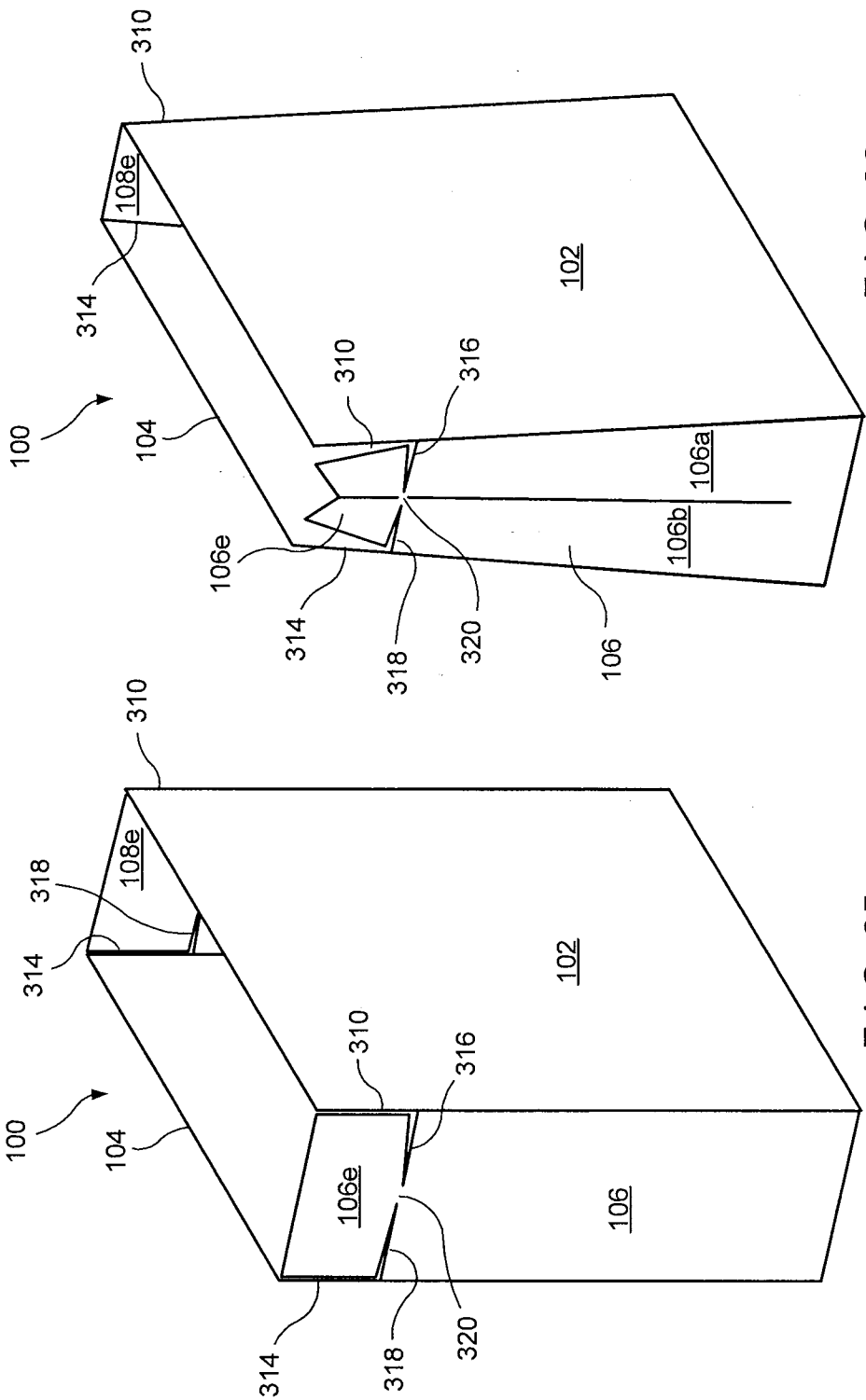
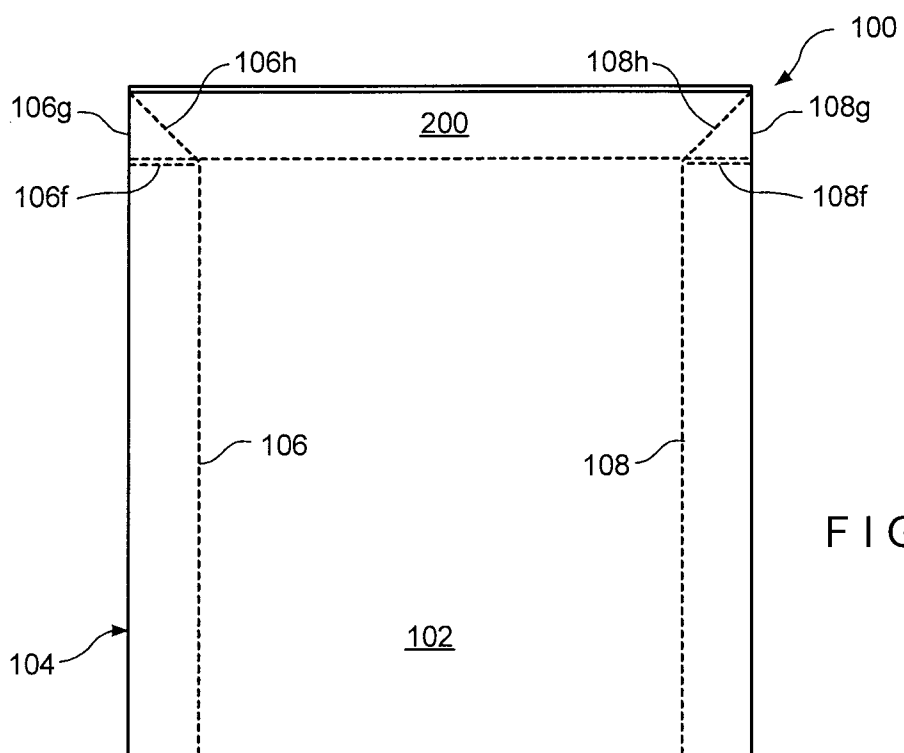
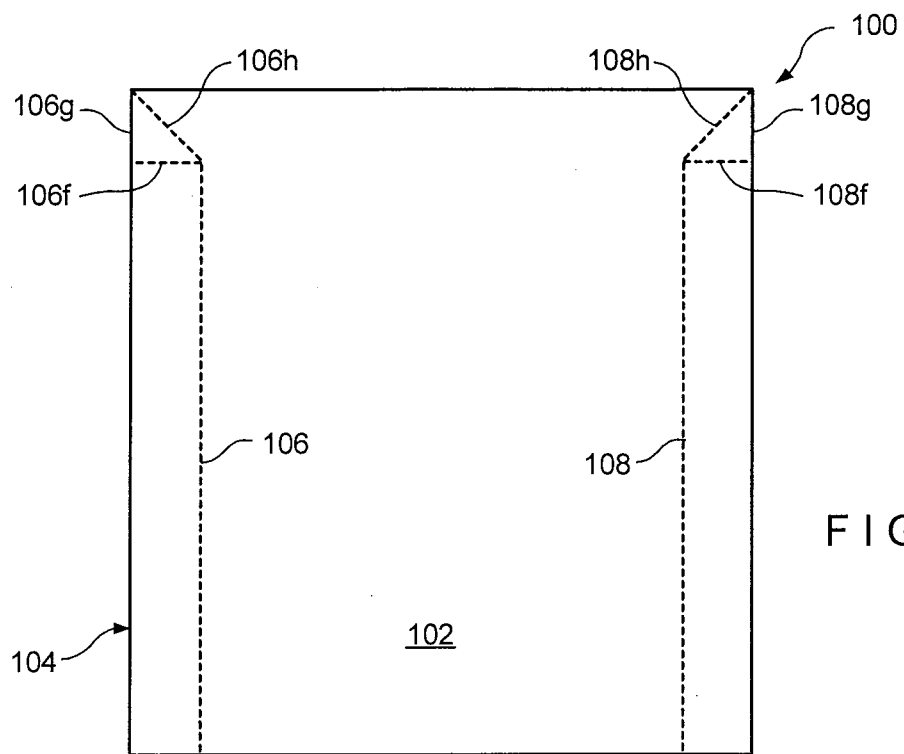


FIG. 26

FIG. 25

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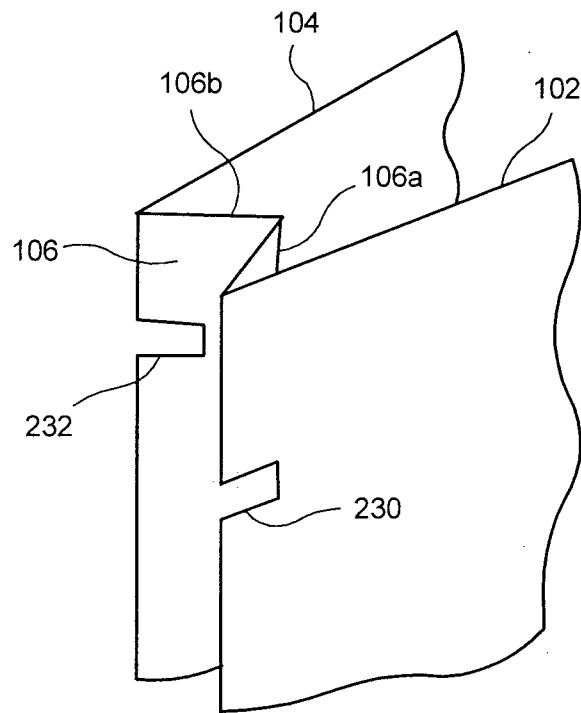


FIG. 31

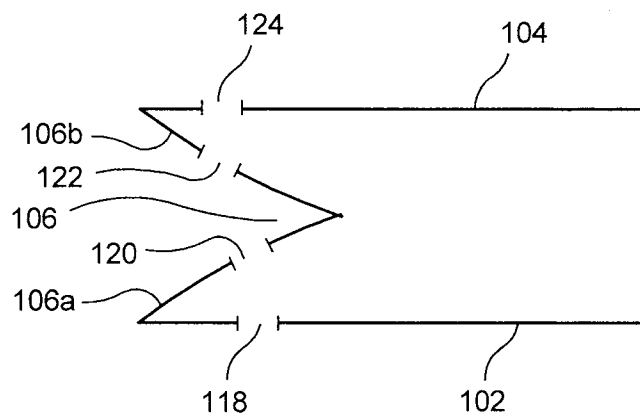


FIG. 29

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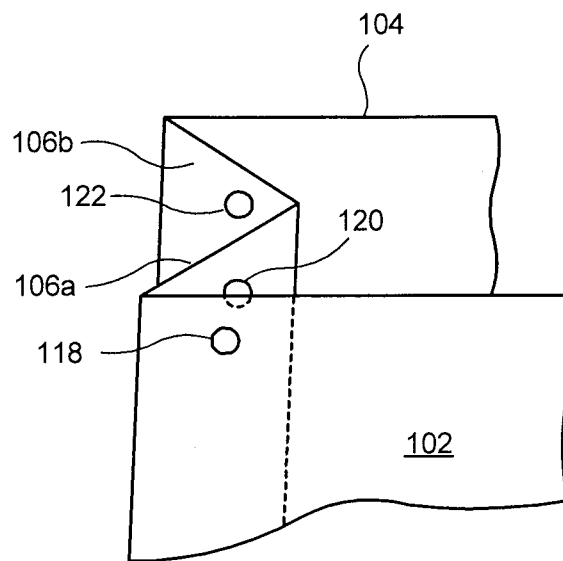


FIG. 30

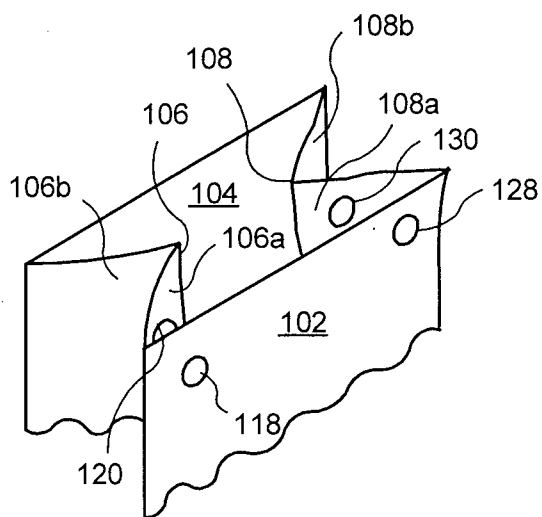


FIG. 32

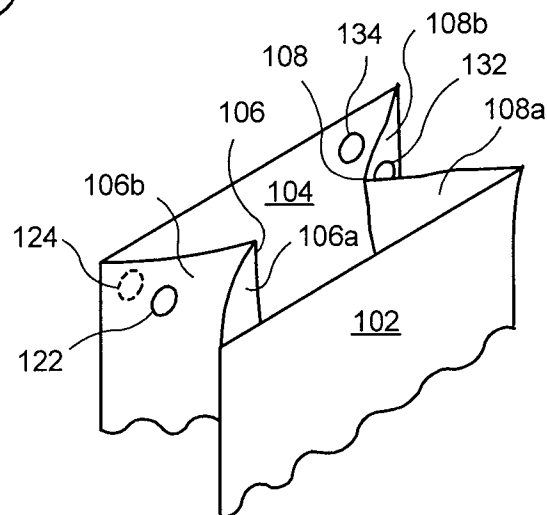


FIG. 33