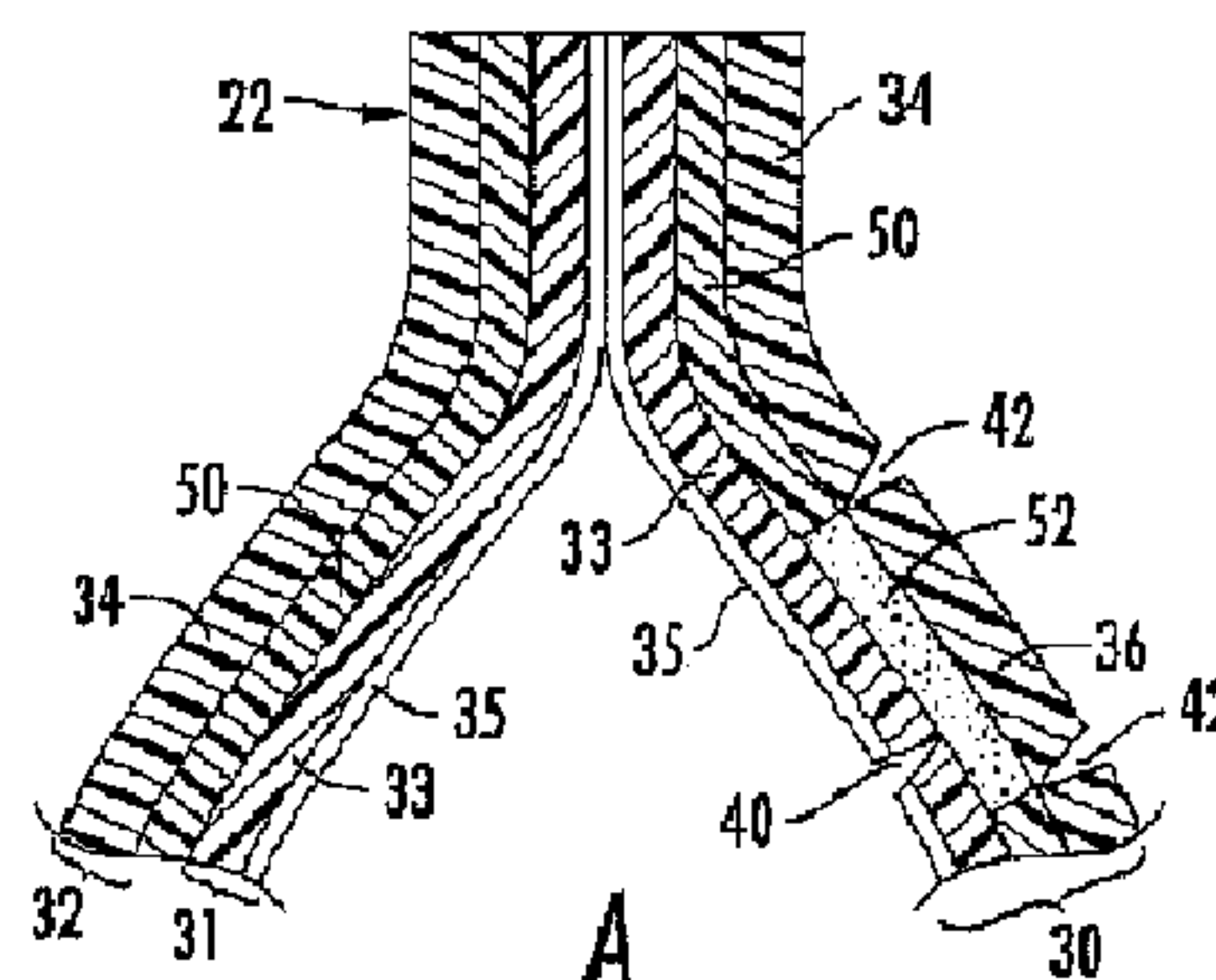
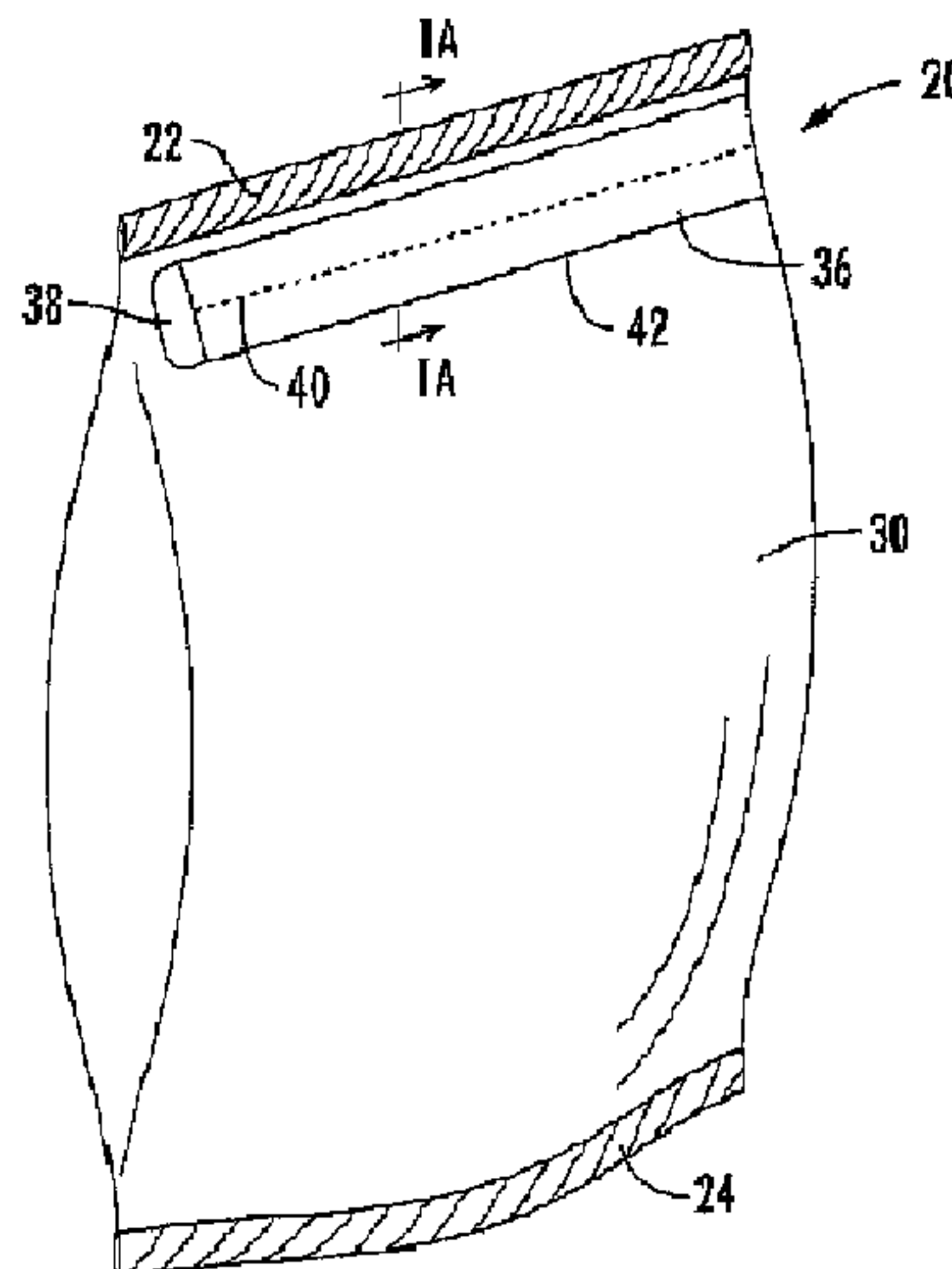




(86) Date de dépôt PCT/PCT Filing Date: 2010/06/10
(87) Date publication PCT/PCT Publication Date: 2011/02/17
(45) Date de délivrance/Issue Date: 2014/04/29
(85) Entrée phase nationale/National Entry: 2012/02/02
(86) N° demande PCT/PCT Application No.: US 2010/038126
(87) N° publication PCT/PCT Publication No.: 2011/019443
(30) Priorité/Priority: 2009/08/13 (US12/540,694)

(51) Cl.Int./Int.Cl. *B65D 75/58* (2006.01),
B65D 27/16 (2006.01), *B65D 33/20* (2006.01)
(72) Inventeurs/Inventors:
HUFFER, SCOTT, US;
REESE, BARRY, US
(73) Propriétaire/Owner:
SONOCO DEVELOPMENT, INC., US
(74) Agent: SIM & MCBURNEY

(54) Titre : EMBALLAGE POUVANT ETRE RESCELLE A OUVERTURE FACILE
(54) Title: EASY-OPEN RESEALABLE PACKAGE



(57) Abrégé/Abstract:

An easy-open resealable package is formed from a flexible laminate that includes an inner structure (31) adhesively laminated to an outer structure (32). An opening feature (40) is formed in the laminate and is operable for forming an opening into the package. A



(57) **Abrégé(suite)/Abstract(continued):**

region of pressure-sensitive adhesive (52) is disposed between the inner and outer structures proximate the opening feature. One or more lines of weakness (42) in the outer structure form at least one peel strip (36) as an integral portion of the outer structure. The at least one peel strip (36) is positioned such that peeling off the at least one peel strip exposes the pressure-sensitive adhesive (52), which remains on the inner structure (31). After opening the package by operating the opening feature, and the user can reclose the package by folding down an end portion (22) of the package and adhering the end portion to the pressure-sensitive adhesive so as to substantially close the opening.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
17 February 2011 (17.02.2011)(10) International Publication Number
WO 2011/019443 A1

(51) International Patent Classification:

B65D 75/58 (2006.01) *B65D 27/16* (2006.01)
B65D 33/20 (2006.01)

(21) International Application Number:

PCT/US2010/038126

(22) International Filing Date:

10 June 2010 (10.06.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/540,694 13 August 2009 (13.08.2009) US

(71) Applicant (for all designated States except US): **SONO-
CO DEVELOPMENT, INC.** [US/US]; 1 North Second
Street, Hartsville, SC 29550 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HUFFER, Scott**
[US/US]; 1216 Oakhaven Circle, Hartsville, SC 29550(US). **REESE, Barry** [US/US]; 413 Edisto Run,
Hartsville, SC 29550 (US).(74) Agents: **HILL, Donald. M. Jr.** et al.; Alston & Bird
LLP, Bank of America Plaza, 101 South Tryon Street,
Suite 4000, Charlotte, NC 28280-4000 (US).(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, CL, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD,
SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,
ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,

[Continued on next page]

(54) Title: EASY-OPEN RESEALABLE PACKAGE

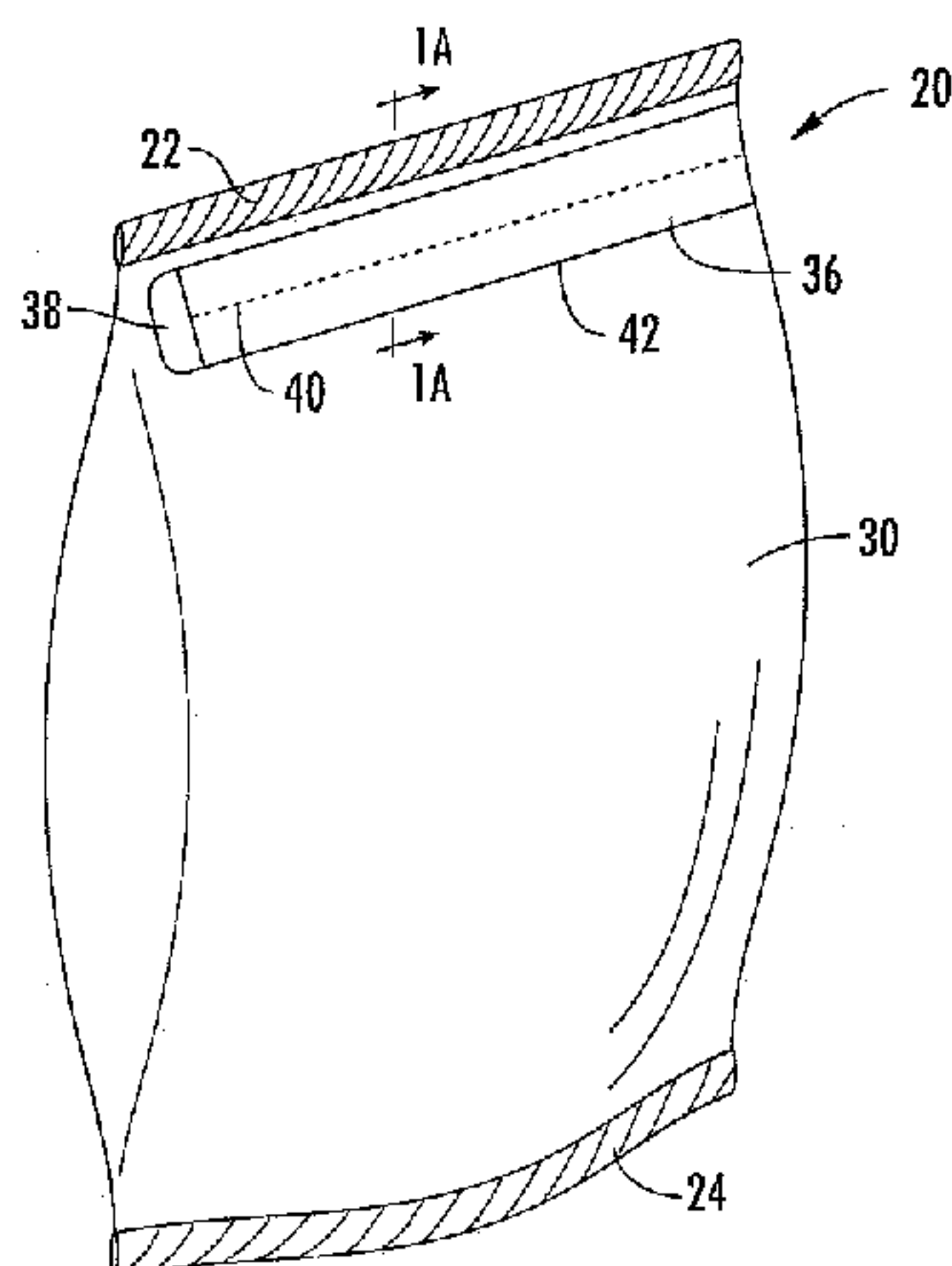


FIG. 1

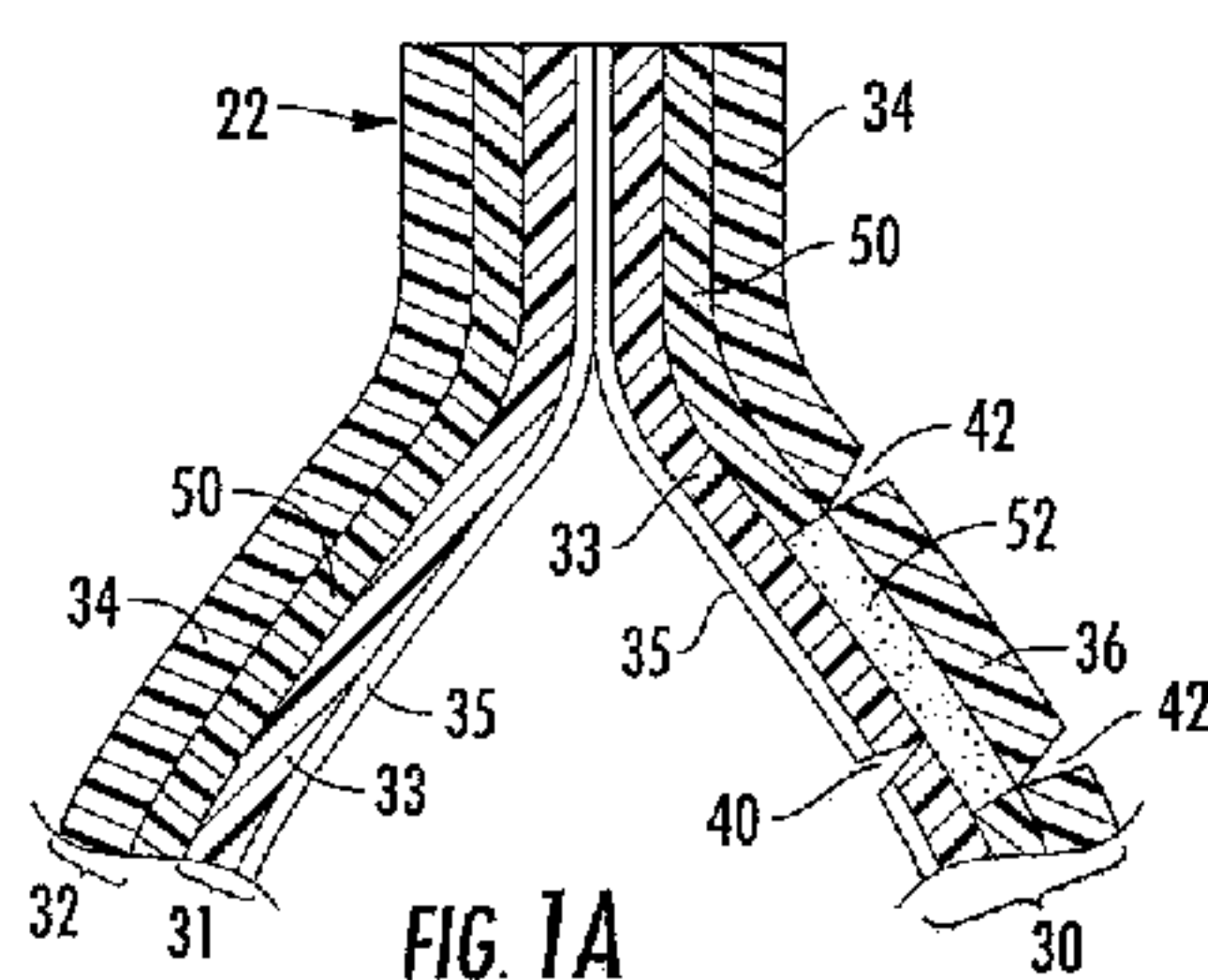


FIG. 1A

(57) Abstract: An easy-open resealable package is formed from a flexible laminate that includes an inner structure (31) adhesively laminated to an outer structure (32). An opening feature (40) is formed in the laminate and is operable for forming an opening into the package. A region of pressure-sensitive adhesive (52) is disposed between the inner and outer structures proximate the opening feature. One or more lines of weakness (42) in the outer structure form at least one peel strip (36) as an integral portion of the outer structure. The at least one peel strip (36) is positioned such that peeling off the at least one peel strip exposes the pressure-sensitive adhesive (52), which remains on the inner structure (31). After opening the package by operating the opening feature, and the user can reclose the package by folding down an end portion (22) of the package and adhering the end portion to the pressure-sensitive adhesive so as to substantially close the opening.

WO 2011/019443 A1



TM), European (AL, 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, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG). **Published:** — *with international search report (Art. 21(3))*

WO 2011/019443

PCT/US2010/038126

EASY-OPEN RESEALABLE PACKAGE

BACKGROUND OF THE INVENTION

The present application relates to packages formed from flexible sheet materials, such as bags, pouches, and the like. The application relates more particularly to such packages that have easy-open functionality as well as reseal capability.

5 One such package that is in widespread use is the zipper bag, which is essentially a plastic bag having three permanently closed edges and a fourth open edge at which a zipper or profiled-strip closure is attached. In some cases the bag can also include a permanent end seal adjacent the zipper, and may include a notch and score line to allow the end seal to be torn off the bag so that the zipper can be opened to gain access to the
10 bag's contents.

 There are significant drawbacks to zippers. For example, a zipper is a separate component from the bag itself, and thus represents added material cost. Furthermore, incorporating the zippers into the bag production process results in added complexity and slows down the process, and therefore is detrimental to productivity and manufacturing
15 cost. Zippers are also notoriously difficult to reclose, which frustrates users of the bags. Moreover, it is necessary to space the zipper from the end of the bag so that there remains a sufficient amount of the two bag walls for the user to grasp in order to open the zipper, and this represents wasted material. A further problem when the bag has an end seal that is torn off, however, is that sometimes the tear does not occur along the desired
20 line, but instead results in the remaining parts of the bag walls being partially or completely torn off right up to the zipper, which further exacerbates the non-user-friendliness of the zipper.

BRIEF SUMMARY OF THE DISCLOSURE

 The present disclosure relates to an easy-open resealable package such as a bag
25 or pouch, formed from a flexible laminate. The laminate includes an inner structure adhesively laminated to an outer structure. The inner and outer structures are

WO 2011/019443

PCT/US2010/038126

coextensive with each other, meaning that their respective edges substantially coincide with one another (i.e., the outer structure is not a label applied to only a portion of the exterior of the package, but is an integral part of the package itself). An opening feature is formed in the laminate and is operable for forming an opening into an interior of the package. Various types of opening features are described herein.

The package includes a region of pressure-sensitive adhesive disposed between the inner and outer structures proximate the opening feature. One or more lines of weakness are formed in the outer structure so as to form at least one peel strip as an integral portion of the outer structure. The at least one peel strip is separable from the remainder of the outer structure along the line(s) of weakness. The at least one peel strip is positioned such that peeling off the at least one peel strip exposes the region of pressure-sensitive adhesive, which remains on the inner structure. Access into the interior of the package can be had through the opening formed by operating the opening feature, and the package can be resealed by folding down an end portion of the package and adhering the end portion to the pressure-sensitive adhesive so as to substantially close the opening.

As noted, various opening features are possible. In one embodiment, the opening feature comprises a score line formed in the inner structure. The score line is positioned such that the at least one peel strip covers it. To open the package, the at least one peel strip is peeled off to expose the score line, which allows access to the package interior through the opening formed by the score line. Optionally, the region of pressure-sensitive adhesive can be on both sides of the score line, so that the end portion of the package that is folded down carries pressure-sensitive adhesive that is adhered to the pressure-sensitive adhesive on the opposite side of the score line, to create an adhesive-to-adhesive bond for reclose. Alternatively, the region of pressure-sensitive adhesive can be only on the opposite side of the score line from the end portion, such that the end portion is simply adhered to the pressure-sensitive adhesive to reclose the package.

In other embodiments, the package can include an end seal spaced from the region of pressure-sensitive adhesive, and the opening feature can be a line of weakening located between the end seal and the pressure-sensitive adhesive region, which allows the end seal to be torn off the package for gaining access to the package interior. The package is reclosed by folding down the end portion of the package and adhering it to the pressure-sensitive adhesive. The line of weakening for tearing off the end seal can be a laser score line. The package can include a notch in one edge

WO 2011/019443

PCT/US2010/038126

intersecting the laser score line, to assist in tearing off the end seal. The edge having the notch can comprise a side seal.

5 In embodiments where the package includes a score line in the inner structure for opening the package, there can be two separate peel strips. An opening peel strip is formed by a first line of weakness in the outer structure and a separate reclose peel strip is formed by a separate, second line of weakness in the outer structure. The opening peel strip is positioned such that peeling it off exposes the score line in the inner structure, and the reclose peel strip is positioned such that peeling it off exposes the region of pressure-sensitive adhesive.

10 Alternatively, there can be a single peel strip that covers both the score line in the inner structure as well as the region of pressure-sensitive adhesive. The peel strip is peeled off to gain entry into the package, and then the end portion is folded down and adhered to the pressure-sensitive adhesive to reclose the package.

15 Whether there is a single peel strip or two separate opening/reclose peel strips, the/each peel strip can include a tab portion that is free of any adhesive attachment to the inner structure underlying the tab portion, whereby the tab portion is readily graspable for initiating peeling of the/each peel strip from the package.

20 In any of the various embodiments, the inner structure can include a surface treatment to enhance adhesion to the pressure-sensitive adhesive relative to the outer structure, so as to ensure that the pressure-sensitive adhesive remains adhered to the inner structure and the at least one peel strip peels cleanly off the pressure-sensitive adhesive. The surface treatment can be, for example, a primer on the inner structure. Additionally or alternatively, the outer structure can have a surface that is treated to reduce adhesion to the pressure-sensitive adhesive relative to the inner structure. The particular treatments used are not critical, as long as the result is that the peel strip(s) will
25 cleanly peel off and leave the pressure-sensitive adhesive on the underlying inner structure.

30 In some embodiments, the inner and outer structures are adhesively joined to each other by two different adhesives. Pressure-sensitive adhesive is pattern-printed on one of the structures (preferably, the inner structure) in a region that will be covered by the peel strip. Outside of this region, a permanent laminating adhesive is pattern-printed on the remaining part of the surface of the structure such that the permanent adhesive does not cover the pressure-sensitive adhesive. The two structures are then laminated to

WO 2011/019443

PCT/US2010/038126

each other via these adhesives. The resulting laminate is then subjected to precision scoring operations to form a score line in the inner structure (for those embodiments in which there is such a score line), and to form the line(s) of weakness in the outer structure defining the peel strip(s). The score line in the inner structure can be formed
5 either mechanically (e.g., by die-cutting) or with a laser. Likewise, the line(s) of weakness in the outer structure can be formed mechanically or by laser. The score line and line(s) of weakness are accurately located to be in registration with the region of pressure-sensitive adhesive. The completed laminate can then be converted into a package by any of the known processes such as vertical form/fill/seal, horizontal form/fill/seal, etc.

10 BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

Having thus described the present disclosure in general terms, reference will now be made to the accompanying drawings, which are not necessarily drawn to scale, and wherein:

FIG. 1 is a perspective view of a package in accordance with one embodiment of
15 the present invention, in an unopened condition;

FIG. 1A is a cross-sectional view along line 1A-1A in FIG. 1, with the thicknesses of the layers of the packaging laminate being greatly exaggerated for clarity of illustration;

FIG. 2 is a front view of the package of FIG. 1, showing the peel strip being removed to expose the score line for opening the package and to expose the pressure-
20 sensitive adhesive for resealing the package;

FIG. 3 illustrates an end portion of the package of FIG. 2 being folded down onto the region of pressure-sensitive adhesive;

FIG. 4 shows the package of FIG. 3 in a resealed condition;

FIG. 5 is a front view of a package in accordance with a second embodiment of
25 the invention;

FIG. 6 shows an opening peel strip being removed from the package of FIG. 5, to expose the score line for opening the package;

FIG. 7 shows a reclose peel strip being removed from the package of FIG. 6, to expose the region of pressure-sensitive adhesive for resealing the package;

WO 2011/019443

PCT/US2010/038126

FIG. 8 illustrates an end portion of the package of FIG. 7 being folded down onto the region of pressure-sensitive adhesive;

FIG. 9 shows the package of FIG. 8 in a resealed condition;

FIG. 10 shows a package in accordance with a third embodiment of the invention,
5 in an unopened condition;

FIG. 11 shows the package of FIG. 10 with the end seal being torn off the package to open the package;

FIG. 12 illustrates the peel strip being peeled off to expose the pressure-sensitive adhesive; and

10 FIG. 13 shows the package of FIG. 12 in a resealed condition.

DETAILED DESCRIPTION OF THE DRAWINGS

The present invention now will be described more fully hereinafter with reference to the accompanying drawings in which some but not all embodiments of the inventions are shown. Indeed, these inventions may be embodied in many different forms and
15 should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will satisfy applicable legal requirements. Like numbers refer to like elements throughout.

FIGS. 1, 1A, 2, 3, and 4 depict a package **20** in accordance with a first embodiment of the invention. The package **20** is a sealed bag or pouch or the like,
20 formed by converting a flexible packaging laminate **30** using any suitable converting process such a vertical form/fill/seal, horizontal form/fill/seal, or the like. The particular converting process and equipment used for making the package is not important to the present invention, as the invention has broad applicability. The illustrative package **20** is formed in a vertical form/fill/seal process in which a continuous web of the laminate **30** is
25 advanced and wrapped about a hollow fill tube and is formed into a tubular structure by forming a longitudinal fin seal (not visible in the drawings) between the opposite edges of the web, a bottom end seal **24** is formed in the tubular structure, the package contents are discharged through the fill tube into the package, a top end seal **22** is formed, and the package **20** is severed from the web.

30 The laminate **30** comprises an inner structure **31** adhesively laminated to an outer structure **32**. The inner structure can comprise one or more layers of flexible material. In

WO 2011/019443

PCT/US2010/038126

the illustrative example shown particularly in FIG. 1A, the inner structure includes a polymer film layer 33 laminated to a sealant layer 35. The sealant layer 35 forms the innermost surface of the package 20 that is adjacent the contents. The polymer film layer 33 can be formed of any of various polymer materials including but not limited to
5 polyesters, polyolefins (including homopolymers and copolymers), polyamides, and others. It is also possible for the inner structure 31 to include non-polymer materials such as paper, metal foil, and the like. The sealant layer 35, which is optional, can comprise any of various materials that when formed into a layer can be sealed to another layer of the same material by application of heat and/or pressure; examples of such materials
10 include but are not limited to heat seal materials and cold seal materials.

The outer structure 33 can comprise one or more layers of flexible material. In the illustrative example of FIG. 1A, the outer structure includes a polymer film layer 34. The polymer film layer can be formed of any of various polymer materials including but not limited to polyesters, polyolefins (including homopolymers and copolymers), polyamides,
15 and others. It is also possible for the outer structure 33 to include non-polymer materials such as paper, metal foil, and the like.

The inner and outer structures are laminated to each other by permanent laminating adhesive 50 and pressure-sensitive adhesive 52 that are located in particular regions between the structures. Specifically, the permanent adhesive 50 is pattern-
20 printed by any suitable technique onto nearly the entire surface of the inner structure 31 that will be joined to the outer structure 32, except for a relatively small, defined region in which the pressure-sensitive adhesive 52 is pattern-printed onto the inner structure, as further described below. The two structures are then laminated together via the adhesives.

The package 20 has integral opening and reseal features that are built into the laminate 30, as opposed to being formed by separate components (e.g., zippers, labels, tapes, etc.) that are applied to the packaging material. The opening feature in the package 20 comprises a score line 40 formed in the inner structure 31. The score line 40 advantageously extends entirely or substantially entirely through the thickness of the
30 inner structure 31 so that the inner structure can be easily severed along the score line to form an opening therethrough. The opening feature further includes a peel strip 36 that is an integral part of the outer structure 32 of the package. The peel strip 36 is formed by a line of weakness 42 formed entirely or substantially entirely through the thickness of the outer structure 32 so that the peel strip 36 delineated by the line of weakness 42 is easily
35 separable from the remainder of the outer structure. The line of weakness follows a

WO 2011/019443

PCT/US2010/038126

generally U-shaped path in the illustrative embodiment, and the peel strip defined by the line of weakness extends substantially fully across the width of the package, but the invention is not limited to any particular size or shape of peel strip.

5 The pressure-sensitive adhesive 52 is confined to a region at least as extensive as the region underlying the peel strip 36. The margins of the pressure-sensitive adhesive region can be somewhat outward of the edges of the peel strip, in order to ensure that there is no permanent adhesive attaching the peel strip 36 to the underlying inner structure 31. In this way, the peel strip 36 can be peeled easily from the inner structure so as to expose the underlying pressure-sensitive adhesive 52 that remains on
10 the inner structure 31, and also to expose the score line 40 of the opening feature. To facilitate grasping the peel strip 36, the peel strip includes a tab portion 38 that overlies a corresponding region 39 (FIG. 2) of the inner structure 31 that is devoid of any pressure-sensitive or other adhesive. Thus, the tab portion 39 is not adhered to the inner structure and can easily be grasped and pulled to start peeling the peel strip.

15 The reclose feature of the package 20 comprises the region of pressure-sensitive adhesive 52 that is exposed by the removal of the peel strip 36. In this embodiment, the pressure-sensitive adhesive 52 covers a region that is on both sides of the score line 40, i.e., there is pressure-sensitive adhesive below the score line and there is also pressure-sensitive adhesive above the score line on an end portion 26 of the package that includes
20 the top end seal 22.

Operation of the package 20 is now described with reference to FIGS. 2 through 4. To open the package for the first time, the user grasps the tab portion 38 of the peel strip 36 and pulls generally in the widthwise direction of the package to peel the peel strip off the package as shown in FIG. 2, thereby exposing the pressure-sensitive adhesive 52
25 and the score line 40. The inner structure 31 of the package is separated along the score line 40 so that an opening is formed into the interior of the package, through which all or part of the contents of the package can be removed.

When only part of the contents have been consumed, the user may wish to reseal the package to retain the remaining contents. To reseal the package, the user folds down
30 the end portion 26 of the package along a fold line generally coincident with the score line 40 (see FIG. 3) so that the pressure-sensitive adhesive on the end portion 26 contacts and adheres to the pressure-sensitive adhesive located below the score line, thereby substantially sealing the opening formed by the score line (see FIG. 4).

WO 2011/019443

PCT/US2010/038126

It should be noted that the line of weakness 42 defining the peel strip 36 can be configured so that the peel strip is not completely removable from the package but instead remains attached at the end opposite from the end having the tab portion 38. In this case, the peel strip is moved out of the way to allow the end portion 26 of the package to be folded down to reseal the package. Alternatively, the line of weakness 42 can be a closed loop so that the peel strip can be completely removed from the package.

The package 20 provides distinct advantages over packages that employ zippers, labels, tapes, or the like, for resealing purposes. No additional components are required apart from the packaging laminate itself. Fabrication of the laminate 30 can be done at high speed in a continuous web process generally as described in applicant's copending U.S. Patent Application Serial No. 11/098,872, the entire disclosure of which is hereby incorporated herein by reference. The laminate can then be converted into packages and filled at high speed, using any of the known processes and equipment, in the same manner that similar non-resealable packages are made. Furthermore, the package is simpler to operate than packages having cumbersome zippers or tapes for resealing.

The process for constructing the laminate 30, as noted, is generally similar to that described in the copending '872 application. Continuous webs of the inner structure 31 and outer structure 32 can be prepared in advance and stored in large rolls. Construction of the laminate 30 begins by pattern-printing the permanent adhesive 50 and pressure-sensitive adhesive 52 onto one of the structures (preferably, the inner structure 31), in repeating patterns along the length of the advancing structure. The inner structure 31 is then laminated to the outer structure 32. Next, the resulting laminate is advanced to a scoring station at which the score line 40 is formed in the inner structure 31 and the line of weakness 42 is formed in the outer structure 32, in registration with the adhesive patterns. The score line and line of weakness can be formed either mechanically (e.g., by die-cutting) or by laser. That is, one can be formed mechanically and the other by laser, or both can be formed mechanically or by laser.

The package 20 described above is advantageous in many respects. However, the invention is not limited to packages having such a configuration. A second embodiment of the invention is now explained with reference to FIGS. 5 through 9, in which reference numbers corresponding to features similar to those of the package 20 have been incremented by 100. The package 120 shown in those figures is similar in some respects to the previously described package 20, so the present description will concentrate on the differences. The chief difference is that the package 120 has two peel strips rather than one. An opening peel strip 136 is defined by a first line of weakness

WO 2011/019443

PCT/US2010/038126

142 in the outer structure of the packaging laminate. The opening peel strip **136** is positioned to cover the score line **140** in the inner structure. There is pressure-sensitive adhesive **152** (FIG. 7) under the opening peel strip **136**, but this adhesive is not used for reclose purposes. A separate reclose peel strip **136'** is defined by a second line of weakness **142'** in the outer structure. The reclose peel strip **136'** covers a region of pressure-sensitive adhesive **152'** (FIG. 7) that is used for reclose purposes. The peel strips **136** and **136'** have tab portions **138** and **138'**, respectively, to facilitate grasping them.

Operation of the package **120** is as follows. To open the package for the first time, the user grasps the tab portion **138** of the opening peel strip **136** and pulls generally in the widthwise direction of the package to peel the peel strip off the package as shown in FIG. 6, thereby exposing the score line **140**. The inner structure of the package is separated along the score line **140** so that an opening is formed into the interior of the package, through which all or part of the contents of the package can be removed.

When only part of the contents have been consumed, the user may wish to reseal the package to retain the remaining contents. To reseal the package, the user peels off the reclose peel strip **136'** to expose the pressure-sensitive adhesive **152'** (FIG. 7) and then folds down the end portion **126** of the package along a fold line generally coincident with the score line **140** (see FIG. 8) so that the end portion **126** contacts and adheres to the pressure-sensitive adhesive **152'** located below the score line, thereby substantially sealing the opening formed by the score line (see FIG. 9).

An advantage of the package **120** over the previous embodiment is that the pressure-sensitive adhesive **152'** remains covered by the reclose peel strip **136'** while contents are being removed from the package, and thus it does not become fouled by bits of the contents, which could reduce its tackiness. When it is desired to reseal the package, the reclose peel strip is removed, exposing fresh pressure-sensitive adhesive **152'**. However, both regions of pressure-sensitive adhesive can be involved in resealing the package.

A package **220** in accordance with a third embodiment of the invention is now explained by reference to FIGS. 10 through 13. The package **220** differs from the previous embodiments principally in that it does not employ a score line in the inner structure of the laminate as an opening feature. Instead, the package **220** has an opening feature of a more-conventional type in which the top end seal **222** of the package can be torn off the package in order to open it. To make such tearing possible, the

WO 2011/019443

PCT/US2010/038126

package includes a score line **228**, such as a laser score line, that extends completely about the package at a location spaced slightly from the end seal. The score line **228** is such that it does not breach the package and thus does not compromise the barrier capabilities of the laminate of which the package is made, yet the laminate can be easily
5 torn along the score line once tearing has been initiated. Initiation of tearing is facilitated by a notch **229** formed in one edge of the package, intersecting the score line **228**. To allow the formation of the notch **229**, the package has at least one side seal, and the notch is formed in the side seal but does not extend beyond the side seal.

To open the package **220**, the user tears off the end **225** of the package above
10 the score line **228**, as shown in FIG. 11, resulting in an opening in the end of the package.

The package **220** includes a peel strip **236** covering a region of pressure-sensitive adhesive **252**, similar to the previous embodiments. To reseal the package, the user peels off the peel strip **236** (FIG. 12) and rolls (i.e., folds over at least twice) an end
15 portion of the package and adheres it to the pressure-sensitive adhesive **252** as shown in FIG. 13.

As apparent from the foregoing description of various embodiments of the invention, the pressure-sensitive adhesive **52**, **152'**, **252** used for reclose purposes must remain on the inner structure **31** of the laminate when the overlying peel strip is peeled off
20 to expose the adhesive. This can be ensured by controlling the surface characteristics of the inner and outer structures in direct contact with the pressure-sensitive adhesive, using any of various techniques. For example, there is a rough rule of thumb that an adhesive will generally remain attached to the surface on which it is originally applied, as opposed to another surface that is subsequently adhered to the adhesive. Thus, it is
25 advantageous to apply the pressure-sensitive adhesive to the inner structure during manufacturing of the laminate **30**. Additionally, it is advantageous to treat the surface of the inner structure to enhance its affinity for adhering to the pressure-sensitive adhesive. This can be done in various ways. One approach is to first apply a primer material to the inner structure, and then to pattern-print the pressure-sensitive adhesive onto the primer
30 material. The primer material can be any of various compositions, depending on the formulation of the pressure-sensitive adhesive. It is also possible to treat the surfaces of both the inner and outer structures in such a way that the inner structure has a significantly greater affinity for adhering to the pressure-sensitive adhesive. The invention is not limited to any particular treatment of the surfaces.

WO 2011/019443

PCT/US2010/038126

One exemplary structure for the laminate 30 is now described with reference again to FIG. 1. The inner structure 31 comprises a film 33 of polyethylene terephthalate (PET) laminated to a sealant layer 35 of polyethylene film. The side of the PET layer opposite from the side having the polyethylene sealant layer is chemically treated and is
5 then primed with a primer material having a high affinity for adhering to the pressure-sensitive adhesive. For example, the primer material can be a laminating ink. The inner structure is then pattern-printed with the permanent and pressure-sensitive adhesives and is laminated to the outer structure 32. The outer structure comprises a film of PET whose surface is treated by corona discharge to enhance its affinity for adhering to the
10 permanent adhesive. While this treatment may also enhance the affinity for adhering to the pressure-sensitive adhesive, nevertheless the use of the primer material on the inner structure results in the inner structure having a greater affinity for the pressure-sensitive adhesive than does the outer structure.

Many modifications and other embodiments of the inventions set forth herein will
15 come to mind to one skilled in the art to which these inventions pertain having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the inventions are not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims. Although specific terms are employed
20 herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

WHAT IS CLAIMED IS:

1. An easy-open, resealable package for products, comprising:
 - a flexible laminate forming the package, the laminate comprising an inner structure adhesively laminated to an outer structure, the inner and outer structures being coextensive with each other such that edges of the inner structure substantially coincide with edges of the outer structure;
 - an opening feature formed in the laminate and operable for forming an opening into an interior of the package;
 - a region of pressure-sensitive adhesive disposed between the inner and outer structures proximate the opening feature; and
 - one or more lines of weakness formed in the outer structure so as to form at least one peel strip as an integral portion of the outer structure, the at least one peel strip being separable from the remainder of the outer structure along the line(s) of weakness, the at least one peel strip being positioned such that peeling off the at least one peel strip exposes the region of pressure-sensitive adhesive that remains on the inner structure, whereby access into the interior of the package can be had through the opening formed by operating the opening feature, and the package can be resealed by folding down an end portion of the package and adhering the end portion to the pressure-sensitive adhesive so as to substantially close the opening.
2. The easy-open, resealable package of claim 1, wherein the opening feature comprises a score line in the inner structure, and the at least one peel strip is positioned such that peeling off the at least one peel strip exposes the score line for access into the interior of the package.
3. The easy-open, resealable package of claim 2, wherein the at least one peel strip is a single peel strip configured such that peeling off the single peel strip exposes both the score line and the region of pressure-sensitive adhesive.
4. The easy-open, resealable package of claim 3, wherein the region of pressure-sensitive adhesive is on at least one side of the score line and the package includes an end portion on an opposite side of the score line therefrom, whereby the end portion can be folded down into a position covering the opening formed by the score line and can be held in said position by adhering the end portion to the region of pressure-sensitive adhesive, thereby resealing the package.

5. The easy-open, resealable package of claim 4, wherein the region of pressure-sensitive adhesive is on both sides of the score line such that the end portion of the package on the opposite side of the score line includes pressure-sensitive adhesive that is placed in contact with pressure-sensitive adhesive on the one side of the score line
5 for resealing the package.
6. The easy-open, resealable package of claim 2, wherein the at least one peel strip comprises an opening peel strip formed by a first line of weakness in the outer structure and a separate reclose peel strip formed by a separate, second line of weakness in the outer structure, the opening peel strip being positioned such that
10 peeling off the opening peel strip exposes the score line in the inner structure, and the reclose peel strip being positioned such that peeling off the reclose peel strip exposes the region of pressure-sensitive adhesive.
7. The easy-open, resealable package of claim 6, wherein each of the opening strip and reclose peel strip includes a tab portion that is free of any adhesive attachment to
15 the inner structure underlying the tab portion, whereby the tab portions are readily graspable for initiating peeling of the opening and reclose peel strips from the package.
8. The easy-open, resealable package of claim 1, wherein the at least one peel strip includes a tab portion that is free of any adhesive attachment to the inner structure underlying the tab portion, whereby the tab portion is readily graspable for initiating
20 peeling of the at least one peel strip from the package.
9. The easy-open, resealable package of claim 1, wherein the package includes an end seal at one end of the package, and the opening feature comprises a line of weakness formed in the laminate proximate the end seal such that the end seal can be torn off the package to gain access to the interior of the package, the region of
25 pressure-sensitive adhesive and the at least one peel strip being located on an opposite side of the line of weakness from the end seal.
10. The easy-open, resealable package of claim 9, wherein the line of weakness comprises a laser score line.
11. The easy-open, resealable package of claim 10, wherein the opening feature
30 further comprises a notch in an edge of the package, intersecting the laser score line, for initiating tearing along the score line.

12. The easy-open, resealable package of claim 1, wherein the package comprises a sealed bag or pouch formed of the flexible laminate, and the opening feature comprises a score line formed in the inner structure adjacent an end portion of the bag or pouch, and operable for forming an opening through the inner structure.
- 5 13. The easy-open, resealable package of claim 12, wherein the at least one peel strip is a single peel strip configured such that peeling off the single peel strip exposes both the score line and the region of pressure-sensitive adhesive.
14. The easy-open, resealable package of claim 12, wherein the region of pressure-sensitive adhesive is on one side of the score line as well as on an opposite side of the
10 score line, the end portion of the bag or pouch being on the opposite side of the score line, such that the end portion includes pressure-sensitive adhesive that is placed in contact with pressure-sensitive adhesive on the one side of the score line for resealing the bag or pouch.
15. The easy-open, resealable package of claim 12, wherein the at least one peel
15 strip comprises an opening peel strip formed by a first line of weakness in the outer structure and a separate reclose peel strip formed by a separate, second line of weakness in the outer structure, the opening peel strip being positioned such that peeling off the opening peel strip exposes the score line in the inner structure, and the reclose peel strip being positioned such that peeling off the reclose peel strip exposes
20 the region of pressure-sensitive adhesive.
16. The easy-open, resealable package of claim 15, wherein each of the opening strip and reclose peel strip includes a tab portion that is free of any adhesive attachment to the inner structure underlying the tab portion, whereby the tab portions are readily graspable for initiating peeling of the opening and reclose peel strips from the bag or
25 pouch.
17. The easy-open, resealable package of claim 12, wherein the at least one peel strip includes a tab portion that is free of any adhesive attachment to the inner structure underlying the tab portion, whereby the tab portion is readily graspable for initiating peeling of the at least one peel strip from the bag or pouch.
- 30 18. The easy-open, resealable package of claim 12, wherein the inner structure includes a surface treatment to enhance adhesion to the pressure-sensitive adhesive relative to the outer structure, so as to ensure that the pressure-sensitive adhesive

remains adhered to the inner structure and the at least one peel strip peels cleanly off the pressure-sensitive adhesive.

19. The easy-open, resealable package of claim 12, wherein the inner structure comprises a polymer film layer one side of which is laminated to a sealant layer and the
5 other side of which is laminated to the outer structure.

20. The easy-open, resealable package of claim 19, wherein the outer structure comprises a polymer film layer.

WO 2011/019443

PCT/US2010/038126

1/7

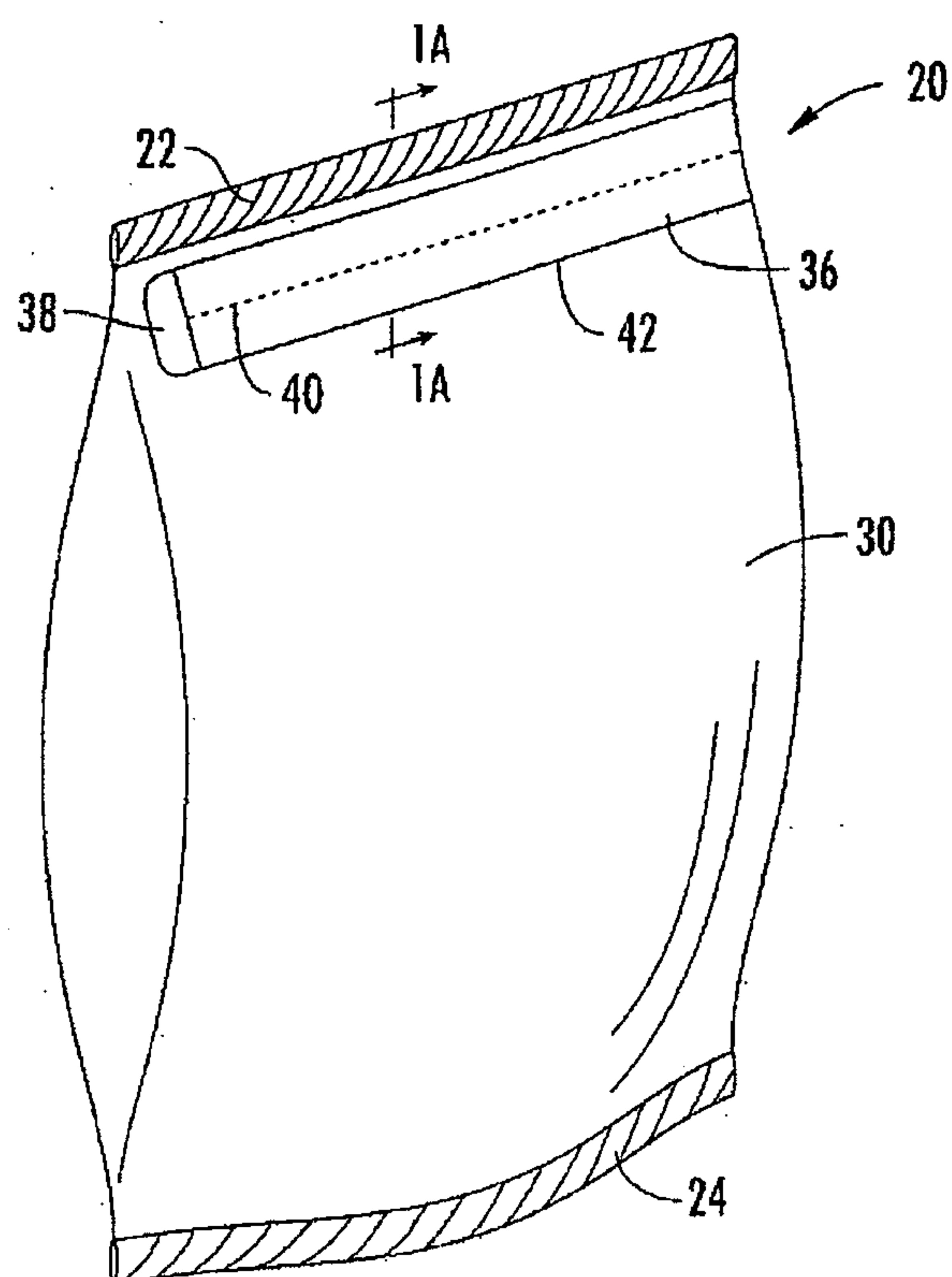


FIG. 1

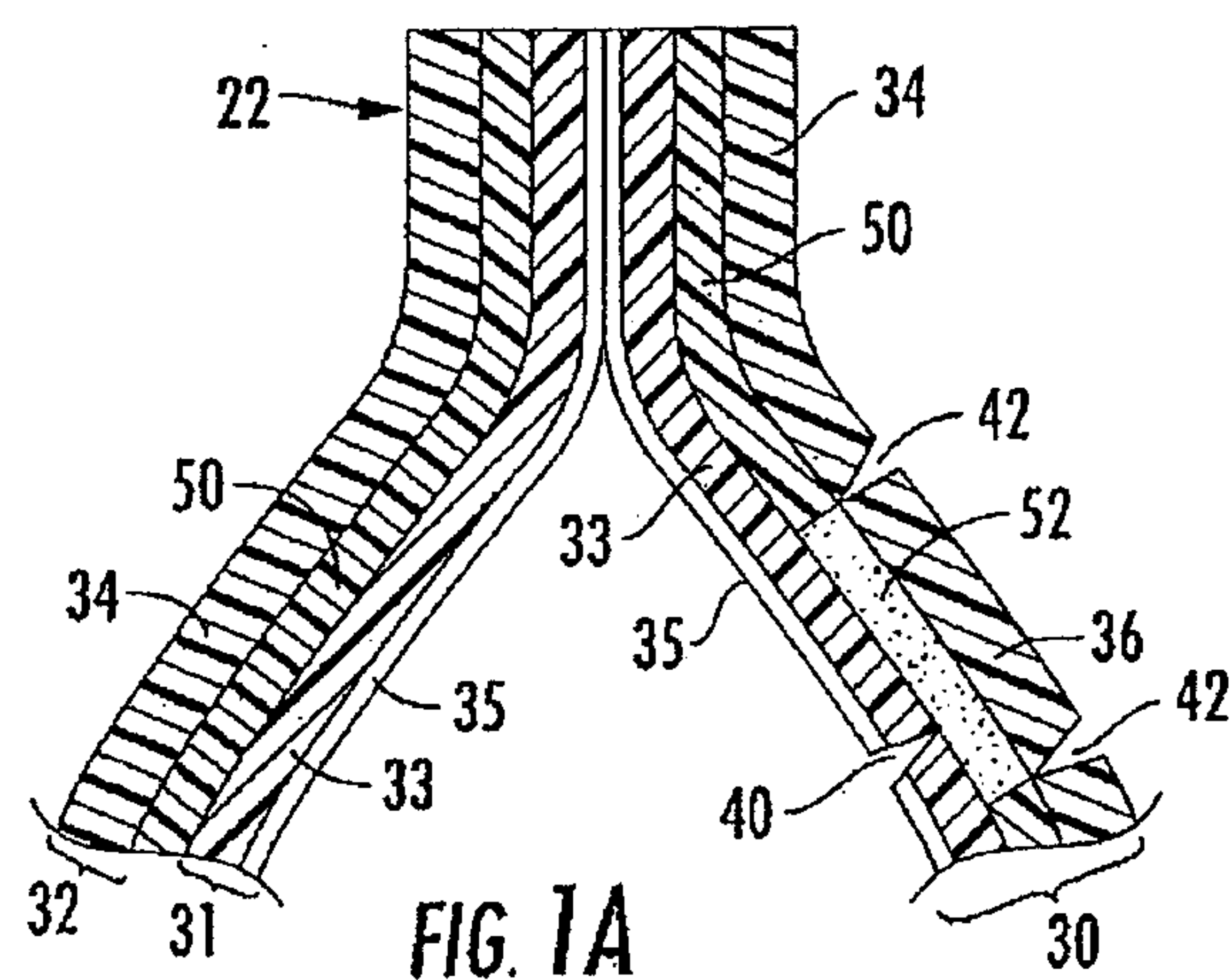
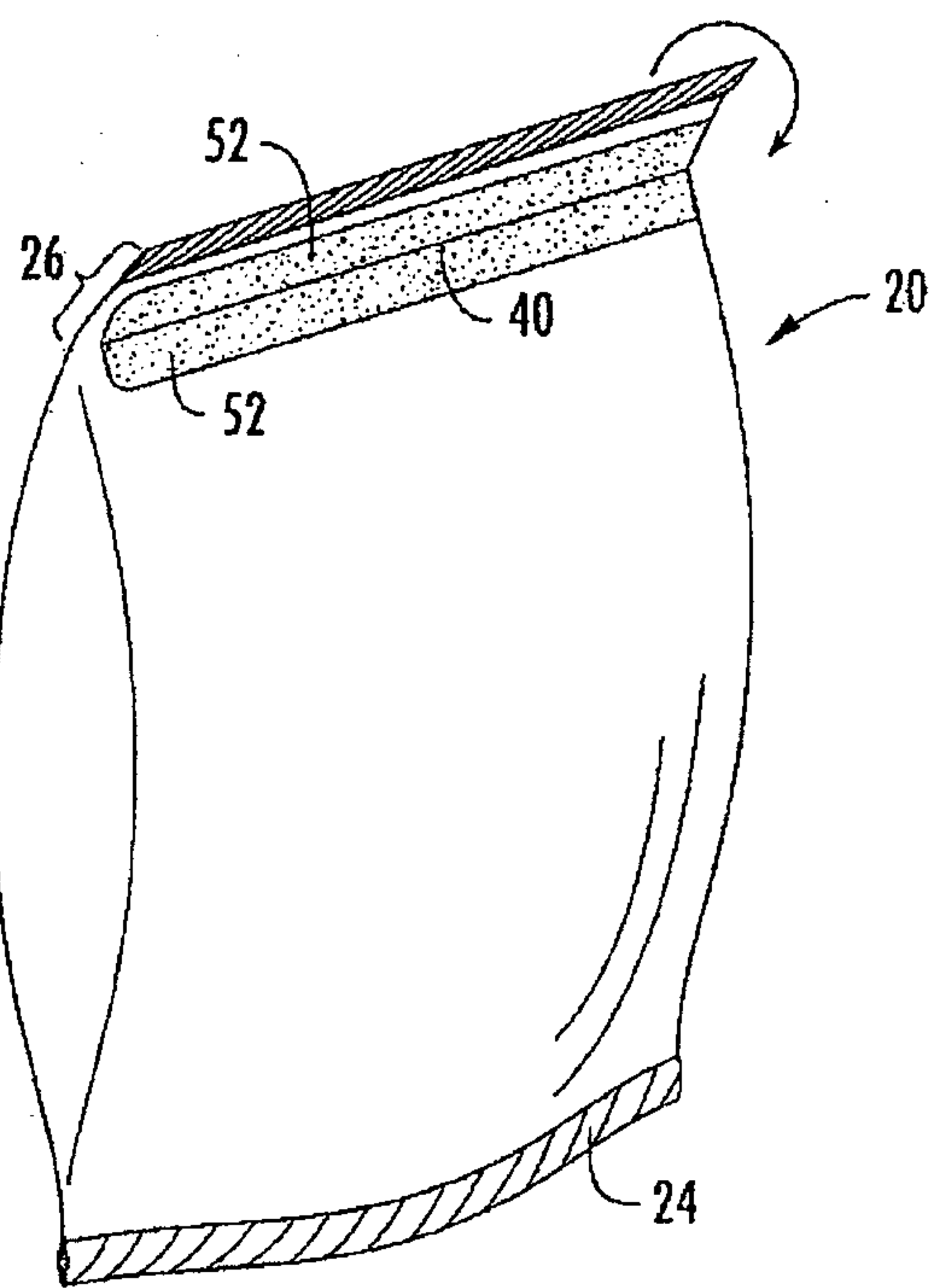
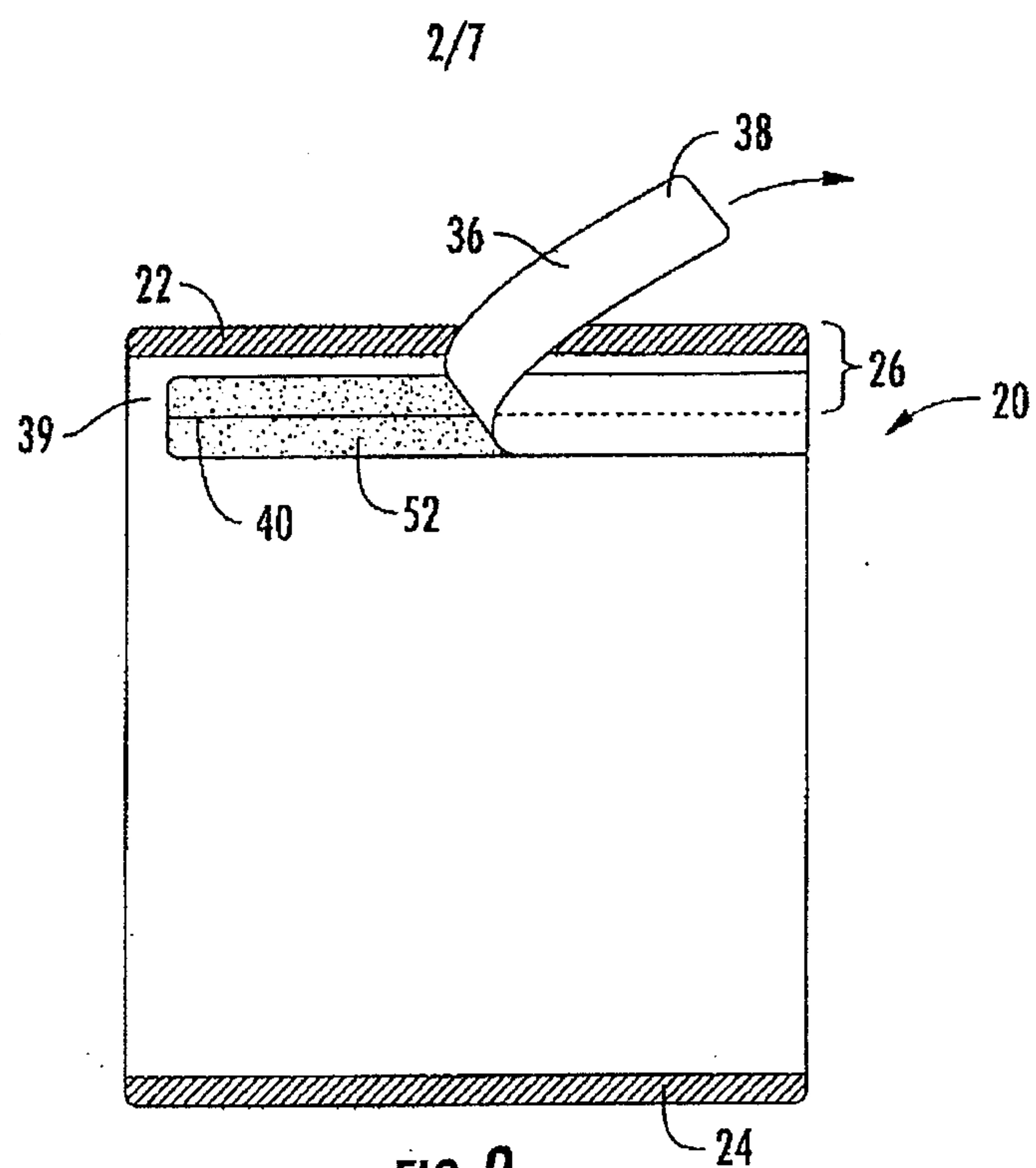


FIG. 1A

WO 2011/019443

PCT/US2010/038126



WO 2011/019443

PCT/US2010/038126

3/7

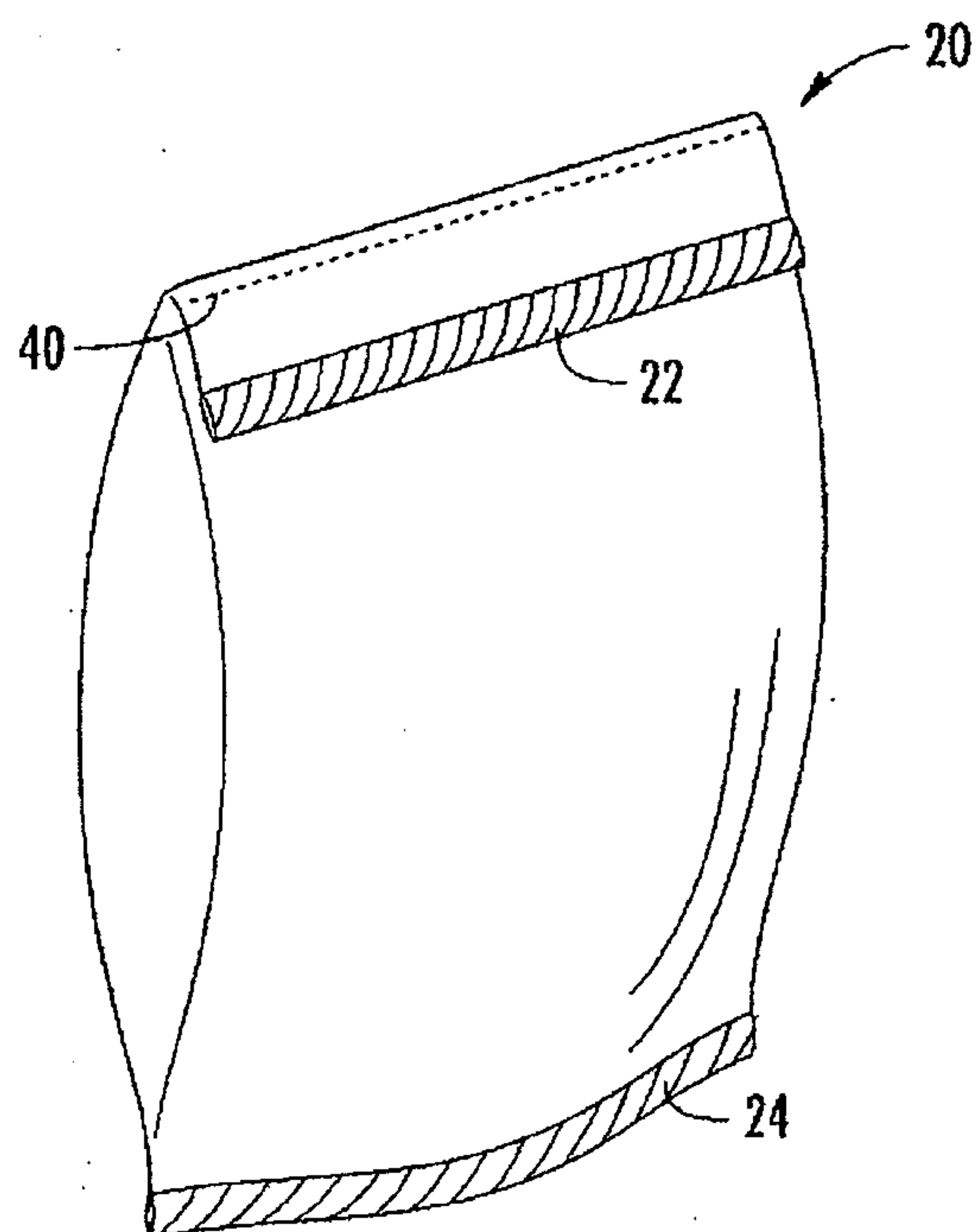


FIG. 4

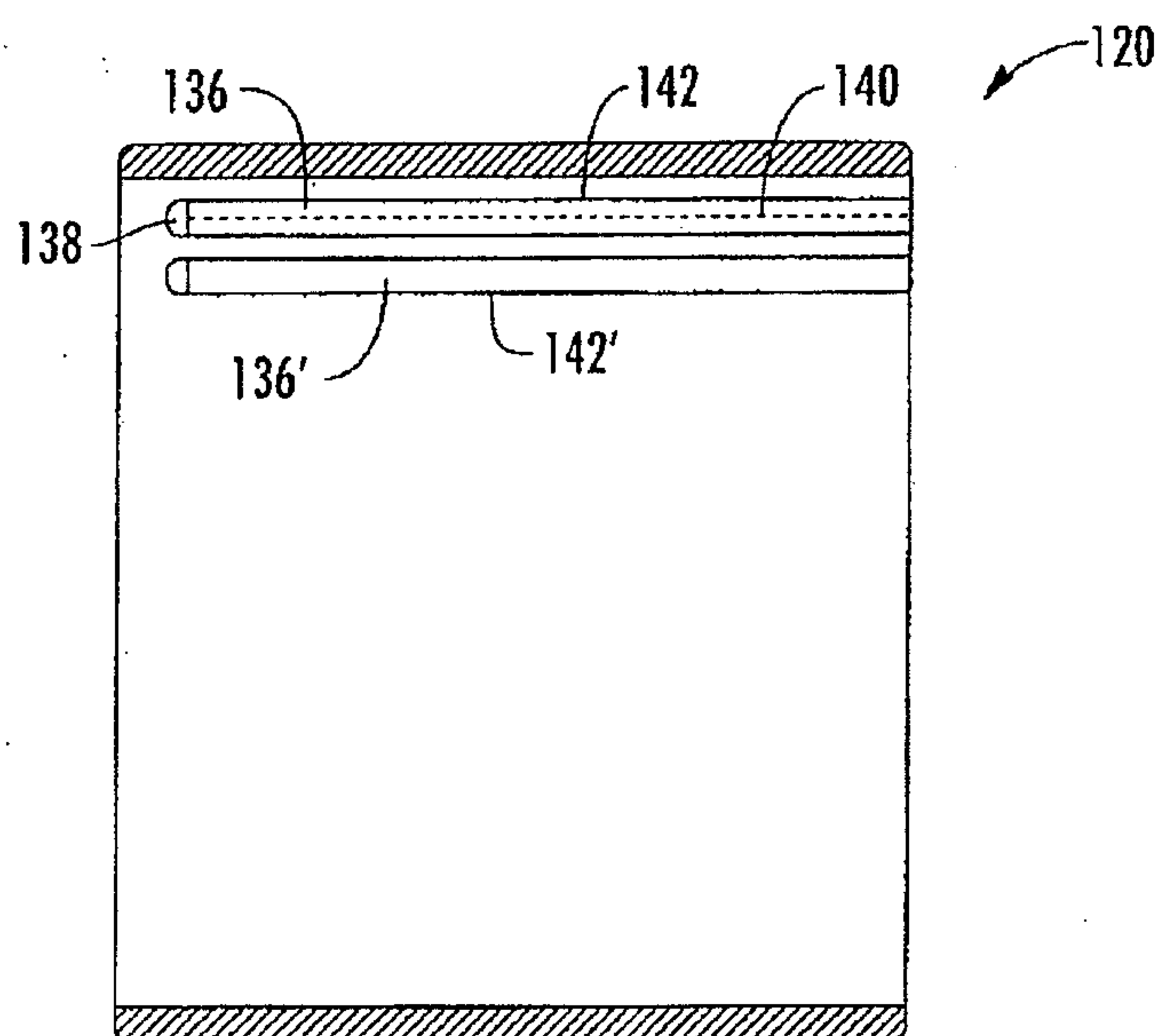


FIG. 5

WO 2011/019443

PCT/US2010/038126

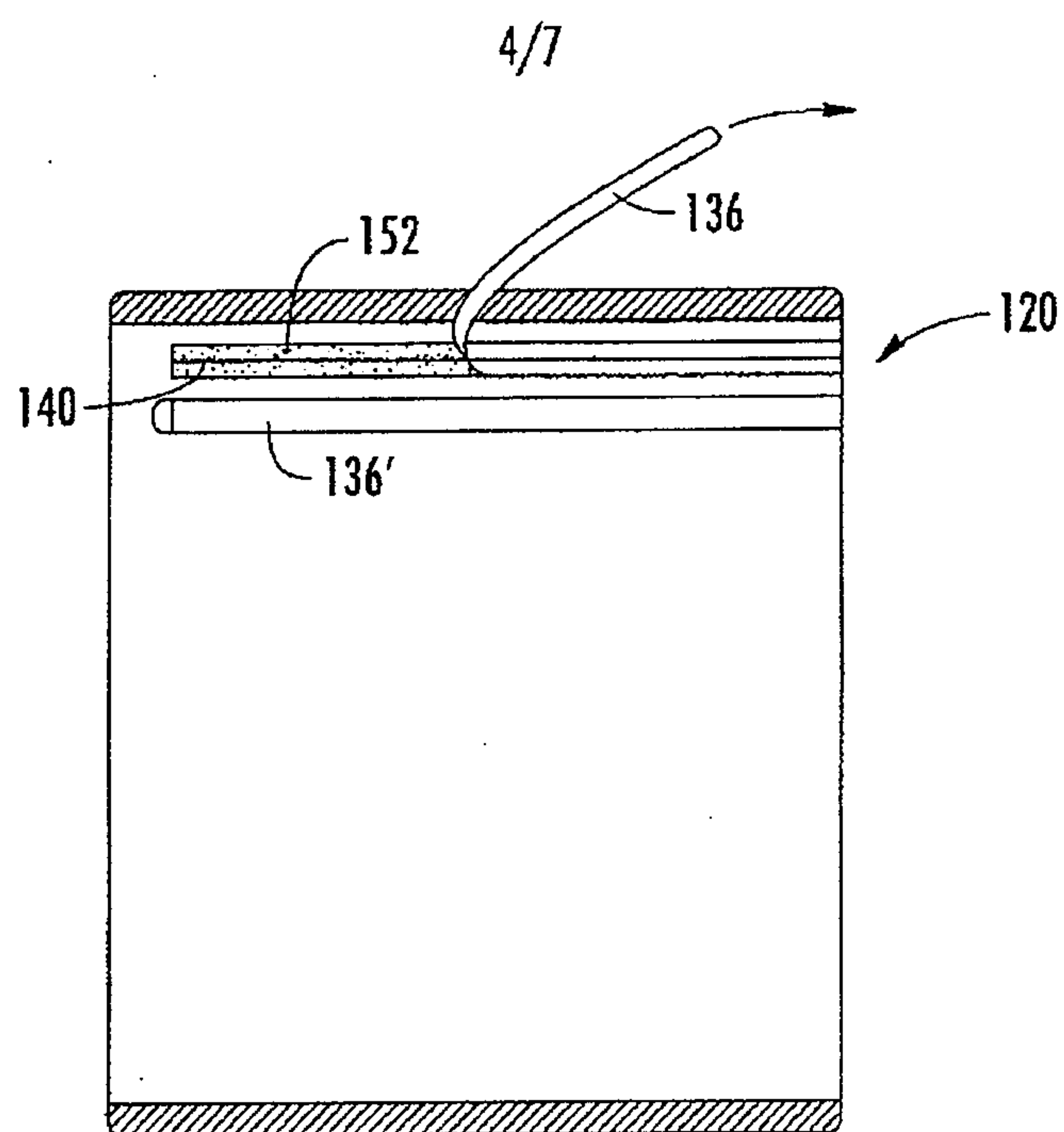


FIG. 6

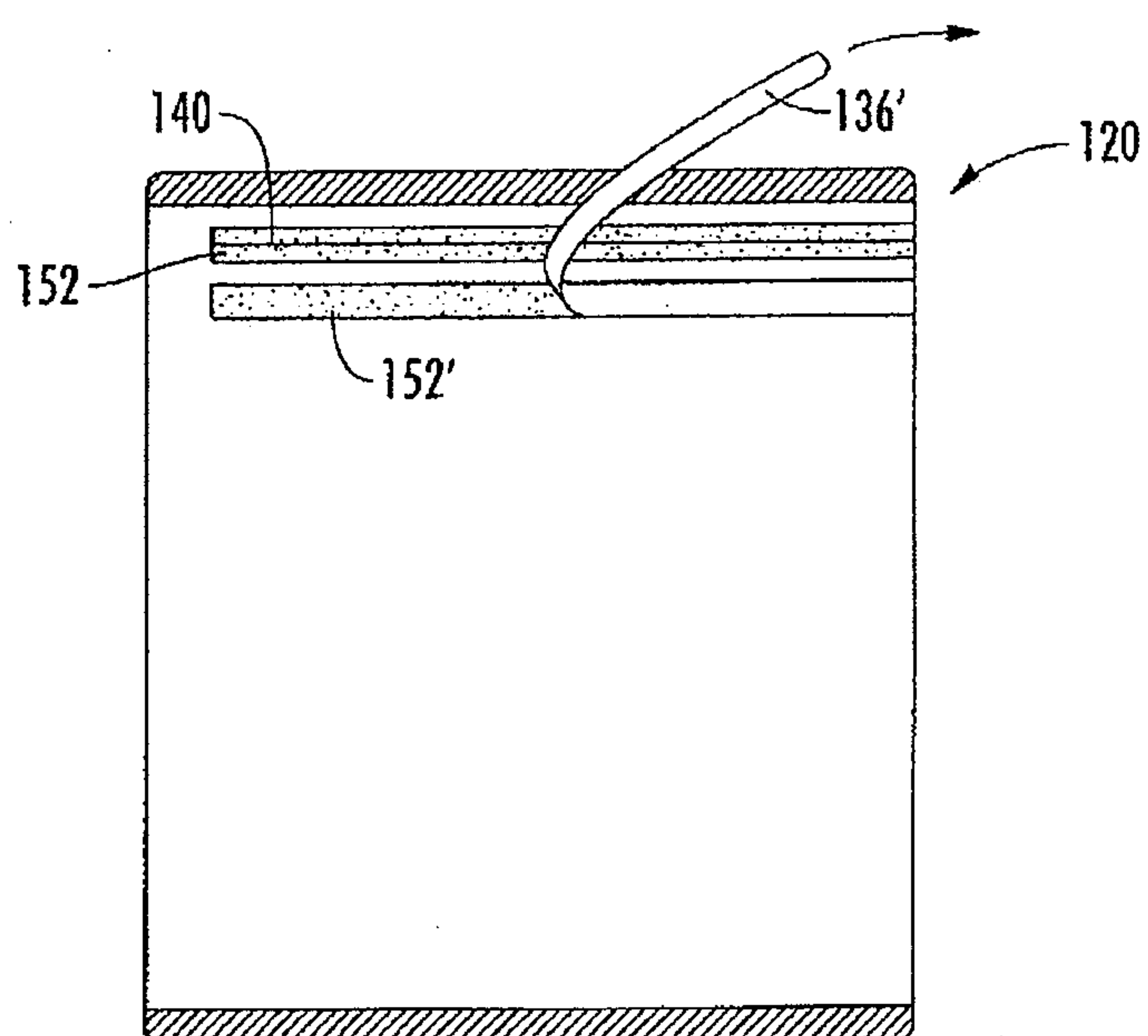


FIG. 7

WO 2011/019443

PCT/US2010/038126

5/7

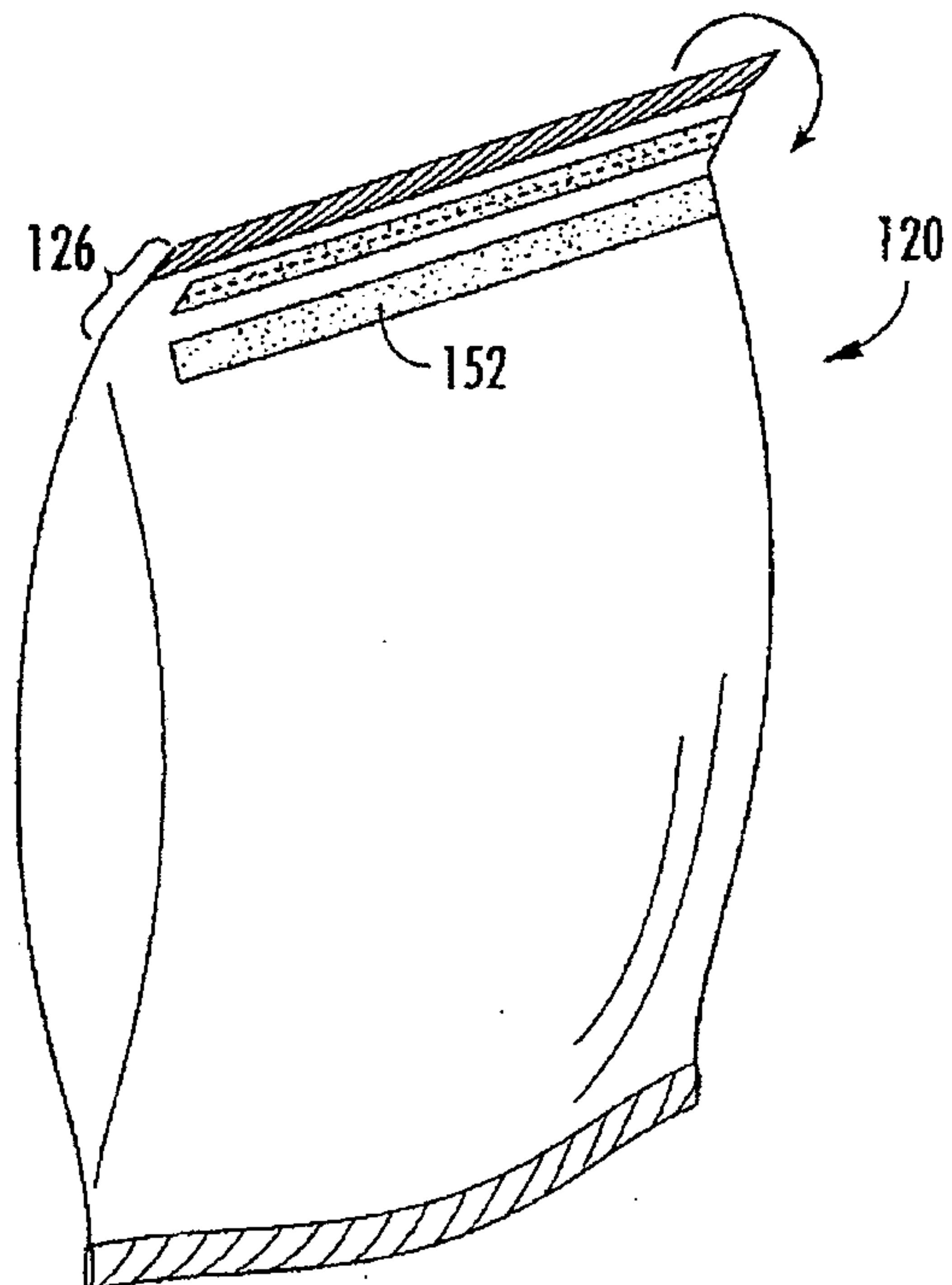


FIG. 8

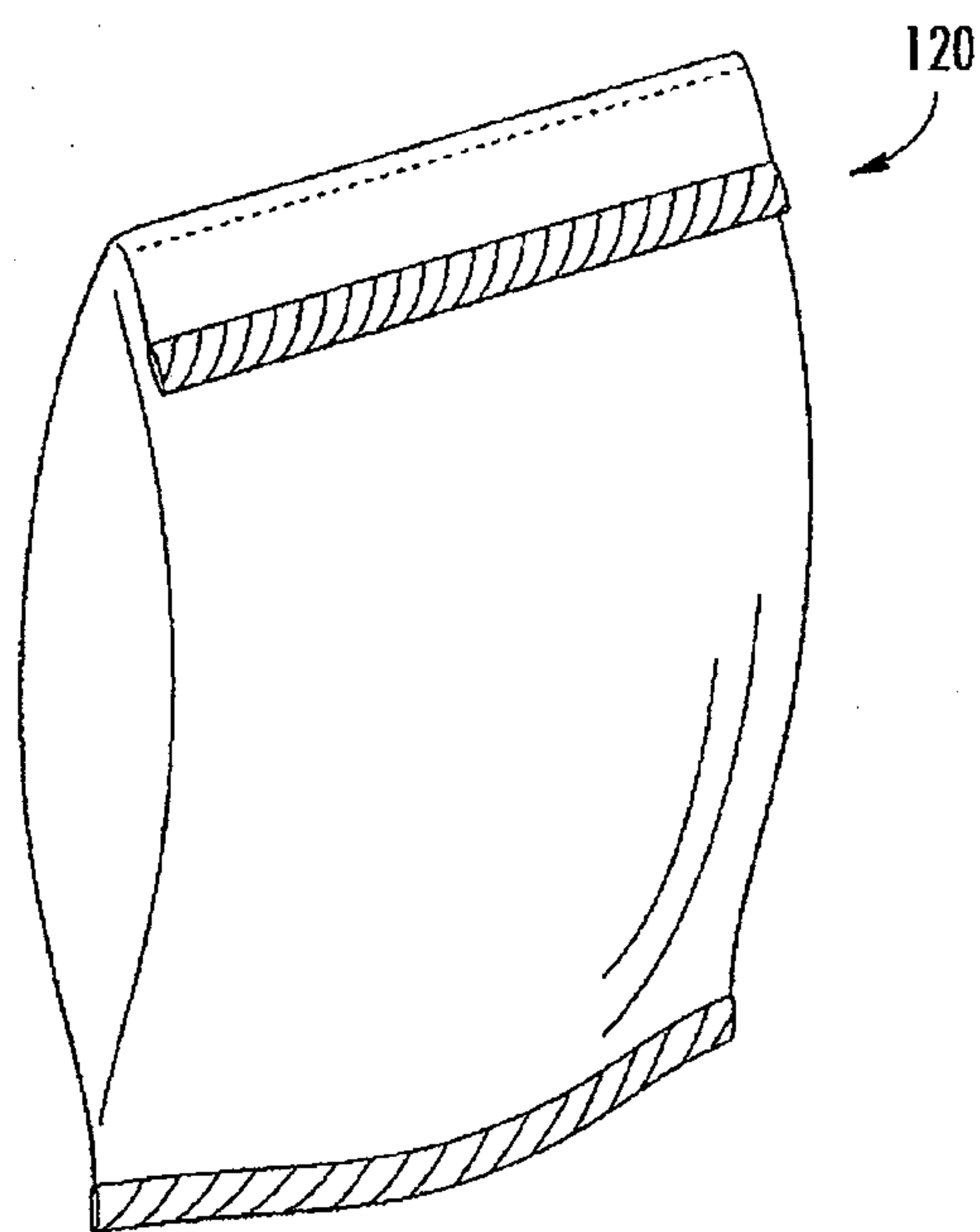


FIG. 9

WO 2011/019443

PCT/US2010/038126

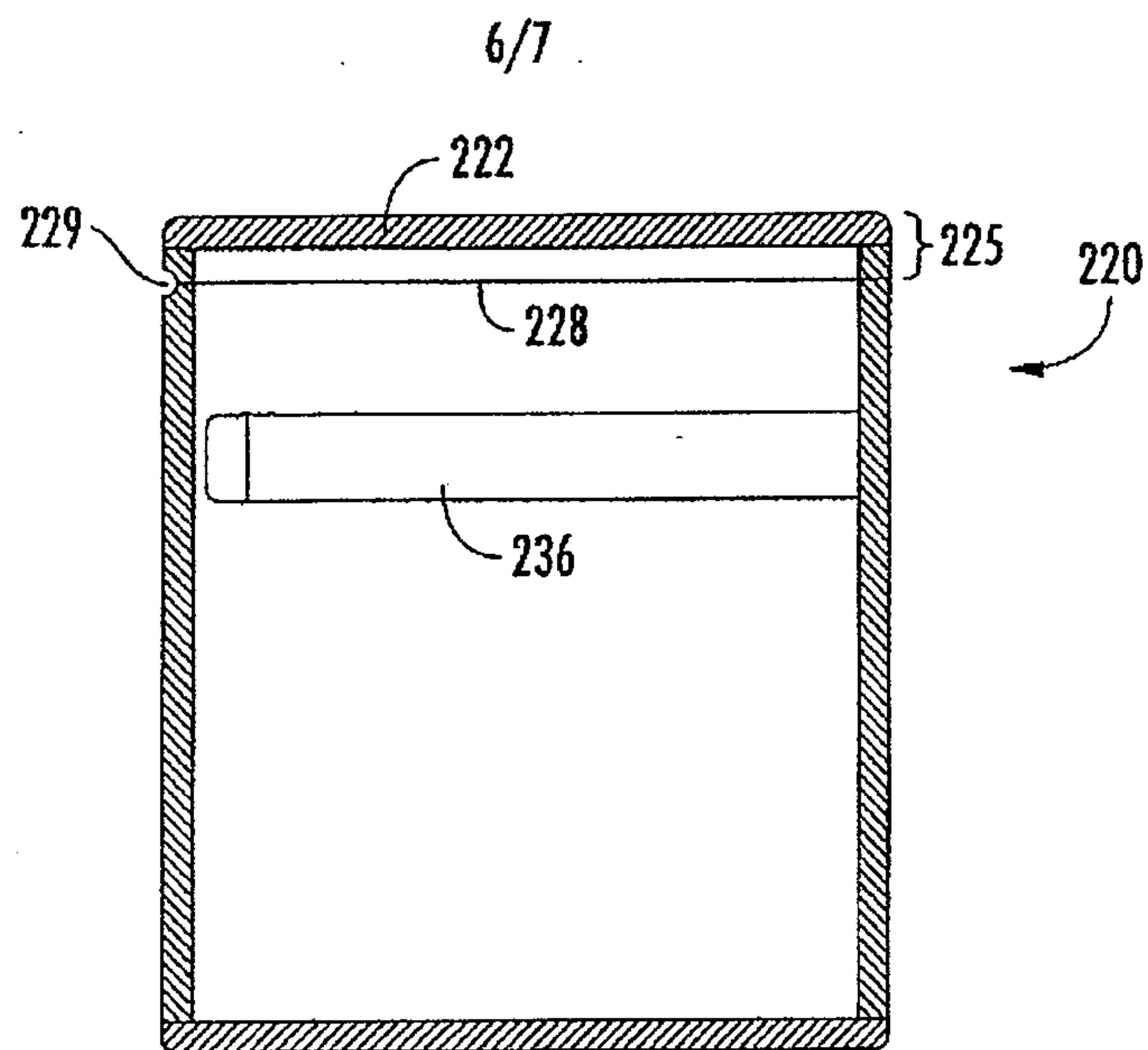


FIG. 10

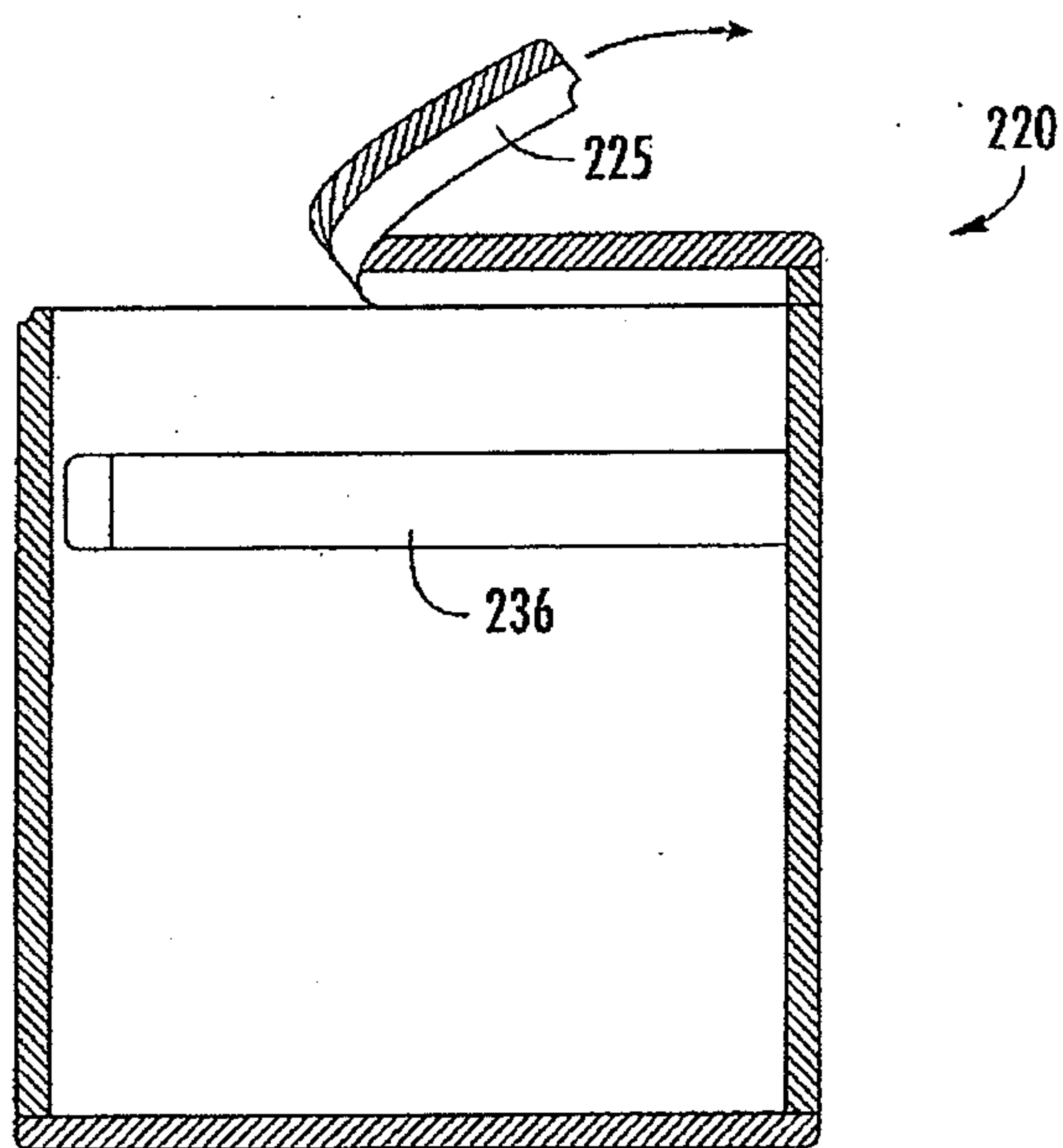


FIG. 11

WO 2011/019443

PCT/US2010/038126

1/1

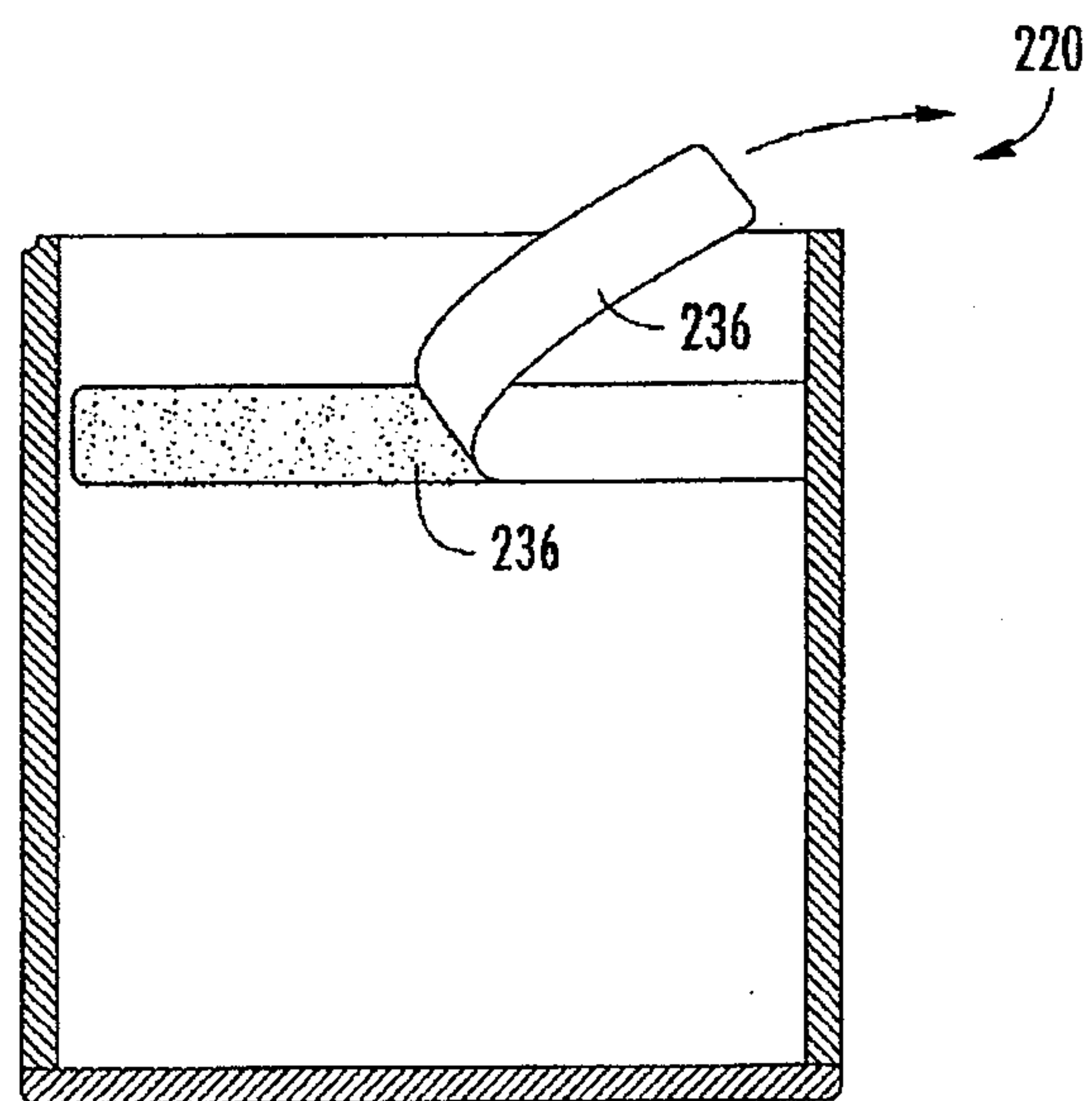


FIG. 12

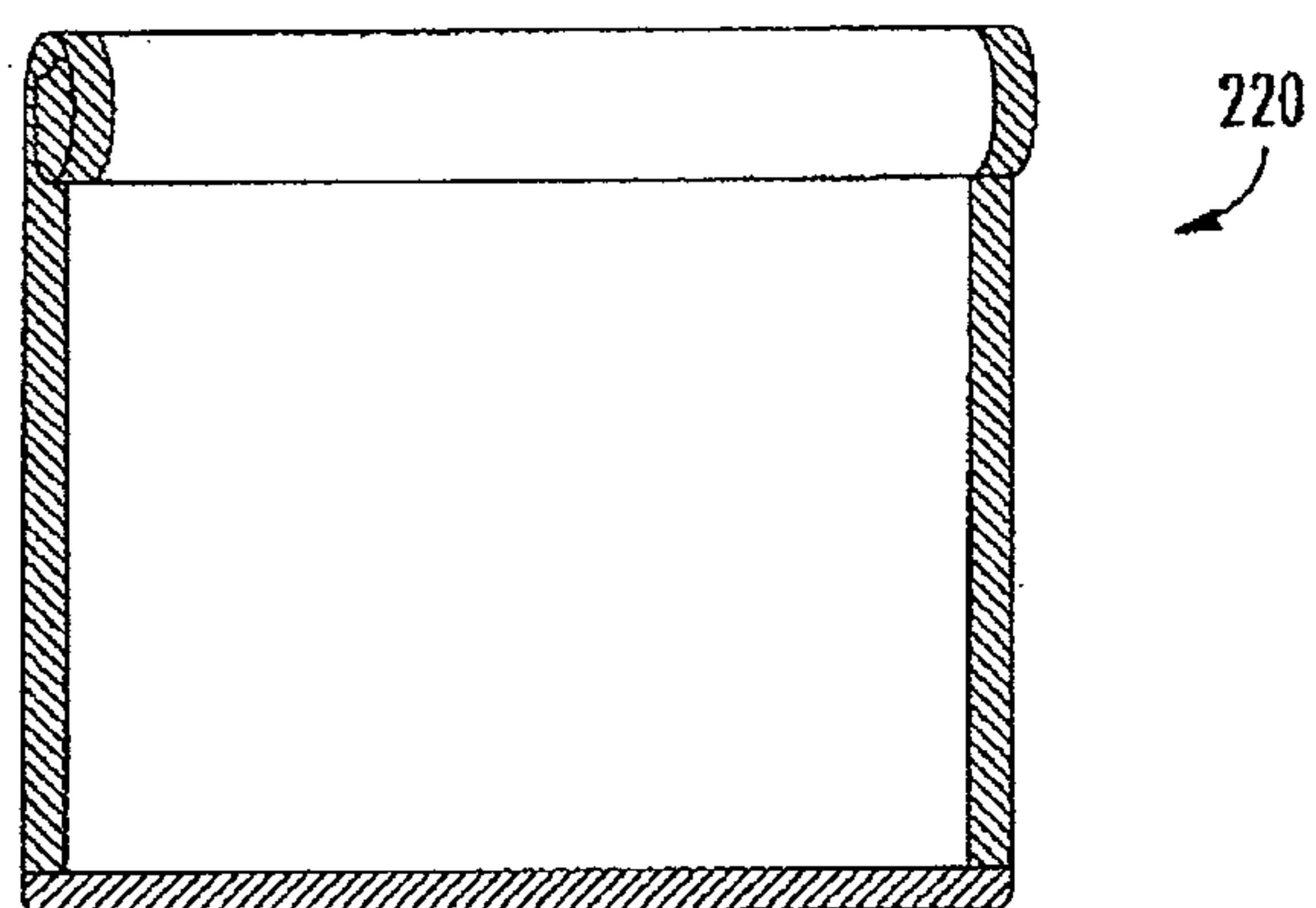


FIG. 13

