



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 132 311 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
12.09.2001 Bulletin 2001/37

(51) Int Cl.7: **B65D 33/25**

(21) Application number: **01104467.4**

(22) Date of filing: **28.02.2001**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventors:
• **Buchman, James E.**
Hortonville, Wisconsin 54944 (US)
• **Tilman, Paul A.**
54169 Sherwood, Wisconsin (US)

(30) Priority: **28.02.2000 US 187199 P**
31.08.2000 US 651835

(74) Representative: **Altenburg, Udo, Dipl.-Phys. et al**
Patent- und Rechtsanwälte
Bardehle - Pagenberg - Dost - Altenburg -
Geissler - Isenbruck,
Galileiplatz 1
81679 München (DE)

(71) Applicant: **Reynolds Consumer Products, Inc.**
Alcoa Center, PA 15069-0001 (US)

(54) **Reclosable, package having zipper closure, slider device and tamper-evident structure and methods**

(57) A flexible, reclosable package (10) having a zipper closure (30) and a slider device (40) mounted thereon. The package has at least two configurations: a first, zipper storage configuration, and a second, zipper exposed or operable configuration. When in the zipper storage configuration, a tamper-evident structure (50), together with a portion of the surrounding wall (13) that defines the package interior, forms a pocket (20) for enveloping at least a portion of the zipper closure. When in the zipper exposed or operable configuration, the slider device is exposed to permit opening and closing of the zipper closure. The package is transformed from the zipper storage configuration to the zipper exposed configuration by removing the tamper-evident structure and, preferably, removing the zipper closure from the pocket.

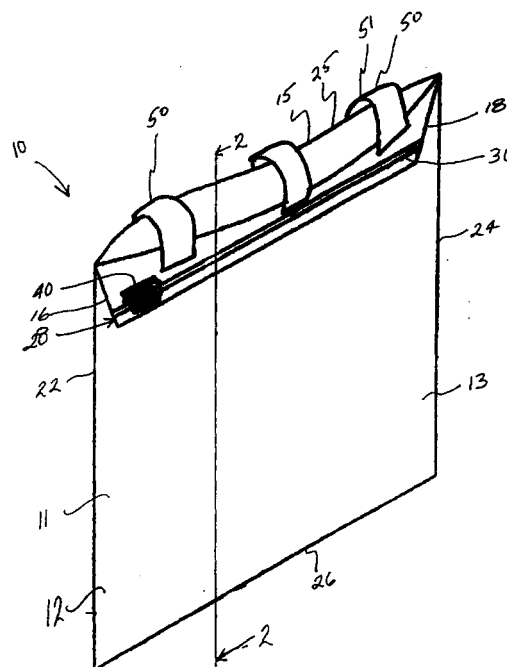


FIG. 1

EP 1 132 311 A2

Description**Field of the Disclosure**

[0001] This disclosure concerns reclosable packages and their use. In particular, this disclosure describes flexible, reclosable packages having slider devices for opening and closing the packages, and a tamper-evident structure for indicating whether access has been gained into the package.

Background

[0002] Flexible packages, in particular resealable and recloseable packages, are frequently used for packaging of consumable goods. Goods that are not used completely when the package is initially opened rely on a zipper closure to reclose the package and keep the remaining contents fresh. Examples of consumable goods that are often packaged in packages, such as bags, with a zipper closure include potting soil, fertilizer, pet food, dog biscuits, vegetables, cereal, and many different foods edible by humans.

[0003] Often, the opening and closing of the zipper closure is facilitated by a slider device that is mounted on the zipper closure. The slider device is constructed to pry apart the interlocking zipper closure members when the slider device is moved in a first direction along the zipper, and to engage the interlocking zipper closure members when the slider device is moved in a second, opposite direction along the zipper. For some applications, a tamper-evident structure, to notify whether access has been gained to the zipper closure, is desired. Improvements in these types of packages are desirable.

Brief Description of the Drawings**[0004]**

FIG. 1 is a perspective view of a flexible, reclosable package having a zipper closure, slider device, and a tamper-evident structure blocking access to the interior of the package;

FIG. 2 is a cross-sectional view of the flexible, reclosable package taken along line 2-2 of FIG. 1;

FIG. 3 is perspective view of the flexible, reclosable package of FIGS. 1 and 2 with the tamper-evident structure removed;

FIG. 4 is a perspective view of a consumer reaching for the zipper closure and slider device of the flexible, reclosable package of FIG. 3;

FIG. 5 is a perspective view of the consumer beginning to move the slider device along the zipper closure of the flexible, reclosable package of FIG. 3;

FIG. 6 is a cross-sectional view of a second embodiment of a flexible, reclosable package, similar to the view of FIG. 2; and

FIG. 7 is a cross-sectional view of a third embodi-

ment of a flexible reclosable package, similar to the view of FIG. 2.

Summary of the Disclosure

[0005] The present disclosure relates to a package, such as a flexible bag, having a resealable, reclosable zipper mechanism, opening and closing of which is accomplished by a slider device mounted on the zipper mechanism. A tamper-evident structure is provided on the exterior of the zipper profile and the slider device so as to provide evidence whether access has been gained to the interior of the package. The package has a first, zipper storage configuration and a second, zipper exposed or zipper operable configuration.

[0006] When in the zipper storage configuration, a tamper-evident structure, together with at least one side panel of the package, form a pocket for enveloping at least a portion of the zipper closure and the slider device. When in the zipper exposed configuration, the tamper-evident structure is removed and the slider device is operable to open and close the zipper closure. The package is transformed from the zipper storage configuration to the zipper exposed configuration by removing the tamper-evident structure and removing the zipper closure from the pocket.

[0007] In particular, the present disclosure is directed to a flexible, reclosable package having a surrounding wall which defines an interior and a mouth of the package, the mouth providing access to the interior. A zipper closure, having first and second releasably interlocking closure profiles, is disposed at the mouth. A slider device is operably mounted on the zipper closure; the slider device is constructed and arranged to interlock the first closure profile with the second closure profile when the slider device is moved in a first direction, and to disengage the first closure profile from the second closure profile when the slider device is moved in a second opposite direction. A tamper-evident structure is removably attached to the surrounding wall; and a pocket is defined by the tamper-evident structure and a portion of the surrounding wall. The package is transformable from a zipper storage configuration to an operable configuration. The storage configuration includes the zipper closure being enveloped in the pocket and the tamper-evident structure being removably attached to the surrounding wall; whereas the operable configuration includes the tamper-evident structure being removed from the surrounding wall and the zipper closure being exposed to permit operation of the slider device.

[0008] In one embodiment, the package includes a first fold in the surrounding wall. This first fold positions the zipper closure and slider device, so that when the package is in the storage configuration, the zipper closure and slider device are displaced approximately 180 degrees from their position when in the operable configuration. In another embodiment, the package includes a first fold and a second fold. The two folds po-

sition the zipper closure and slider device, so that when the package is in the storage configuration, the zipper closure and the slider device are displaced approximately 360 degrees from, or are parallel to, their position when in the operable configuration.

[0009] In yet another embodiment, a method of using a flexible, reclosable package is disclosed, the package having a zipper storage configuration and a zipper operable configuration. The package has a surrounding wall which define an interior and a mouth, the mouth providing access to the interior, and a zipper closure disposed at the mouth. A slider device is operably mounted on the zipper closure. The package further has a pocket defined by a tamper-evident structure and a portion of the surrounding wall. The package is transformable from the zipper storage configuration to the operable configuration; the storage configuration includes the zipper closure being enveloped in the pocket; and the operable configuration includes the tamper-evident structure removed and the zipper closure being exposed to permit operation of the slider device on the zipper closure. The method comprises transforming the package from the zipper storage configuration to the operable configuration by removing the tamper-evident structure to provide access to the pocket; and removing the zipper closure from the pocket.

Detailed Description

[0010] The addition of a slider device to a flexible package, such as a bag, is advantageous to aging or arthritic persons not having the physical ability to use just a zipper closure to reseal a bag. Additionally, the addition of a slider device to a flexible package facilitates the use of the bag by users of all ages and abilities. The addition of tamper-evident structure to a flexible package improves the security of the contents within the package interior, because the tamper-evident structure provides an indication whether access has been gained to the interior.

[0011] A flexible, reclosable package 10 is shown in FIGS. 1 and 2, in a configuration referred to as a "zipper storage" configuration. Package 10 has a surrounding wall 13 defining an interior 11, as best seen in FIG. 2. In the embodiment of FIGS. 1 and 2, surrounding wall 13 comprises first and second polymeric film side panels 12 and 14, which surround and define interior 11. Package 10 includes three edges, side edges 22, 24 (FIG. 1) and bottom edge 26, where the surrounding side panels 12, 14 connect to each other to form interior 11 of package 10.

[0012] In FIG. 1, first side edge 22 and second side edge 24 are seals created by the application of heat and pressure to side panels 12, 14. Bottom edge 26 is a fold line between side panels 12, 14, which is formed when a single sheet of film is folded to form the two side panels 12, 14. In another embodiment, first and second panel sections 12, 14 are folded at side edges 22, 24 and heat-

sealed at bottom edge 26; typically, such a package includes a fin seal (not shown) within one of panel sections 12, 14. In yet another embodiment, the panel sections 12, 14 are folded at one side edge, for example, first side edge 22, and heat-sealed at second side edge 24 and at bottom edge 26. Alternatively, two separate panel sections 12, 14 of plastic film may be used and heat-sealed together along both side edges 22, 24 and at the bottom edge 26.

[0013] A zipper closure arrangement 30 having mating closure profiles to open and close (unseal and re-seal) the first and second side panels 12, 14 of package 10 extends at least partially between side edge 22 and side edge 24 at mouth edge 28 (FIG. 1). In FIG. 1, mouth edge 28 is disposed between side panels 12, 14 and recessed in toward interior 11. Top edge 25 is the edge of package 10 farthest from bottom edge 26; in FIGS. 1 and 2, top edge 25 is a fold 15 in either or both side panels 12, 14.

[0014] Referring again to zipper closure 30, when zipper closure 30 is open, access can be gained to interior 11. The zipper closure 30 can include a variety of configurations and structures. In FIG. 2, zipper closure 30 has a first closure profile 32 and a second closure profile 34; first and second closure profiles 32, 34 are releasably interlocking. Zipper closure 30 can be configured in any known manner, for example, such as disclosed in U.S. Patent Nos. 4,340,341; 4,346,288; and 4,437,293; each of which is incorporated by reference herein. First closure profile 32 and second closure profile 34 engage and disengage, as appropriate, to open and close package 10 and provide access to interior 11.

[0015] First and second closure profiles 32, 34 of zipper closure 30 are attached to side panels 12, 14, respectively, by sealing flanges 33, 35, which are connected to side panels 12, 14 at sealing areas 36, 38 as depicted in FIG. 2. In some embodiments, zipper closure 30 may be integral with surrounding wall 13, in particular, with side panels 12, 14; that is, first closure profile 32 and second closure profile 34 can be co-extruded, already attached to side panels 12, 14.

[0016] A slider device 40 is mounted on zipper closure 30 to facilitate opening and closing of zipper closure 30; in particular, slider device 40 engages and disengages first and second closure profiles 32, 34. Slider devices and how they function to open and close zipper closures, in general, are taught, for example, in U.S. Patent Nos. 5,063,644; 5,301,394; 5,442,837, and 5,664,329, each of which is incorporated by reference herein. A preferred slider device is taught in U.S. patent applications 09/365,215 and 29/108,657, both filed July 30, 1999 and incorporated herein by reference in their entirety. Although shown schematically in FIGS. 1-7, slider device 40 is preferably constructed and arranged in accordance with the disclosures of the patent applications 09/365,215 and 29/108,657.

[0017] A notch (not shown) can be disposed within zipper closure 30. A notch is designed to provide a "park

place" into which slider device 40 settles when zipper closure 30 is sealed. Such a notch may decrease any tendency for an incomplete interlock between first closure profile 32 and second closure profile 34. Examples of notches are disclosed, for example, in U.S. Patent Nos. 5,067,208 and 5,301,395, each of which is incorporated by reference herein.

[0018] Package 10 as shown in FIGS. 1 and 2 is in a "zipper storage" configuration because zipper closure 30 and slider device 40 are stored within pocket 20 (FIG. 2), as will be described below. In both FIGS. 1 and 2, zipper closure 30 is disposed toward interior 11 of package 10. Sealing flanges 33, 35 are folded to allow zipper closure 30 and slider device 40 to be recessed within surrounding wall 13, between first and second side panels 12, 14. In some embodiments, side panels 12, 14 themselves may be folded to recess zipper closure 30 therebetween.

[0019] Zipper closure 30 and slider device 40 are positioned within a pocket 20 (FIG. 2) or envelope which is defined by surrounding wall 13, together with tamper-evident structure 50. In the particular embodiment shown in FIG. 2, pocket 20 is defined by side panels 12, 14 and tamper-evident structure 50. Zipper closure 30, which includes sealing flanges 33, 35, and with slider device 40 is positioned thereon, is enclosed or enveloped within pocket 20. In some embodiments, such as when tamper-evident structure 50 is not continuous along the length of zipper closure 30, pocket 20 is not entirely enclosed; rather, pocket 20 is sufficient to retain zipper closure 30 and slider device 40 therein.

[0020] With zipper closure 30 recessed, top edge 25 of package 10 is generally folded material present when pocket 20 is formed; in FIGS. 1 and 2, this folded material that forms top edge 25 is designated at 15. Package 10 may include tapered regions 16, 18 (FIG. 1) to facilitate folding zipper closure 30 inward. In FIG. 1, tapered regions 16, 18 extend from mouth edge 28 to fold 15 at top edge 25; in some embodiments, tapered regions 16, 18 may extend farther toward bottom edge 26 or, alternatively, may not extend the entire distance between mouth edge 28 and fold 15.

[0021] A tamper-evident structure 50 is disposed over zipper closure 30 and slider device 40. By "tamper-evident", it is meant that it provides an indication to the consumer as to whether the package 10 has been previously opened. In order to access the interior 11 of package 10, the tamper-evident structure 50 needs to be penetrated. In the embodiment depicted in FIGS. 1 and 2, tamper-evident structure 50 includes a plurality of tamper-evident strips 51 that extend from first side panel 12 to second side panel 14 across at least a portion of the length of zipper closure 30 and slider device 40. In some embodiments, tamper-evident structure 50 extends across zipper closure 30 the entire width of package 10, from side edge 22 to side edge 24. In other embodiments, a unitary tamper-evident structure 50 extends across zipper closure 30, but not completely from

side edge 22 to side edge 24.

[0022] To gain access to the interior 11 of package 10, package 10 is transformed from its "zipper storage" configuration to a "zipper exposed" or "zipper operable" configuration. In the "zipper storage" configuration, the zipper closure 30 and slider device 40 are enveloped in pocket 20; in the "zipper operable" configuration, the tamper-evident structure 50 has been removed and access can be gained to slider device 40 to permit its operation. To gain access to slider device 40 and the package interior 11, the tamper-evident structure 50 needs to be penetrated, typically removed, and preferably, zipper closure 30 is extracted from pocket 20.

[0023] In FIG. 3, the tamper-evident structure 50, in particular tamper-evident strips 51, have been removed from package 10 of FIGS. 1 and 2 to provide access to the interior of the package, now shown as package 10'. Top edge 25 remains as fold 15. Once tamper-evident structure 50 is removed, access can be gained into package 10'.

[0024] Although completely removed from both side panels 12, 14 in FIG. 3, in some embodiments, tamper-evident structure 50 may remain on a portion of surrounding wall 13 even though tamper-evident structure 50 has been penetrated and access gained to interior 11. For example, tamper-evident structure 50, such as tamper-evident strips 51, may be detached from side panel 12 and left connected to side panel 14.

[0025] FIGS. 4 and 5 depict a consumer opening package 10' to gain access to interior 11. In FIG. 4, the consumer is reaching in toward zipper closure 30 to extract zipper closure 30 and slider device 40 from between side panels 12, 14. In FIG. 5, zipper closure 30 has been extracted from its recessed position between side panels 12, 14. Fold 15, which was formed by folded sealing flanges 33, 35, no longer is present; rather, mouth edge 28, the edge of the package having the zipper closure 30, is the top edge 25. Package 10' is in the "zipper exposed" configuration; that is, the package 10' is in a configuration where tamper-evident structure 50 has been removed and the configurations allows operation of zipper closure 30. After zipper closure 30 and slider device 40 are extracted, slider device 40 is moved from side edge 22 (FIG. 1) toward side edge 24 (FIG. 1) to open the package and gain access to interior 11. As shown in FIG. 5, zipper closure 30 may not extend fully from side edge 22 to side edge 24 because of tapered areas 16, 18; however, zipper closure 30 extends at least about 50% of the distance between side edges 22 and 24, preferably at least about 75%, and most typically at least about 85%.

[0026] FIGS. 6 and 7 show alternative constructions of flexible packages having a pocket 20 that is formed by surrounding wall 13 and tamper-evident structure 50.

[0027] Package 60 in FIG. 6, which is shown in a "zipper storage" configuration, has zipper closure 30 with slider device 40 thereon folded over at fold 15 so that zipper closure 30 and slider device 40 are disposed

within pocket 20. Pocket 20 is formed by a portion of side panel 14 and tamper-evident structure 50. Zipper closure 30 and slider device 40, when disposed within pocket 20, are oriented approximately 180 degrees from how they would be positioned without fold 15; that is, zipper closure 30 and slider device 40, in the storage configuration, are disposed approximately 180 degrees from their position in the operable position. Slider device 40 and zipper closure 30 are at least partially covered by, and secured to a portion of surrounding wall 13, specifically to side panel 14, by tamper-evident structure 50.

[0028] In the embodiment depicted in FIG. 6, tamper-evident structure 50 includes tamper-evident strip 52 that is sealed to each of side panels 12, 14. In particular, tamper-evident strip 52 extends from side panel 12, across at least a portion of the length of zipper closure 30 and slider device 40, to second side panel 14. Similar to tamper-evident strip 51 of package 10 in FIGS. 1 and 2, tamper-evident strip 52 can extend across zipper closure 30 the entire length of zipper closure 30 from side edge 22 to side edge 24 (FIG. 1), or can be positioned at some position between side edge 22 and side edge 24.

[0029] Zipper closure 30 and slider device 40 of package 60 are positioned within pocket 20 which is defined by side panel 14 and by tamper-evident structure 50. Zipper closure 30 cannot be removed from this pocket 20 unless tamper-evident strip 52 is breached. In order to open and use package 60, tamper-evident strips 52 are removed and then slider device 40 can be moved along zipper closure 30. Fold 15 is preferably unrolled, at least when gaining access into interior 11 of package 60.

[0030] Package 70 in FIG. 7, which is shown in a "zipper storage" configuration, has zipper closure 30 with slider device 40 thereon folded over at fold 15. In package 70, zipper closure 30 is folded a second time at fold 75, so that zipper closure 30 and slider device 40 are disposed within pocket 20. Pocket 20 is formed by a portion of side panel 14 and tamper-evident structure 50. Zipper closure 30 and slider device 40 are disposed approximately 360 degrees, or parallel to, the position they would be in without fold 15 and fold 75; that is, zipper closure 30 and slider device 40, as shown in FIG. 7 in the zipper storage configuration, are positioned approximately 360 degrees from their position in the operable configuration.

[0031] In the embodiment depicted in FIG. 7, tamper-evident structure 50 includes tamper-evident strip 53 that is sealed to each of side panels 12, 14. Specifically, tamper-evident strip 53 extends from side panel 12 to second side panel 14. Similar to tamper-evident strip 51 of package 10 in FIGS. 1 and 2, tamper-evident strip 53 can extend across zipper closure 30 the entire length of zipper closure 30 from side edge 22 to side edge 24 or only a portion of the distance between side edge 22 and side edge 24.

[0032] Zipper closure 30 and slider device 40 of pack-

age 70 are positioned within pocket 20 which is defined by surrounding wall 13, specifically side panel 14, and by tamper-evident structure 50. Zipper closure 30 cannot be removed from this pocket 20 unless tamper-evident strip 53 is breached. In order to open and use package 70, tamper-evident strips 53 are removed, fold 75 is unrolled, and then can slider device 40 be moved along zipper closure 30. Fold 15 is preferably unrolled, at least when gaining access into interior 11 of package 70.

[0033] The above specification is believed to provide a complete description of the manufacture and use of particular embodiments of the invention. Many embodiments of the invention can be made without departing from the spirit and scope of the invention.

Claims

1. A flexible, reclosable package (10) comprising: a surrounding wall (13) defining an interior (11) and a mouth (28), the mouth providing access to the interior; a zipper closure (30) disposed at the mouth, the zipper closure comprising first and second releasably interlocking closure profiles (32, 34); a slider device (40) operably mounted on the zipper closure (30); the slider device constructed and arranged to interlock the first closure profile (32) with the second closure profile (34) when the slider device (40) is moved in a first direction, and to disengage the first closure profile from the second closure profile when the slider device is moved in a second opposite direction; a tamper-evident structure (50) removably attached to the surrounding wall (13); the package (10) characterized by:
 - (a) a pocket (20) is defined by the tamper-evident structure (50) and a portion of the surrounding wall (13);
 - (i) the package (10) being transformable from a zipper storage configuration to an operable configuration;
 - (A) the storage configuration including the zipper closure (30) being enveloped in the pocket (20) and the tamper-evident structure (50) being removably attached to the surrounding wall (13); and
 - (B) the operable configuration including the tamper-evident structure (50) being at least partially removed from the surrounding wall (13) and the zipper closure (30) being exposed to permit operation of the slider device (40).
2. The flexible, reclosable package according to claim 1, wherein the surrounding wall (13) comprises a first panel section (12) and a second panel section (14).

3. The flexible, reclosable package according to claim 2, wherein the tamper-evident structure (50) is removably attached to at least one of the first panel section (12) and the second panel section (14). 5
4. The flexible, reclosable package according to any one of claims 2 and 3, wherein the pocket (20) is defined by the tamper-evident structure (50) and at least one of the first panel section (12) and the second panel section (14). 10
5. The flexible, reclosable package according to claim 4, wherein the pocket (20) is defined by the tamper-evident structure (50) and both of the first and second panel sections (12, 14). 15
6. The flexible, reclosable package according to claim 4, wherein the pocket (20) is defined by the tamper-evident structure (50) and only the first panel section (12) and not the second panel section (14). 20
7. The flexible, reclosable package according to claim 2, wherein the first and second panel sections (12, 14) comprise a first fold (15). 25
8. The flexible, reclosable package according to claim 7, wherein the first fold (15) is arranged to displace the zipper closure (30) and the slider device (40) approximately 180° from the storage configuration to the operable configuration. 30
9. The flexible, reclosable package according to claim 7, wherein the first and second panel sections (12, 14) further comprise a second fold (75). 35
10. The flexible, reclosable package according to claim 7, wherein the first fold (15) and the second fold (75) are arranged to displace the zipper closure (30) and the slider device (40) approximately 360° from the storage configuration to the operable configuration. 40
11. A method of using a flexible, reclosable package according to claim 1; the package comprising a surrounding wall (13) defining an interior (11) and a mouth (28), the mouth providing access to the interior; a zipper closure (30) disposed at the mouth; a slider device (40) operably mounted on the zipper closure; and a pocket (20) defined by a tamper-evident structure (50) and a portion of the surrounding wall; the package being transformable from a zipper storage configuration to an operable configuration; the storage configuration including the zipper closure being enveloped in the pocket; and the operable configuration including the tamper-evident structure removed and the zipper closure being exposed to permit operation of the slider device on the zipper closure, the method comprising: 45
 (a) transforming the package from the zipper storage configuration to the operable configuration by: 50
 (i) removing the tamper-evident structure (50) to provide access to the pocket (20); and
 (ii) removing the zipper closure (30) from the pocket (20). 55
12. The method according to claim 11, wherein the step of removing the zipper closure from the pocket comprises:
 (a) unfolding the portion of the surrounding wall (13).
13. The method according to claim 12, the package further comprising a first fold (15), wherein the step of unfolding the portion of the surrounding wall comprises:
 (a) unfolding the first fold (15).
14. The method according to claim 13, the package further comprising a second fold line (75), wherein the step of unfolding the portion of the surrounding wall comprises:
 (a) unfolding the first fold (15), and
 (b) unfolding the second fold (75).

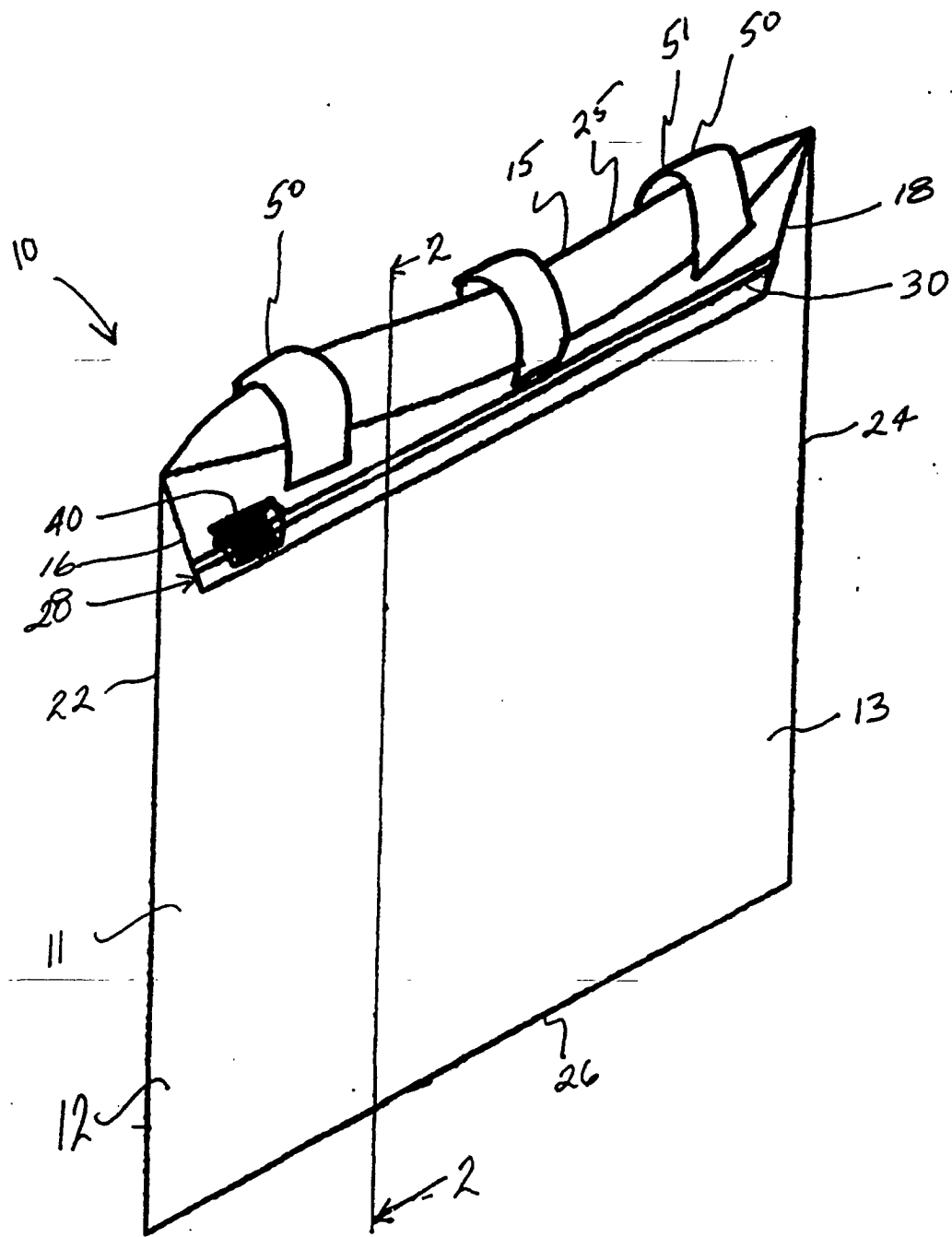


FIG. 1

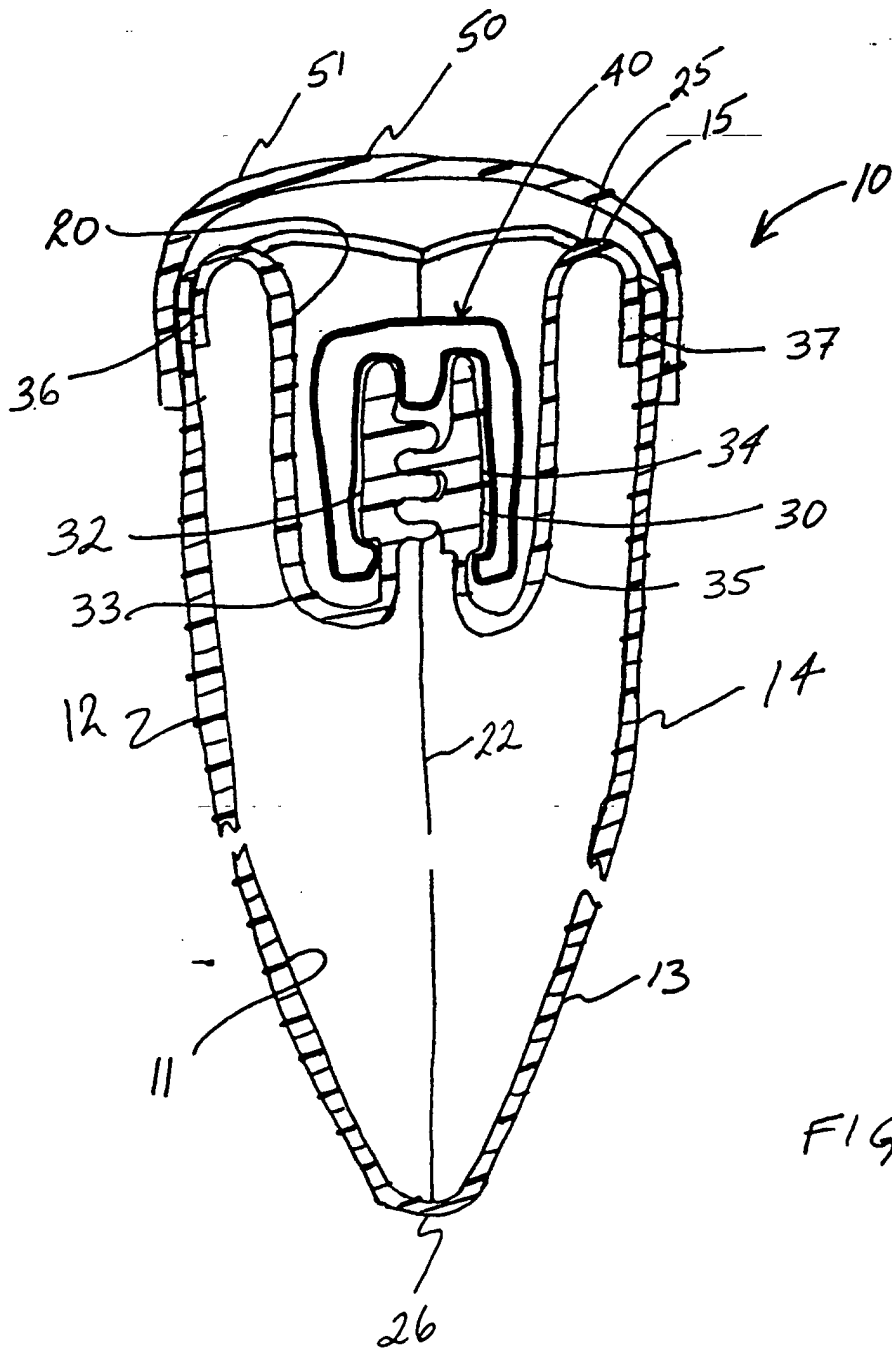


FIG. 2.

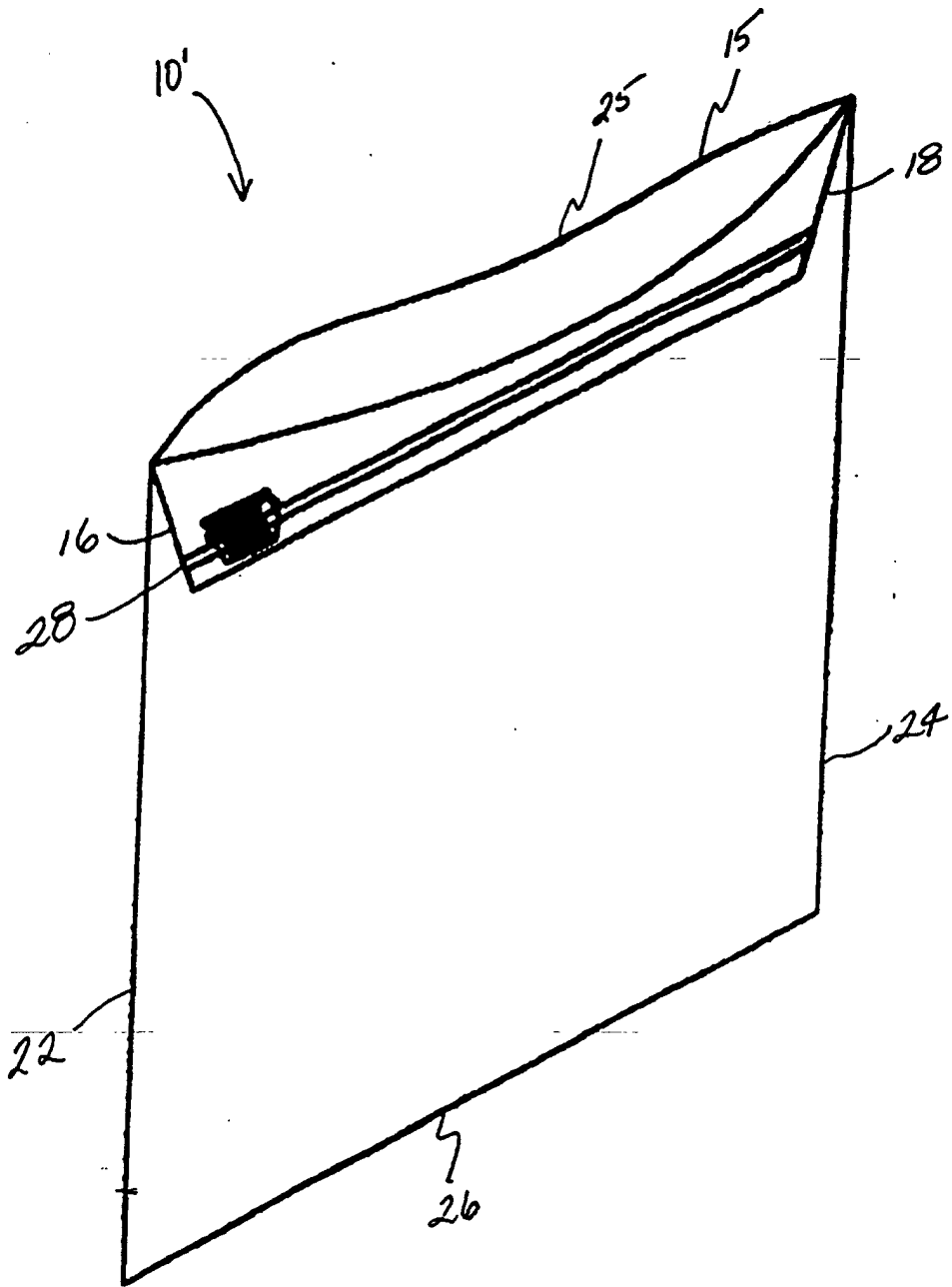


FIG. 3

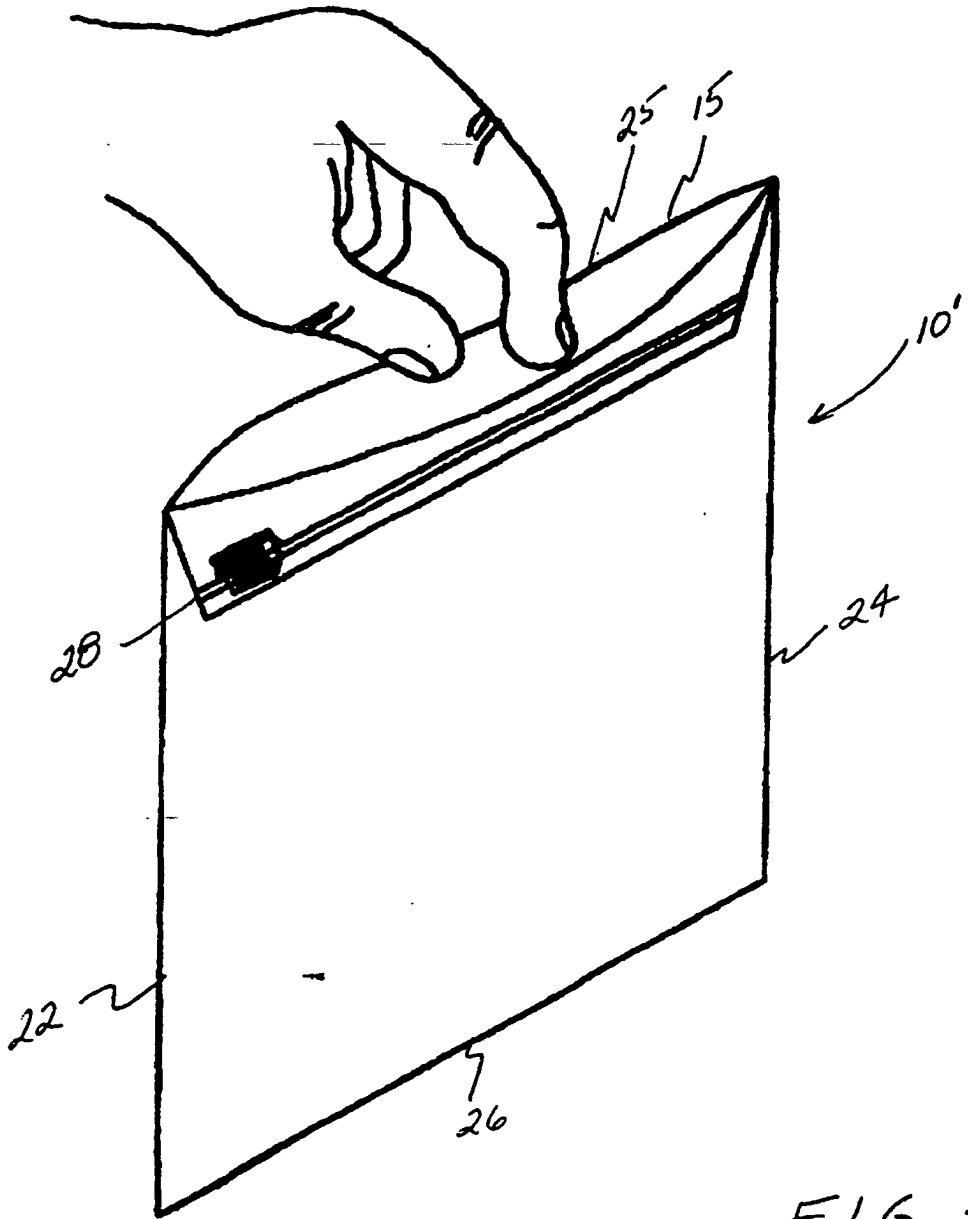


FIG. 4

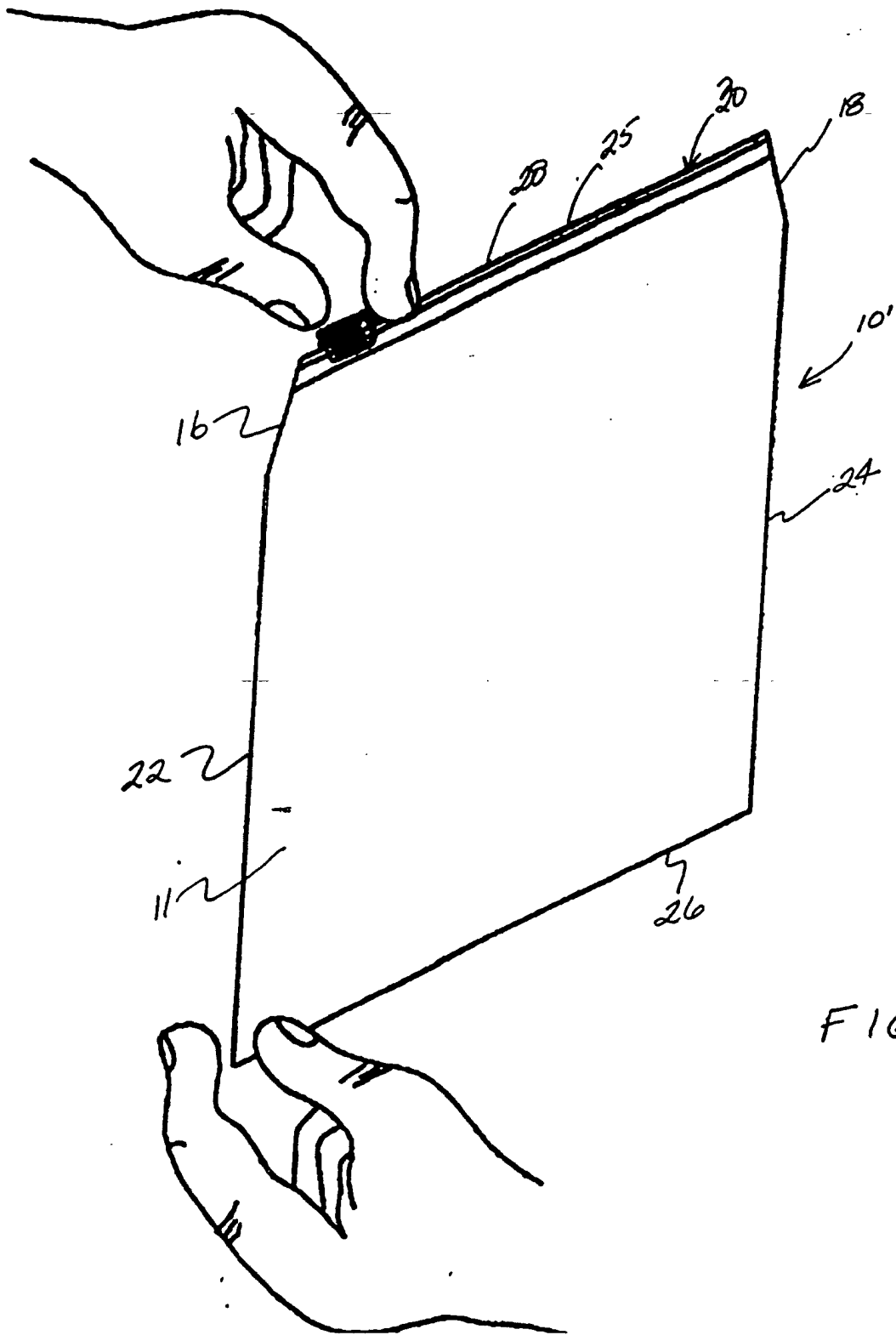


FIG. 5

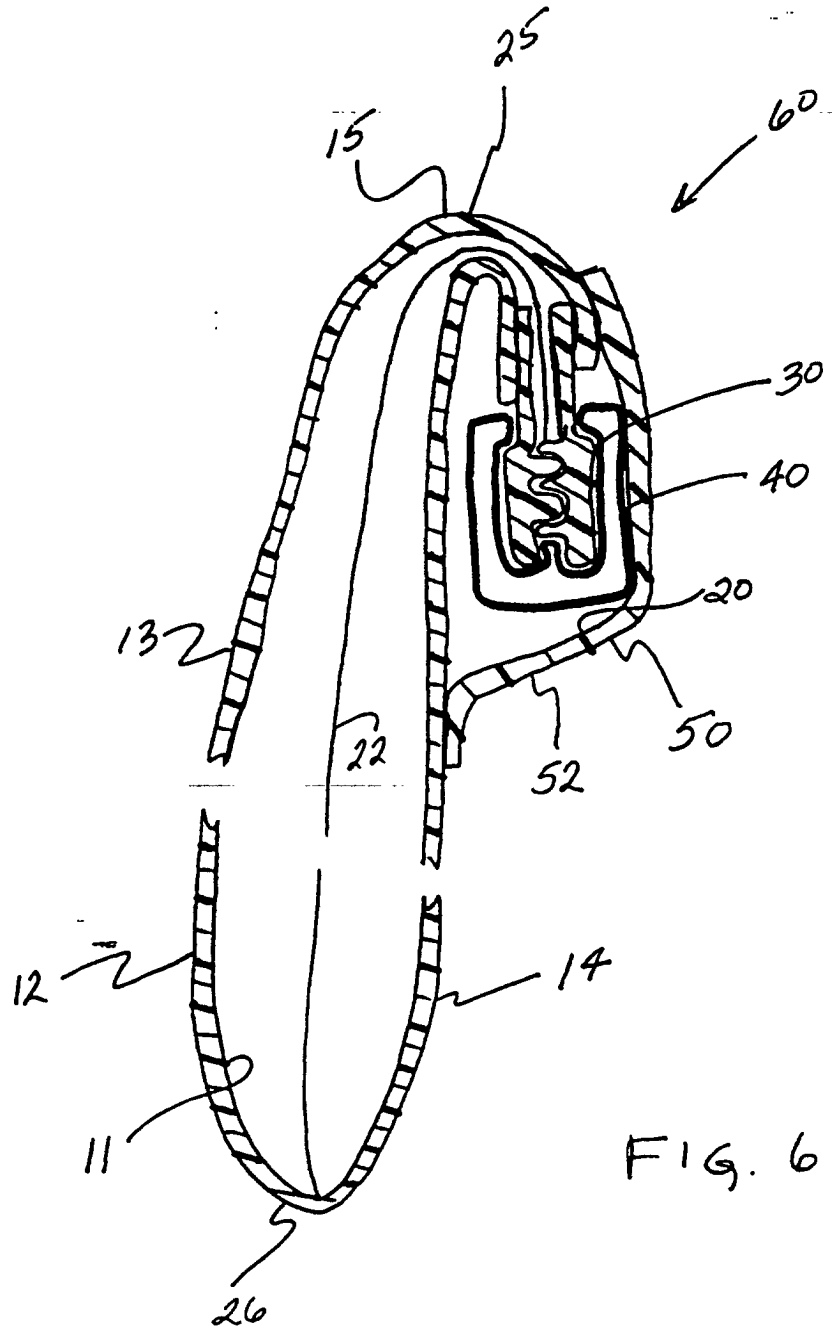


FIG. 6

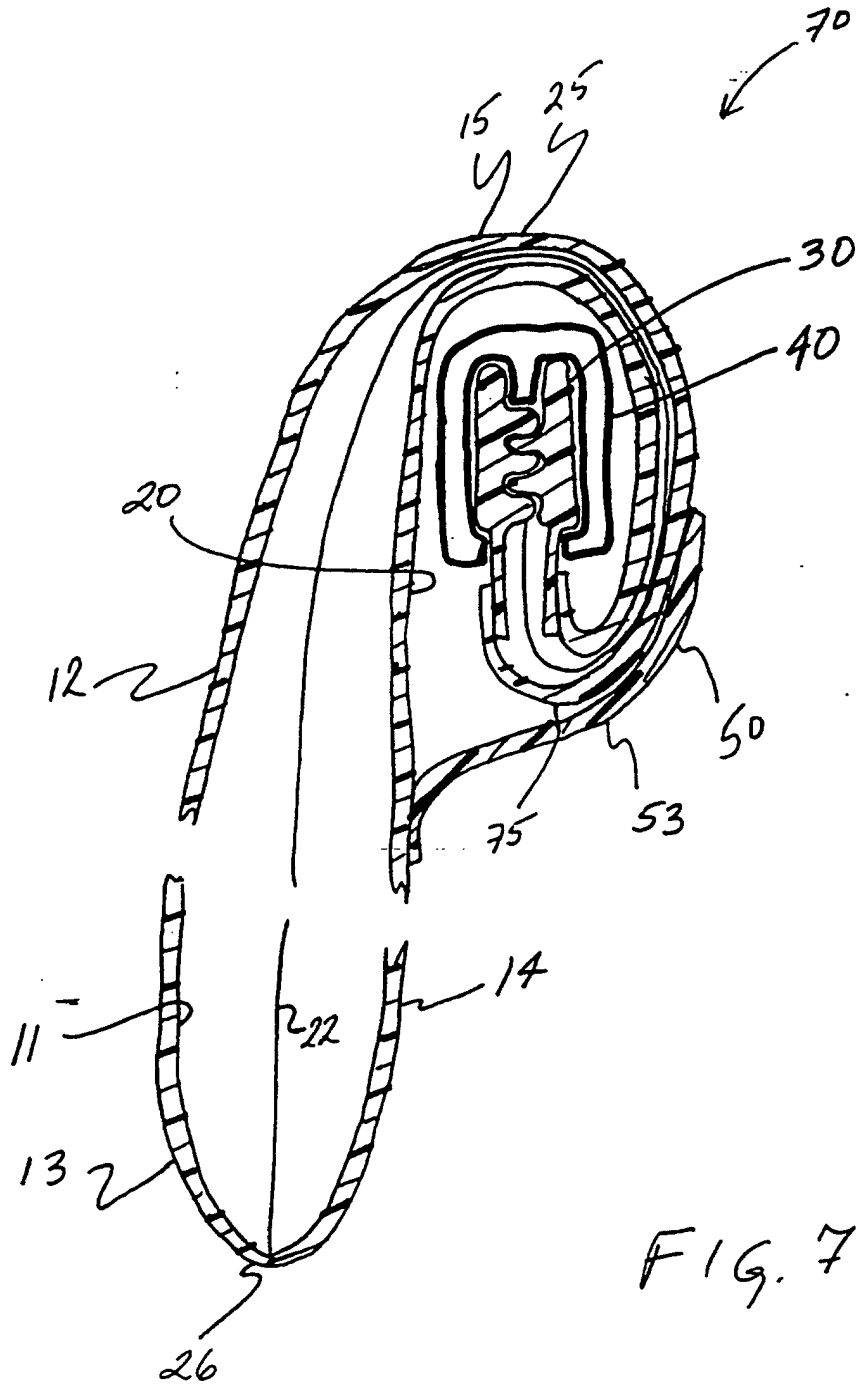


FIG. 7