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(54) Package closure for withstanding internal forces

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Description

BACKGROUND OF THE DISCLOSED SUBJECT MATTER

Field of the Disclosed subject matter

[0001] The present disclosed subject matter relates to package closures for withstanding elevated internal forces. Particularly, the present disclosed subject matter is directed to package closures having a primary seal and a secondary seal, to provide packages of optimum fitness and convenience for consumer use.

Description of Related Art

[0002] Packages such as polymeric bags are widely used in a diverse number of households, as well as commercial facilities. Polymeric bags are used for a wide range of applications, such as for storage and food packaging, for example. One advantage of polymeric bags is that they are relatively cost efficient and can be reused if desired. Further, polymeric bags having a closure assembly provide a bag that is easily opened and reclosed. Reclosable bags often include a closure assembly such as a reclosable fastener or slider mechanism. Advantageously, the closure feature enables the bag to be reopened and reclosed countless times.

[0003] There are a variety of reclosable bags in which a fastener interlock is augmented by a breakable or peelable seal for hermetic and/or tamper evident sealing purposes. However, such packages do not provided a suitable hermetic and/or tamper evident seal having a high resistance to the internal opening forces generated in heavier content packages due to elevated fill loads. Therefore, large packages, bags or pouches, such as those used for pet food, charcoal, cat litter, rice and similar items are typically filled and sealed shut, with no closure mechanism. These packages may be formed by form fill and seal (FFS) or by other methods. Prior attempts to incorporate a fastener closure mechanism have been unsatisfactory due to the unique requirements of a large bag with a relatively heavy load.

[0004] In particular, filling from the bottom places the load directly on the closure during the filling process, which can cause the fastener closure to fail and open. Similarly, dropping a filled bag onto a pallet or similar rough handling during transportation can cause the fastener closure to fail. Side gusseted bags are particularly prone to closure failure since the front and rear bag panels are displaced a greater distance than non-gusseted bags, thereby producing a higher load which is concentrated near the middle of the bag, and absorbed by the closure mechanism.

[0005] Some examples of prior art package closures include U.S. Patent Numbers 4,252,846, 5,725,312, 6,131,248, 6,183,134, 6,290,393 6,901,637, 7,213,305 as well as U.S. Patent Application Publication Numbers

2008/0050052, 2008/0050056, 2008/0047228, EP 1 366 999, WO 2006/090693, US 2002/100144 (base for the preamble of claims 1 and 6), EP 1 721 833, US 2007/183692, WO 02/00520, US 6,354,738, and WO 2004/050487.. Such conventional methods and systems generally have been considered satisfactory for their intended purpose, however there remains a demand for simplified closure configurations, as well as a reduction in force required by the consumer to access the contents of the bag.

[0006] Therefore, there remains a need for an efficient and economic method and system for providing a package closure capable of withstanding elevated internal loads which requires little or no modifications to the production film or package manufacturing apparatus.

SUMMARY OF THE DISCLOSED SUBJECT MATTER

[0007] The purpose and advantages of the present disclosed subject matter will be set forth in and apparent from the description that follows, as well as will be learned by practice of the disclosed subject matter. Additional advantages of the disclosed subject matter will be realized and attained by the methods and systems particularly pointed out in the written description and claims hereof, as well as from the appended drawings.

[0008] To achieve these and other advantages and in accordance with the purpose of the disclosed subject matter, as broadly described, the essential features of the invention are set out the appended independent claims. Optional features are set out in the dependent claims.

[0009] The disclosed subject matter includes a reclosable package comprising a first panel including a first side section and a second side section and a second panel including a first side section and a second side section such that the first panel opposes the second panel and is joined to the second panel along the first and second side sections. A bottom connects the first and second panels to each other, and a reclosable top is disposed opposite the bottom and extends between the first and second side sections of the first and second panels. A closure assembly extends along the reclosable top and is configured to open and close the reclosable top, the closure assembly includes a first fin joined to the first panel and a second fin joined to the second panel. A sealing member is also provided having a first end and a second end, the first end joined to the first fin and the second end joined to the second fin, wherein at least one of the first end or second end is joined with a peelable seal.

[0010] The first end of the sealing member can be joined to the fin with a peelable seal, and the second end of the sealing member can be joined to the fin with a lock-up seal. Additionally, the first end of the sealing member can be joined to the first fin with a peelable seal, and the second end of the sealing member can be joined to the second fin with a peelable seal. Also, the first end of the

sealing member can be integrally formed with the first fin and the second end of the sealing member can be joined to the second fin with a peelable seal.

[0011] The reclosable package may comprise a membrane having a first end joined to the first fin and a second end joined to the second fin, with a line of weakness formed at a point between the first and second ends. The membrane can be disposed below the sealing member, or above the sealing member.

[0012] The sealing member can be a separately formed member which can be removed from the reclosable package, and the peelable seal can be formed by adhesives, heat-seal, or ultrasonic bonding, or by other methods and technologies well known in the art.

[0013] In another example, a reclosable package comprises a first panel including a first side section and a second side section, and a second panel including a first side section and a second side section, with the first panel opposing the second panel and joined to the second panel along the first and second side sections. A bottom connects the first and second panels to each other, and a reclosable top is disposed opposite the bottom and extends between the first and second side sections of the first and second panels. A closure assembly extends along the reclosable top and is configured to open and close the reclosable top, the closure assembly including a first fin member joined to the first panel and a second fin member joined to the second panel. Also included is a sealing member having a first end and a second end, the first end is joined to a fin member and the second end is joined to a panel, wherein at least one of the first end of the sealing member or the second end of the sealing member is joined with a peelable seal.

[0014] The first end of the sealing member can be joined to the first fin with a lock-up seal, and the second end of the sealing member can be joined to a panel with a peelable seal. Additionally, the sealing member can include a line of weakness formed at a point between the first and second ends. Further, the sealing member includes an intermediate portion disposed between the first and second ends, with the intermediate portion joined to the second fin with a lock-up seal. The first end of the sealing member and the fin member can be integrally formed, or alternatively, the sealing member, panels, and fins can be separately formed.

[0015] In another example, a reclosable package comprises a first panel including a first side section and a second side section, and a second panel including a first side section and a second side section, with the first panel opposing the second panel and joined to the second panel along the first and second side sections. A bottom connects the first and second panels to each other, and a reclosable top is disposed opposite the bottom and extends between the first and second side sections of the first and second panels. A closure assembly extends along the reclosable top and is configured to open and close the reclosable top, the closure assembly including a first fin member joined to the first panel and a second

fin member joined to the second panel, wherein the first fin is joined to the second panel with a peelable seal.

[0016] Further, the first fin extends below the closure assembly a first distance, and the second fin extends below the closure assembly a second distance, wherein the first distance is greater than the second distance. An upper portion of the first fin can be joined to the first panel with a lock-up seal, and a lower portion of the first fin can be joined to the second panel with a peelable seal. The second fin can be joined to the second panel with a lock-up seal. The first fin member can be integrally connected to the second fin member, and the integral fin member can be joined to the second panel with two peelable seals.

[0017] A reclosable package is disclosed comprising:

a first panel including a first side section and a second side section;

a second panel including a first side section and a second side section, the first panel opposing the second panel and joined to the second panel along the first and second side sections;

a bottom extending between the first and second side sections of the first and second panels with the first and second panels joined to each other;

a mouth disposed opposite the bottom and extending between the first and second side sections of the first and second panels;

a closure member extending along the mouth, the closure member including a first fin joined to the first panel and a second fin joined to the second panel; and

a sealing member having a first end and a second end, the first end attached to the first fin and the second end attached to the second fin, wherein at least one of the first end or second end is attached with a peelable seal.

[0018] The first end of the sealing member may be attached to the fin with a peelable seal, and the second end of the sealing member may be attached to the fin with a lock-up seal.

[0019] The first end of the sealing member may be attached to the first fin with a peelable seal, and the second end of the sealing member may be attached to the second fin with a peelable seal.

[0020] The first end of the sealing member may be integrally formed with the first fin and the second end of the sealing member may be attached to the second fin with a peelable seal.

[0021] The reclosable package may further comprise a membrane having a first end attached to the first fin and a second end attached to the second fin, with a line of weakness formed at a point between the first and second ends. The membrane may be disposed below the sealing member, or the membrane may be disposed above the sealing member.

[0022] The sealing member may be a discrete structure which can be removed from the reclosable package.

[0023] The peelable seal may be formed by adhesives, heat-seal, or ultrasonic bonding.

[0024] At least a portion of at least one fin may include a co-ex material. The terminal ends of at least a portion of the first and second fins which are attached to the panels may include a co-ex material.

[0025] The first and second side sections may define a package width, the peelable seal extending between the first and second side sections a distance which is less than the package width.

[0026] A reclosable package is disclosed comprising:

a first panel including a first side section and a second side section;

a second panel including a first side section and a second side section, the first panel opposing the second panel and joined to the second panel along the first and second side sections;

a bottom extending between the first and second side sections of the first and second panels with the first and second panels joined to each other;

a mouth disposed opposite the bottom and extending between the first and second side sections of the first and second panels;

a closure member extending along the mouth, the closure assembly including a first fin member joined to the first panel and a second fin member joined to the second panel; and

wherein the first fin is attached to the second panel with a peelable seal.

[0027] The first fin may extend below the closure assembly a first distance, and the second fin may extend below the closure assembly a second distance, wherein the first distance may be greater than the second distance.

[0028] An upper portion of the first fin may be attached to the first panel with a lock-up seal, and a lower portion of the first fin may be attached to the second panel with a peelable seal.

[0029] The second fin may be attached to the second panel with a lock-up seal.

[0030] The first fin member may be integrally connected to the second fin member, the integral fin member may be attached to the second panel with two peelable seals.

[0031] The first and second side sections may define a package width, the peelable seal extending between the first and second side sections a distance which is less than the package width.

[0032] A fill-through-the-top process for packaging a product is disclosed, comprising:

providing at least one web of material;

forming a first panel including a first side, a second side, a top and a bottom;

forming a second panel including a first side, a second side, a top and a bottom;

positioning the first panel in opposite relationship to the second panel;

joining the first panel to the second panel along the first sides, second sides, and bottoms to define a package interior having a mouth disposed opposite the bottom;

inserting articles through the mouth;

providing a closure assembly extending along the mouth, the closure assembly including a first fin joined to the first panel and a second fin joined to the second panel; and

providing a sealing member having a first end and a second end, the first end attached to the first fin and the second end attached to the second fin, wherein at least one of the first end or second end is attached with a peelable seal.

[0033] A fill-through-the-bottom process for packaging a product is disclosed, comprising:

providing at least one web of material;

forming a first panel including a first side, a second side, a top and a bottom;

forming a second panel including a first side, a second side, a top and a bottom;

positioning the first panel in opposite relationship to the second panel;

joining the first panel to the second panel along the first sides, second sides, and tops to define a package interior having a mouth disposed opposite the top;

inserting articles through the mouth;

providing a closure assembly extending along the mouth, the closure assembly including a first fin joined to the first panel and a second fin joined to the second panel; and

providing a sealing member having a first end and a second end, the first end attached to the first fin and the second end attached to the second fin, wherein at least one of the first end or second end is attached with a peelable seal.

[0034] A reclosable package is disclosed comprising:

a first panel including a first side section and a second side section;

a second panel including a first side section and a second side section, the first panel opposing the second panel and joined to the second panel along the first and second side sections;

a bottom extending between the first and second side sections of the first and second panels with the first and second panels joined to each other;

a mouth disposed opposite the bottom and extending between the first and second side sections of the first and second panels;

a closure member extending along the mouth, the closure assembly including a first fin member joined

to the first panel and a second fin member joined to the second panel; and
 a sealing member having a first end and a second end, the first end is attached to a fin member and the second end is attached to a panel, wherein at least one of the first end of the sealing member or the second end of the sealing member is attached with a peelable seal.

[0035] The first end of the sealing member may be attached to the first fin with a lock-up seal, and the second end of the sealing member may be attached to a panel with a peelable seal.

[0036] The sealing member may include a line of weakness formed at a point between the first and second ends.

[0037] The sealing member may include an intermediate portion disposed between the first and second ends, the intermediate portion attached to the second fin with a lock-up seal.

[0038] The first end of the sealing member and the fin member may be integrally formed.

[0039] The sealing member, panels, and fins may be discrete structures.

[0040] The first and second side sections may define a package width, the peelable seal extending between the first and second side sections a distance which is less than the package width.

[0041] It is to be understood that both the foregoing general description and the following detailed description are exemplary and are intended to provide further explanation of the disclosed subject matter.

[0042] The accompanying drawings, which are incorporated in and constitute part of this specification, are included to illustrate and provide a further understanding of the method and system of the disclosed subject matter. Together with the description, the drawings serve to explain the principles of the disclosed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0043]

FIG. 1 is a schematic representation of the reclosable package in accordance with the disclosed subject matter.

FIG. 2 is an enlarged perspective view of a closure assembly in accordance with the disclosed subject matter.

FIG. 3 is a front view of a reclosable fastener with a slider.

FIG. 4 is a perspective view of the reclosable fastener with the slider shown in the open position preparatory to assembly.

FIG. 5 is a perspective view of the reclosable fastener and slider in assembled position on a reclosable package.

FIGS. 6-10 are cross-sectional views of the reclosable fastener and closure assembly in accordance

with the disclosed subject matter.

FIG. 11 is a front view of the reclosable package depicting a notch formed in the sealing member in accordance with the disclosed subject matter.

FIG. 12 is a cross-sectional views of the closure assembly in accordance with the disclosed subject matter.

DETAILED DESCRIPTION

[0044] Reference will now be made in detail to the examples of the disclosed subject matter, examples of which are illustrated in the accompanying drawings. The method and corresponding steps of the disclosed subject matter will be described in conjunction with the detailed description of the system.

[0045] In accordance with the disclosed subject matter, a bag is provided having a closed bottom, a reclosable top disposed opposite the bottom, and opposing first and second panels joined to each other. The bag further includes a closure assembly disposed along the reclosable top of the bag. The closure assembly may include a press to close fastener configuration, or alternatively, a slider device mounted on the fastener closure to facilitate opening and closing of the closure assembly. The slider device is constructed to separate the interlocking fastener closure profiles when the slider device is moved in a first direction along the fastener, and to engage the interlocking fastener profiles when the slider device is moved in a second, opposite direction along the fastener. An example of such a fastener closure and slider device is disclosed in U.S. Patent Number 7,263,748.

[0046] For purpose of explanation and illustration, and not limitation, an example of the system in accordance with the disclosed subject matter is shown in Fig. 1 and is designated generally by reference character 10. Additional features, of a package in accordance with the disclosed subject matter are provided in Figs. 2 - 12, as will be described below.

[0047] As shown in FIG. 1 bag 10 comprises first and second opposing body panels 12, 14. Body panels 12, 14 are joined or fixedly connected to each other along first and second side sections 18a, 18b, respectively. As shown in Fig. 1, bottom 16 extends between the first and second side sections 18a, 18b. Further, bottom 16 connects the first panel 12 to the second panel 14. The bag 10 can be configured with gussets as illustrated by reference numeral 17, either along the bottom or along the side sections, or both if so desired.

[0048] The first and second panels 12, 14 can be made from two separate sheets joined along three sides, e.g., bottom and opposing side sections. Alternatively, the first and second panels can be formed from a unitary folded sheet. The unitary sheet can include a side fold or a bottom fold.

[0049] First and second panels 12, 14 can be formed from a wide range of materials. Preferably, the panels are formed from polymeric material, for example and not

limitation, polyesters; polystyrenes; nylon; polypropylene; polyethylene; copolymers of polyethylene and polypropylene; polycarbonates; polyacetals; acrylic-butadienestyrene copolymers; monolayer or multilayer polyethylene, such as a low density polyethylene (LDPE), a linear low density polyethylene (LLDPE), high density polyethylenes (HDPE), and/or ethylene vinyl acetate, and/or a co-polymer mixture, multilayer combination, or laminate(s) thereof; or combinations thereof. However, as would be recognized in the art, other thermoplastic materials may be used to form the panels of the bag. Additionally, bag panels 12, 14 can be formed from any woven material such as a web of paper, cardboard, fabric, or any other suitable material.

[0050] In addition, the first and second panels of the bag may be formed from co-extruded films having two or more layers. Each of the first and second panels preferably has a thickness ranging from about 0.4 mil to about 10 mils. In one preferred embodiment, the thickness is 3.5 mils. However, depending on the application contemplated for the bag, other thicknesses may be used, if desired.

[0051] In a further aspect of the disclosed subject matter, the closure assembly can include a fastener configured to open and close the reclosable top section of the bag. The fastener may comprise a first fastener track attached to a first side panel and a second fastener track attached to a second side panel, wherein first and second fastener tracks are disposed in an opposing relationship on the first and second panels, respectively. The tracks may comprise integrally formed profiles and fins. In another embodiment, the closure assembly fastener may be configured to be operated by finger pressure or by an auxiliary squeezing device, whereby the first and second tracks are squeezed together (e.g., as in a press-to-close fastener). In this manner, the closure assembly fastener includes first and second tracks configured to form an interlocking connection by the application of a force.

[0052] The closure assembly may include a reclosable fastener. In this manner, the reclosable fastener is operated by the use of an auxiliary slider mechanism, by finger pressure, or by an auxiliary squeezing device. As shown in FIG. 2, the closure assembly is a fastener 20 including a slider mechanism 23, and first track 24, and second track 25 configured to form an interlocking connection.

[0053] For example and not limitation, first and second tracks can include complementary rib 26 and groove 27 profiles which extend along a length of the closure assembly. The rib and groove profiles 26, 27 are configured to have complementary cross-sectional shapes. The cross-sectional shapes of the interlocking rib and groove profiles 26, 27 shown in FIG. 2 are the subject of the disclosed subject matter claimed in U.S. Pat. No. 5,007,143 to Herrington. In this manner, the ribs 26 form a mating relationship with corresponding grooves 27.

[0054] The rib track 24 includes a rib profile 26 and a first depending fin or flange 28a extending downward from the rib profile 26. Likewise, the groove track 25 in-

cludes a groove profile 27 and a second depending fin or flange 28b extending downward from the groove profile 27. The fins 28a, 28b are shown attached to opposing body panels 12, 14. The tracks 24, 25 may be extruded separately with fins 28a, 28b and attached to the respective sides of the bag mouth or the tracks 24, 25 may be extruded integral with the sides of the bag mouth. If the tracks 24, 25 are extruded separately, they are most effectively attached by means of the respective first and second fins 28a, 28b, incorporated within the tracks, such as by heat sealing to the bag mouth.

[0055] Slider 23, as illustrated in FIG. 2, and described in U.S. Patent 5,896,627 to Cappel et al., may be slidably mounted to closure assembly 20 disposed at the reclosable top of the bag 10. The slider 23 is configured to facilitate the engagement and disengagement of the first and second tracks 24, 25 of the closure assembly. In this manner, slider 23 is configured to transition between a closed position in which the first and second tracks are engaged, and an open position in which the first and second tracks are disengaged.

[0056] As the slider transitions from a closed position to an open position, first and second tracks 24, 25 progressively disengage to define an open bag so that a user can gain access to the interior of the bag 10. Further, movement of the slider 23 from an open position to a closed position facilitates the interlocking connection between the first and second tracks, e.g., rib and groove profiles 26, 27, thereby restricting access to the interior of the bag 10. For example, the rib and groove profiles 26, 27 may be rolled or pressed into their interlocking arrangement so as to securely close the bag by one of two means. First, the profiles may be rolled or pressed together at one end by a user and then sequentially fitted together along the length of the closure assembly by the user running a finger along the length of the closure assembly on each side of the profiles. Alternatively, the bag may include a slider that rides along the tracks of the closure assembly. If the slider is pulled in one direction, the bag is closed; if the slider is pulled in the opposite direction, the bag is reopened.

[0057] As shown in FIG. 2, the slider 23 may comprise an inverted generally U-shaped member including a transverse support member or body 29 from which the separator finger 200 extends downward. The body 29 is itself U-shaped and includes two integral legs 201 extending downward. The finger 200 is positioned between the legs 201. The body 29 is adapted to move along the top edges of the tracks 24, 25 with the legs 201 straddling these elements and the finger 200 positioned between the tracks 24, 25. The slider 23 also includes a pair of hinged "wings" 202, 203 that can be folded down into their final position. The wings 202, 203 are hinged to the main slider body 29 by means of hinge structures 202a, 203a located at the opposite ends of the legs 201.

[0058] The foldable depending wings or side walls 202, 203 extend from an opening end 23a of the slider 23 to a closing end 23b. It is noted that the main slider body

29 and the separator finger 200 are wider at the opening end 23a than at the closing end 23b. Similarly, the side walls 202, 203 and the legs 201 are spaced wider apart at the opening end 23a of the slider 23 to permit separation of the rib and groove profiles 26, 27 by the finger 200 engaging the tracks 24, 25. The wings 202, 203 and legs 201 are spaced sufficiently close together at the closing end 23b of the slider to press the rib and groove profiles 26, 27 into an interlocking relationship as the slider 23 is moved in a closure assembly closing direction. As shown in FIG. 2, the side walls 202, 203 at their lower ends are provided with an inwardly extending shoulder structure 204. Shoulder structure 204 engages a bottom of the closure assembly 20 to prevent slider 23 from being lifted off the edges of the tracks 24, 25 while the slider 23 straddles the closure assembly 20.

[0059] The slider 23 may be molded from any suitable polymeric material including, but not limited to, polyesters; polystyrenes; nylon; polypropylene; polyethylene; copolymers of polyethylene and polypropylene; polycarbonates; polyacetals; acrylic-butadienestyrene copolymers; monolayer or multilayer polyethylene, such as a low density polyethylene (LDPE), a linear low density polyethylene (LLDPE), high density polyethylenes (HDPE), and/or ethylene vinyl acetate, and/or a co-polymer mixture, multilayer combination, or laminate(s) thereof; or combinations thereof.

[0060] The opposing ends of the closure assembly 20 can include end stop structures 205 as shown in FIG. 2 and U.S. Patent Number 7,267,856 to Patel et al. A portion of the end stop structures protrudes from the closure assembly 20 a distance adequate to engage the slider 23 and prevent the slider 23 from going past the respective ends of the closure assembly 20 and coming off the ends of the bag 10. A portion of the end stops may protrude an adequate distance in the transverse direction to engage the slider 23 and prevent movement of the slider 23 past the respective ends of the closure assembly 20. As used herein, transverse means any direction which is normal to the axis of the track.

[0061] For example, a portion of the end stops may protrude an adequate distance in a generally horizontal or generally vertical direction to engage the slider 23 and prevent movement of the slider 23 past the respective ends of the closure assembly 20. Additionally or alternatively, a portion of the end stops may protrude an adequate distance upwardly and/or outwardly from a remainder of the closure assembly 20 to engage the slider 23 and prevent movement of the slider 23 past the respective ends of the closure assembly 20. Additional details concerning the formation of the end stops may be obtained from U.S. Pat. No. 5,131,121 to Herrington. The thicknesses of the end stops at their widest point may vary from generally about 0.127mm (0.005 inches) to about 7.036mm (0.2770 inches).

[0062] In further accordance with the disclosed subject matter, and as depicted in FIGS. 3-5, the reclosable fastener comprises a pair of flexible plastic strips having

separable fastener means extending along the length thereof comprising reclosable interlocking male and female profile elements on the respective strips. The strips include profiled tracks extending along the length thereof parallel to the male and female elements. The slider is provided with a separator finger and interlocking complementary structure formed from plastic for moving along the fastener in straddling relation. The complementary structure comprises a transverse support member having the separator finger depending therefrom. The support member is positioned on the top edges of the tracks with the separator finger inserted therebetween.

[0063] A pair of side walls are positioned on the opposite sides of the support member for receiving the pair of strips therebetween, the separator finger and the side walls extend from an opening end of the slider to a closing end. The separator finger is wider at the opening end of the slider than at the closing end of the slider and the side walls are spaced wider apart at the opening end to permit separation of the male and female elements by the wider end of the separator finger extending between the side walls at the opening end. The side walls are spaced sufficiently close together at the closing end to press the male and female elements into interlocking relationship as the slider is moved in a fastener closing direction.

[0064] There is further provided means for restraining the slider in closed position and maintaining the male and female elements in interlocking relation when the slider reaches the closed end of its travel along its tracks comprising a protrusion on the wider end of the separator finger adjacent the opening end of the slider and notch structure at the adjacent end of the tracks. The notch structure has an end located on the tracks to permit the wider end of the separator finger to move beyond the end from between the tracks and into the notch structure. The protrusion is engageable with the end of the notch structure when the slider is at the closed end of its travel on the tracks thereby restraining the wider end of the separator finger from moving out of the notch structure and between the tracks and inadvertently opening the male and female elements of the fastener, as shown and described in U.S. Pat. No. 5,067,208 to Herrington, Jr.

[0065] The fastener track material may be extruded in a two-piece fashion with fastener profiles 26, 27 and a fins 28a, 28b having a downwardly extending length of approximately 38.1mm (1.5 inches). The sides and bottom of panels 12, 14 are joined to form a hermetic seal.

[0066] The extrusion of co-ex sealing materials such as low melt plastomers in specified areas allows forming of a hard or permanent seal, whereas areas which are devoid of co-ex low melt plastomer material facilitate the formation of peelable seals, which allow for consumers to access the package contents. The permanent or "lock-up" seals can be formed by combining a co-ex low melt plastomer with a peel-seal material known in the art to achieve a firm union. The peelable seals can be formed with the peel-seal material only, i.e., without the co-ex

low melt plastomer composition.

[0067] In accordance with an aspect of the disclosed subject matter, when a package is filled the gussets expand such that the panels are moved apart which in turn places shearing load "s" on the peelable seal 320, as shown in FIG. 10. The bond of the peelable seal has sufficient strength to resist shearing forces "s" induced by the contents, but is weak in the peel direction "p" which allows a consumer to easily rupture the peelable seal to gain access the contents of the package. Also, the bond formed between the closure fin and the bag panel at location 340 is a permanent, "lock-up" type which is capable of withstanding elevated loads regardless of the orientation of the loads.

[0068] The seals disclosed herein, i.e., either permanent or peelable, can be formed by a variety of techniques including adhesives, heat-seal, ultrasonic welding, etc. If ultrasonic welding is employed, it is advantageous to use a rotary ultrasonic wheel to form the seals since such an apparatus reduces the drag and heating of the closure assembly, thereby minimizing the formation of wrinkles and other undesirable deformations. The strength of the seals disclosed herein, i.e., either permanent or peelable, can be varied by altering the amount or type of adhesives, or the duration of the seal time in the case of heat-seal or ultrasonic welding. While any of these techniques can be employed to create either type of seal, i.e., permanent or peelable, one of ordinary skill in the art would appreciate that the forming of the permanent seal would include incorporating a suitable amount of the co-ex low melt plastomer at select locations in accordance with the invention.

[0069] In accordance with an embodiment of the disclosed subject matter, illustrated in FIGS. 6-10, the closure assembly can include fins 280a, 280b which can be configured with sealing ribs 287 to facilitate permanent lock-up seals between the fins 280 and the bag panels 12, 14 at locations 300 and 310. Further, a bottom portion of the first fin 280a can extend below the second fin 280b and can be formed with co-ex material and can form a peelable seal 290 between the bottom portion of the first fin 280a and the second bag panel 14 at location 320. As shown in FIG. 8, this embodiment is particularly suited for top-fill packages, wherein upon loading of the contents through the mouth 13 of the package, the film panel 12 can be joined to the fin 280a with a permanent lock-up seal.

[0070] FIG. 9 depicts a similar embodiment wherein the fin members 380a, 380b are attached to short film webs 488a, 488b with permanent lock-up seals 400, 410. The first fin member 380a extends downward a greater distance than the second fin member 380b, and is attached to the second short film web 488b at location 420 with a peelable seal. The use of such short film webs 488a, 488b allows greater flexibility in the manner in which the closure assembly is attached to the bag since the short film webs 488a, 488b can be attached to either the interior surface or exterior surface of the bag panels

12, 14.

[0071] As discussed above, the peelable seal portions are formed devoid of co-ex material, and thus form a weaker union than the permanent lock-up seals. Consequently, areas of the bag which include a peelable seal material are more susceptible to rupture. However, both the fins 280, which can include a peelable seal, can be received between opposing bag panels 12, 14 and extend laterally across the entire width of the bag so as to span from one edge 18a to a second edge 18b. Therefore, the presence of the peelable seal material at the edges 18a, b can interrupt or weaken the union of bag panels 12, 14 along the edges 18a, b and thus be detrimental to the bag's performance.

[0072] Therefore, and in accordance with another aspect of the disclosed subject matter, the peelable seal material can include a cut-out or notch portion 15 adjacent to one, or both, edges 18a, 18b of the bag. The notches 15 are configured to extend a lateral distance towards the center of the bag and a vertical distance towards the bottom of the bag. While the example illustrated in Fig. 11 depicts linear notches 15 formed in the fins 280, it is to be understood that the notches can be formed in a variety of shapes and sizes as so desired. The notch can be configured to extend along the entire height of the peelable seal material such that no portion of the peelable seal material is located at the side edges of the film panels 12, 14.

[0073] Providing a notch in the peelable seal material proximate an edge 18a, 18b of the bag allows for a stronger seal along the sides of panels 12, 14 and further enhance the bags resistance to burst pressure. Additionally, in examples in which the fins 280 are formed from a different material than the bag panels 12, 14, the notch 15 allows for sealing of only homogeneous materials at the edge (i.e., only the bag panels 12, 14), thereby reducing the chance of pin holes being formed at the sides resulting in a faulty seal.

[0074] The notch 15 can be provided, for example in the fins 280, by removing material from a portion of the fins 28 that includes the peelable seal material. The fins 280 can then be inserted between the panels 12, 14 and positioned such that the notched region 15 is registered with the edges 18a, b. The bag panels 12, 14 can then be sealed along the edges 18a, b and bottom 16 via any of the sealing techniques described above. Therefore, the peelable seal can be configured to extend a distance between the edges 18a, b of the bag which is less than the width of the bag. Further, in examples in which the notch 15 is configured to extend along the entire height of fin 280 such that no portion of the peelable seal material is located at the edges, the profile of the sealed bag edges 18a, b remains uniform along the entire height of the bag, i.e., from the bottom to the mouth of the bag.

[0075] Additionally, areas of weakness such as perforations can be formed at select locations along the closure assembly thereby allowing the majority of the track fin to remain intact and capable of withstanding the forces

generated from filling or dropping the package. Areas of weakness in the side gusset, if present, are particularly beneficial since the gusset allows for forces to be dissipated by the expansion of the panels and thus protects the area of weakness. Indicia such as printed directions, or color codes, can be provided along the closure assembly to aid a consumer in locating the areas of weakness to facilitate opening of the package.

[0076] Furthermore, ribs can be provided on the closure assembly in order to ensure that the area of weakness is provided with a predictable and controlled rupture, especially for packages requiring over 131bs. force to open. In the configuration shown in FIG. 12, the rib design channels the opening of the area of weakness 601 between adjacent ribs 600, which will orient the tear in the machine direction. The ribs 600 are positioned between sealing ribs 602. Additionally, resins can be used to aid in the orientation of tearing or opening of the area of weakness.

[0077] While the present disclosed subject matter is described herein in terms of certain preferred embodiments, those skilled in the art will recognize that various modifications and improvements may be made to the disclosed subject matter without departing from the scope thereof. Moreover, although individual features of one embodiment of the disclosed subject matter may be discussed herein or shown in the drawings of the one embodiment and not in other embodiments, it should be apparent that individual features of one embodiment may be combined with one or more features of another embodiment or features from a plurality of embodiments.

[0078] In addition to the specific embodiments claimed below, the disclosed subject matter is also directed to other embodiments having any other possible combination of the dependent features claimed below and those disclosed above. As such, the particular features presented in the dependent claims and disclosed above can be combined with each other in other manners within the scope of the disclosed subject matter such that the disclosed subject matter should be recognized as also specifically directed to other embodiments having any other possible combinations. Thus, the foregoing description of specific embodiments of the disclosed subject matter has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the disclosed subject matter to those embodiments disclosed.

[0079] It will be apparent to those skilled in the art that various modifications and variations can be made in the method and system of the present disclosed subject matter without departing from the scope of the disclosed subject matter. Thus, it is intended that the invention includes modifications and variations that are within the scope of the appended claims.

Claims

1. A reclosable package (10) comprising:

a first panel (12) joined along a first side section (18a) and a second side section (18b);
a second panel (14) including a first side section (18a) and a second side section (18b), the first panel (12) opposing the second panel (14) and joined to the second panel (14) along the first and second side sections (18a, 18b);
a bottom (16) extending between the first and second side sections (18a, 18b) of the first and second panels (12, 14) with the first and second panels joined to each other;
a mouth (13) disposed opposite the bottom (16) and extending between the first and second side sections (18a, 18b) of the first and second panels (12, 14);
a closure member extending along the mouth, the closure member including a first fin (280a) joined to the first panel (12) and a second fin (280b) joined to the second panel (14), respectively; and
the first fin (280a) has a first end attached to the first panel (12) and a second end attached to the second panel (14) and **characterized in that** the bottom portion of the first fin (280a) extends downwards from where the first fin (280a) attaches to the first panel (12) and extends below the second fin (280b), wherein the bottom portion of the first fin (280a) is formed of a co-ex material and a peelable seal attaches the bottom portion of the first fin (280a) to the second panel (14).

2. The reclosable package (10) of claim 1, wherein the first fin and second fin (280a, 280b) each have sealing ribs (287) configured to form a seal (300, 310) joining the first fin (280a) to the first panel (12) and the second fin (280b) to the second panel (14).

3. The reclosable package (10) of claim 2, wherein the sealing ribs (287) of the first fin (280a) form a lock-up seal (300) joining the first fin (280a) to the first panel (12).

4. The reclosable package (10) of claim 2, wherein the sealing ribs (287) of the second fin (280b) form a lock-up seal (310) joining the second fin (280b) to the second panel (14).

5. The reclosable package (10) of claim 2, wherein the first fin (280a) extends below the second fin (280b).

6. A reclosable package (10) comprising:

a first panel (12) joined along a first side section

(18a) and a second side section (18b);
 a second panel (14) including a first side section (18a) and a second side section (18b), the first panel (12) opposing the second panel (14) and joined to the second panel (14) along the first and second side sections (18a, 18b);
 a bottom (16) extending between the first and second side sections (18a, 18b) of the first and second panels (12, 14) with the first and second panels joined to each other;
 a mouth (13) disposed opposite the bottom (16) and extending between the first and second side sections (18a, 18b) of the first and second panels (12, 14);
 a first film web (488a) joined to the first panel (12);
 a second film web (488b) joined to the second panel (14);
 a closure member extending along the mouth (13), the closure member including a first fin (380a) attached to the first film web (488a) and a second fin (380b) attached to the second film web (488b); and
 wherein the first fin (380a) has a first end attached to the first film web (488a) and a second end attached to the second film web (488b), and
characterized in that the bottom portion of the first fin (380a) extends downwards from where the first fin (380a) attaches to the first film web (488a) and extends below to the second film web (488b), wherein the bottom portion of the first fin (380a) is formed of a co-ex material and a peelable seal attaches the bottom portion of the first fin (380a) to the second film web (488b).

7. The reclosable package (10) of claim 7, wherein the first film web (488a) and the second film web (488b) each is attached to an interior surface of the first panel (12) and the second panel (14), respectively.
8. The reclosable package (10) of claim 7, wherein the first film web (488a) and the second film web (488b) each is attached to an exterior surface of the first panel (12) and the second panel (14), respectively.
9. The reclosable package (10) of claim 7, wherein the first fin (380a) and the second fin (380b) are attached to a corresponding one of the first film web (488a) and the second film web (488b) with a lock-up seal.
10. The reclosable package (10) of claim 7, wherein the first fin (380a) extends below the second fin (380b).

Patentansprüche

1. Wiederverschließbare Packung (10), umfassend:

eine erste Wand (12), die entlang eines ersten Seitenabschnitts (18a) und eines zweiten Seitenabschnitts (18b) verbunden ist;
 eine zweite Wand (14), die einen ersten Seitenabschnitt (18a) und einen zweiten Seitenabschnitt (18b) umfasst, wobei die erste Wand (12) der zweiten Wand (14) gegenüberliegt und mit der zweiten Wand (14) entlang der ersten und zweiten Seitenabschnitte (18a, 18b) verbunden ist;
 einen Boden (16), der sich bei miteinander verbundenen ersten und zweiten Wänden zwischen den ersten und zweiten Seitenabschnitten (18a, 18b) der ersten und zweiten Wände (12, 14) erstreckt;
 eine Öffnung (13), die gegenüber dem Boden (16) angeordnet ist und sich zwischen den ersten und zweiten Seitenabschnitten (18a, 18b) der ersten und zweiten Wände (12, 14) erstreckt;
 ein Verschlusselement, dass sich entlang der Öffnung erstreckt, wobei das Verschlusselement eine erste Rippe (280a), die mit der ersten Wand (12) verbunden ist, bzw. eine zweite Rippe (280b) umfasst, die mit der zweiten Wand (14) verbunden ist; und
 wobei die erste Rippe (280a) ein erstes Ende, das an der ersten Wand (12) befestigt ist, und ein zweites Ende aufweist, das an der zweiten Wand (14) befestigt ist, und **dadurch gekennzeichnet, dass** der untere Abschnitt der ersten Rippe (280a) von der Stelle, an der die erste Rippe (280a) an der ersten Wand (12) befestigt ist, sich nach unten erstreckt und unter der zweiten Rippe (280b) verläuft, wobei der untere Abschnitt der ersten Rippe (280a) aus einem Coex-Material gebildet ist, und eine abziehbare Versiegelung den unteren Abschnitt der ersten Rippe (280a) an der zweiten Wand (14) befestigt.

2. Wiederverschließbare Packung (10) nach Anspruch 1, wobei die erste Rippe und die zweite Rippe (280a, 280b) jeweils Versiegelungsrippen (287) aufweisen, die so ausgelegt sind, dass sie eine Versiegelung (300, 310) bilden, welche die erste Rippe (280a) mit der ersten Wand (12) und die zweite Rippe (280b) mit der zweiten Wand (14) verbindet.
3. Wiederverschließbare Packung (10) nach Anspruch 2, wobei die Versiegelungsrippen (287) der ersten Rippe (280a) eine Sperrversiegelung (300) bilden, welche die erste Rippe (280a) mit der ersten Wand (12) verbindet.
4. Wiederverschließbare Packung (10) nach Anspruch 2, wobei die Versiegelungsrippen (287) der zweiten Rippe (280b) eine Sperrversiegelung (310) bilden, welche die zweite Rippe (280b) mit der zweiten

- Wand (14) verbindet.
5. Wiederverschließbare Packung (10) nach Anspruch 2, wobei die erste Rippe (280a) unter der zweiten Rippe (280b) verläuft.
6. Wiederverschließbare Packung (10), umfassend:
- eine erste Wand (12), die entlang eines ersten Seitenabschnitts (18a) und eines zweiten Seitenabschnitts (18b) verbunden ist;
 - eine zweite Wand (14), die einen ersten Seitenabschnitt (18a) und einen zweiten Seitenabschnitt (18b) umfasst, wobei die erste Wand (12) der zweiten Wand (14) gegenüberliegt und mit der zweiten Wand (14) entlang der ersten und zweiten Seitenabschnitte (18a, 18b) verbunden ist;
 - einen Boden (16), der sich bei miteinander verbundenen ersten und zweiten Wänden zwischen den ersten und zweiten Seitenabschnitten (18a, 18b) der ersten und zweiten Wände (12, 14) erstreckt;
 - eine Öffnung (13), die gegenüber dem Boden (16) angeordnet ist und sich zwischen den ersten und zweiten Seitenabschnitten (18a, 18b) der ersten und zweiten Wände (12, 14) erstreckt;
 - eine erste Folienbahn (488a), die mit der ersten Wand (12) verbunden ist;
 - eine zweite Folienbahn (488b), die mit der zweiten Wand (14) verbunden ist;
 - ein Verschlusselement, dass sich entlang der Öffnung (13) erstreckt, wobei das Verschlusselement eine erste Rippe (380a), die mit der ersten Folienbahn (488a) verbunden ist, bzw. eine zweite Rippe (380b) umfasst, die mit der zweiten Folienbahn (488b) verbunden ist; und
 - wobei die erste Rippe (380a) ein erstes Ende, das an der ersten Folienbahn (488a) befestigt ist, und ein zweites Ende aufweist, das an der zweiten Folienbahn (488b) befestigt ist, und **dadurch gekennzeichnet, dass** der untere Abschnitt der ersten Rippe (380a) von der Stelle, an der die erste Rippe (380a) an der ersten Folienbahn (488a) befestigt ist, sich nach unten erstreckt und unter der zweiten Folienbahn (488b) verläuft, wobei der untere Abschnitt der ersten Rippe (380a) aus einem Coex-Material gebildet ist, und eine abziehbare Versiegelung den unteren Abschnitt der ersten Rippe (380a) an der zweiten Folienbahn (488b) befestigt.
7. Wiederverschließbare Packung (10) nach Anspruch 7, wobei die erste Folienbahn (488a) und die zweite Folienbahn (488b) jeweils an einer Innenfläche der ersten Wand (12) bzw. der zweiten Wand (14) befestigt sind.

8. Wiederverschließbare Packung (10) nach Anspruch 7, wobei die erste Folienbahn (488a) und die zweite Folienbahn (488b) jeweils an einer Außenfläche der ersten Wand (12) bzw. der zweiten Wand (14) befestigt sind.
9. Wiederverschließbare Packung (10) nach Anspruch 7, wobei die erste Rippe (380a) und die zweite Rippe (380b) an einer entsprechenden der ersten Folienbahn (488a) und der zweiten Folienbahn (488b) mit einer Sperrversiegelung befestigt sind.
10. Wiederverschließbare Packung (10) nach Anspruch 7, wobei die erste Rippe (380a) unter der zweiten Rippe (380b) verläuft.

Revendications

1. Emballage refermable (10) comprenant :
- un premier panneau (12) joint le long d'une première section latérale (18a) et d'une seconde section latérale (18b) ;
 - un second panneau (14) incluant une première section latérale (18a) et une seconde section latérale (18b), le premier panneau (12) se trouvant face au second panneau (14) et joint au second panneau (14) le long des première et seconde sections latérales (18a, 18b);
 - une partie inférieure (16) s'étendant entre les première et seconde sections latérales (18a, 18b) des premier et second panneaux (12, 14), les premier et second panneaux étant joints l'un à l'autre ;
 - une ouverture (13) disposée face à la partie inférieure (16) et s'étendant entre les première et seconde sections latérales (18a, 18b) des premier et second panneaux (12, 14) ;
 - un élément de fermeture s'étendant le long de l'ouverture, l'élément de fermeture incluant respectivement une première ailette (280a) jointe au premier panneau (12) et une seconde ailette (280b) jointe au second panneau (14) ; et
 - la première ailette (280a) a une première extrémité fixée au premier panneau (12) et une seconde extrémité fixée au second panneau (14) **et caractérisé en ce que** la partie inférieure de la première ailette (280a) s'étend vers le bas par rapport à l'endroit où la première ailette (280a) se fixe au premier panneau (12) et s'étend en dessous de la seconde ailette (280b), dans lequel la partie inférieure de la seconde ailette (280a) est formée d'un matériau coex et un scellage pelable fixe la partie inférieure de la première ailette (280a) au second panneau (14).
2. Emballage refermable (10) selon la revendication 1,

- dans lequel la première ailette et la seconde ailette (280a, 280b) ont chacune des nervures d'étanchéité (287) configurées pour former un joint (300, 310) joignant la première ailette (280a) au premier panneau (12) et la seconde ailette (280b) au second panneau (14). 5
3. Emballage refermable (10) selon la revendication 2, dans lequel les nervures d'étanchéité (287) de la première ailette (280a) forment un joint de fermeture (300) joignant la première ailette (280a) au premier panneau (12). 10
4. Emballage refermable (10) selon la revendication 2, dans lequel les nervures d'étanchéité (287) de la seconde ailette (280a) forment un joint de fermeture (310) joignant la seconde ailette (280b) au second panneau (12). 15
5. Emballage refermable (10) selon la revendication 2, dans lequel la première ailette (280a) s'étend en dessous de la seconde ailette (280b). 20
6. Emballage refermable (10) comprenant : 25
- un premier panneau (12) joint le long d'une première section latérale (18a) et d'une seconde section latérale (18b) ;
 - un second panneau (14) incluant une première section latérale (18a) et une seconde section latérale (18b), le premier panneau (12) étant face au second panneau (14) et joint au second panneau (14) le long des première et seconde sections latérales (18a, 18b) ;
 - une partie inférieure (16) s'étendant entre les première et seconde sections latérales (18a, 18b) des premier et second panneaux (12, 14), les premier et second panneaux étant joints l'un à l'autre ;
 - une ouverture (13) disposée face à la partie inférieure (16) et s'étendant entre les première et seconde sections latérales (18a, 18b) des premier et second panneaux (12, 14) ;
 - une première bande de film (488a) jointe au premier panneau (12) ; 45
 - une seconde bande de film (488b) jointe au second panneau (14) ;
 - un élément de fermeture s'étendant le long de l'ouverture (13), l'élément de fermeture incluant une première ailette (380a) fixée à la première bande de film (488a) et une seconde ailette (380b) fixée à la seconde bande de film (488b) ;
 - et 50
 - dans lequel la première ailette (380a) a une première extrémité fixée à la première bande de film (488a) et une seconde extrémité fixée à la seconde bande de film (488b), et **caractérisé en ce que** la partie inférieure de la première ailette (380a) s'étend vers le bas depuis l'endroit où la première ailette (380a) est fixé à la première bande de film (488a) et s'étend en dessous de la seconde bande de film (488b), dans lequel la partie inférieure de la première ailette (380a) est formée d'un matériau coex et un scellage pelable fixe la partie inférieure de la première ailette (380a) à la seconde bande de film (488b).
7. Emballage refermable (10) selon la revendication 7, dans lequel la première bande de film (488a) et la seconde bande de film (488b) sont chacune fixées respectivement à une surface intérieure du premier panneau (12) et du second panneau (14). 10
8. Emballage refermable (10) selon la revendication 7, dans lequel la première bande de film (488a) et la seconde bande de film (488b) sont chacune fixées respectivement à une surface extérieure du premier panneau (12) et du second panneau (14). 20
9. Emballage refermable (10) selon la revendication 7, dans lequel la première ailette (380a) et la seconde ailette (380b) sont fixées à l'une des bandes correspondantes de la première bande de film (488a) et de la seconde bande de film (488b) avec un joint de fermeture. 25
10. Emballage refermable (10) selon la revendication 7, dans lequel la première ailette (380a) s'étend en dessous de la seconde ailette (380b). 30

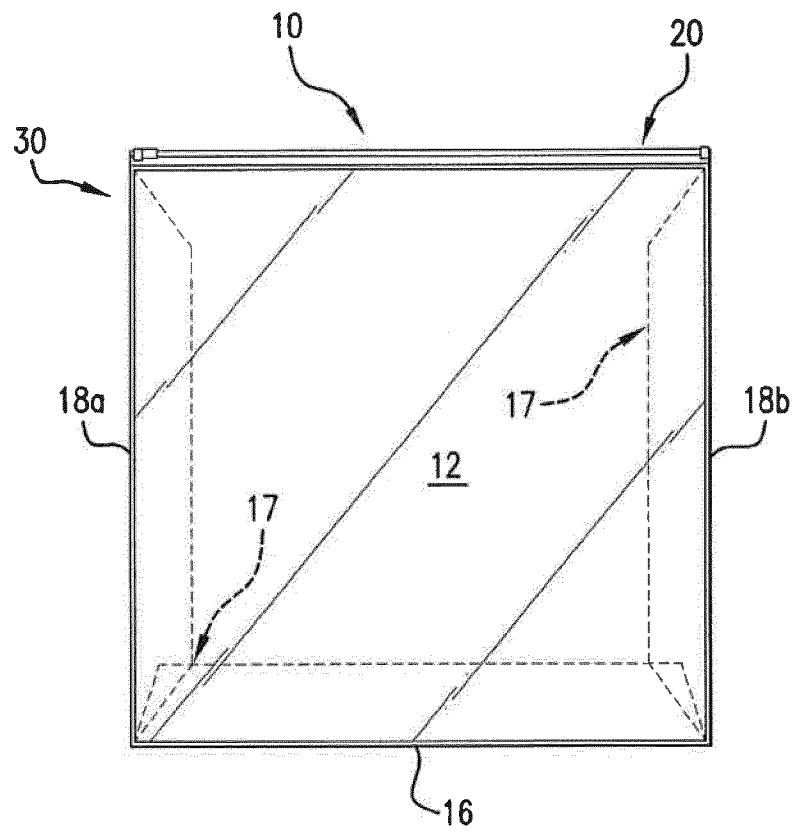


FIG. 1

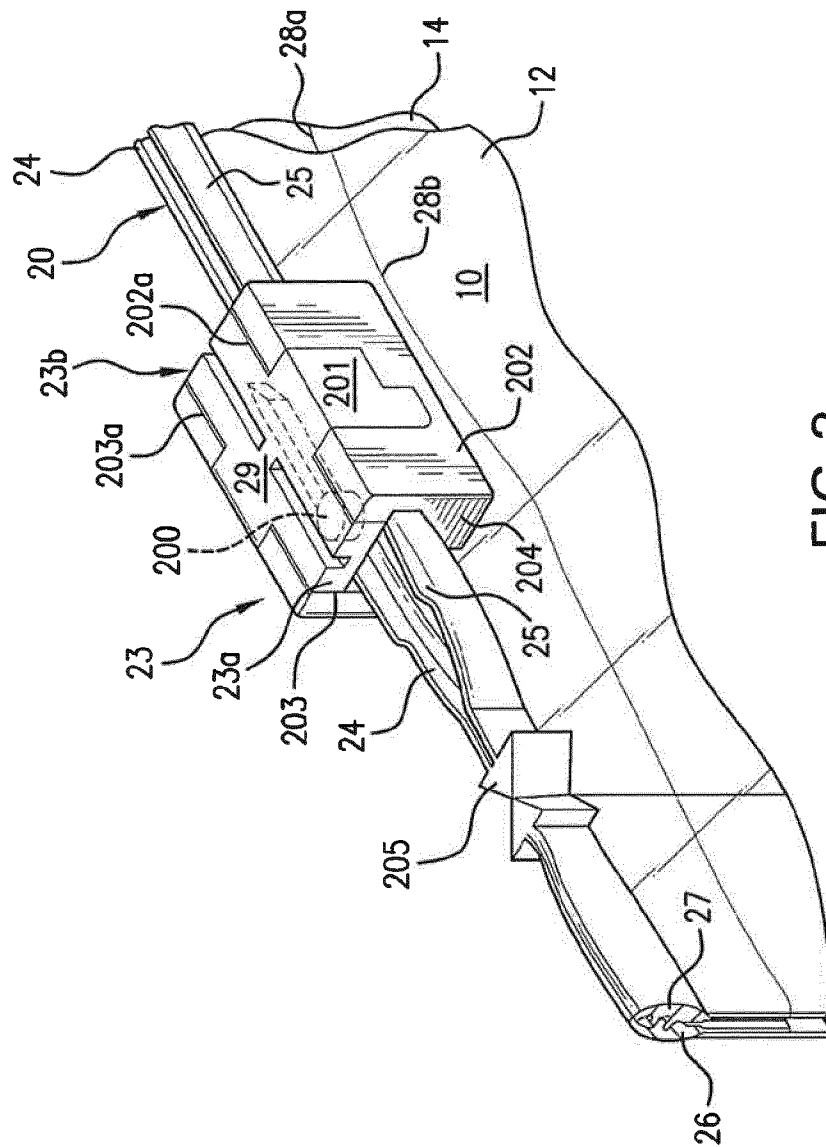


FIG. 2

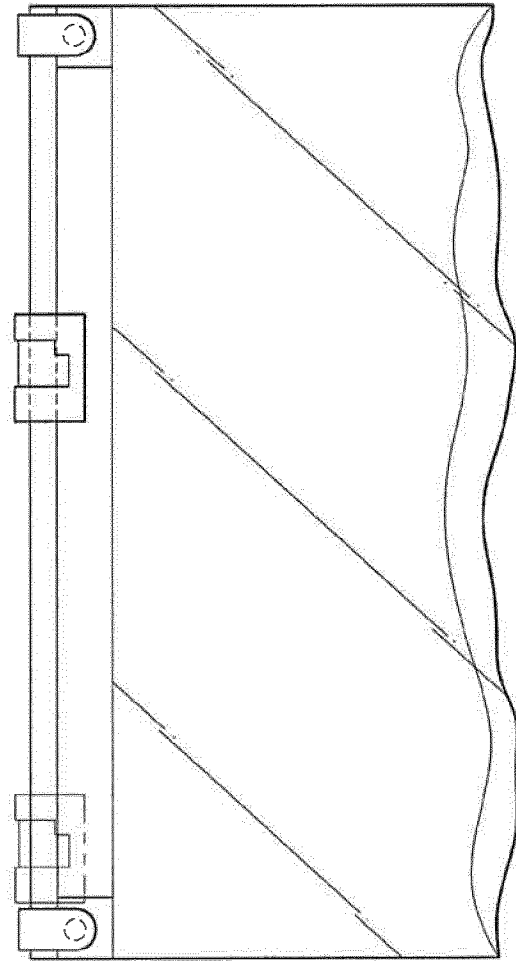


FIG.3

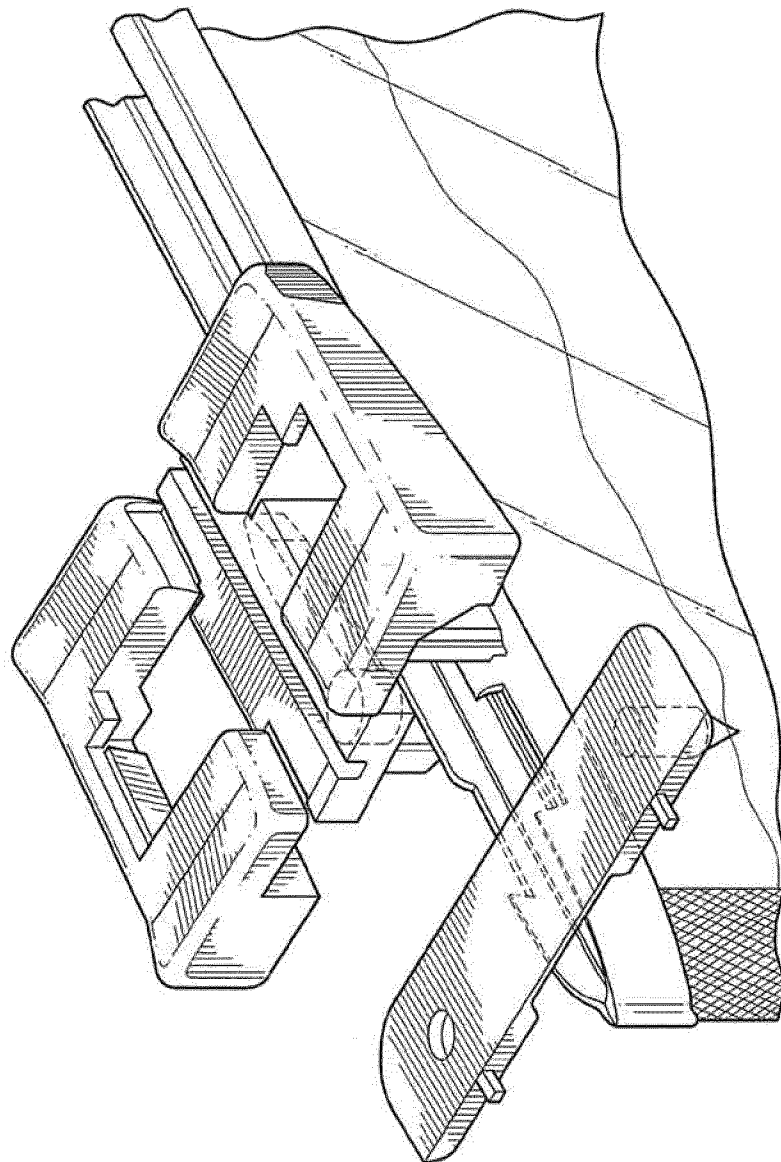
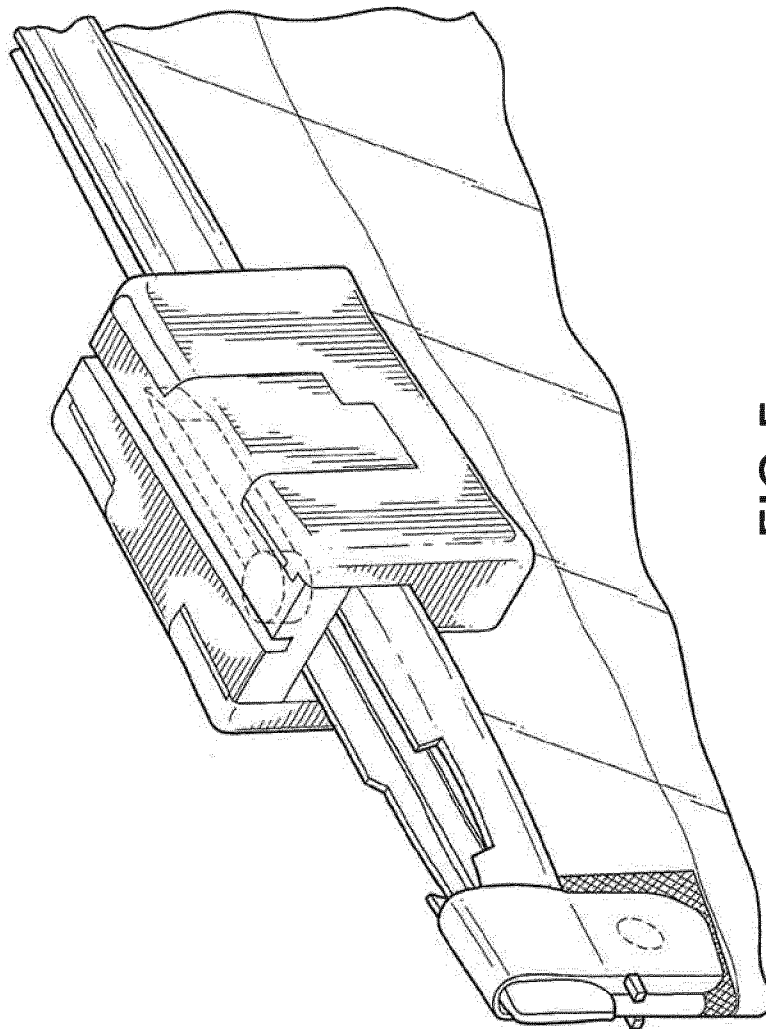


FIG.4



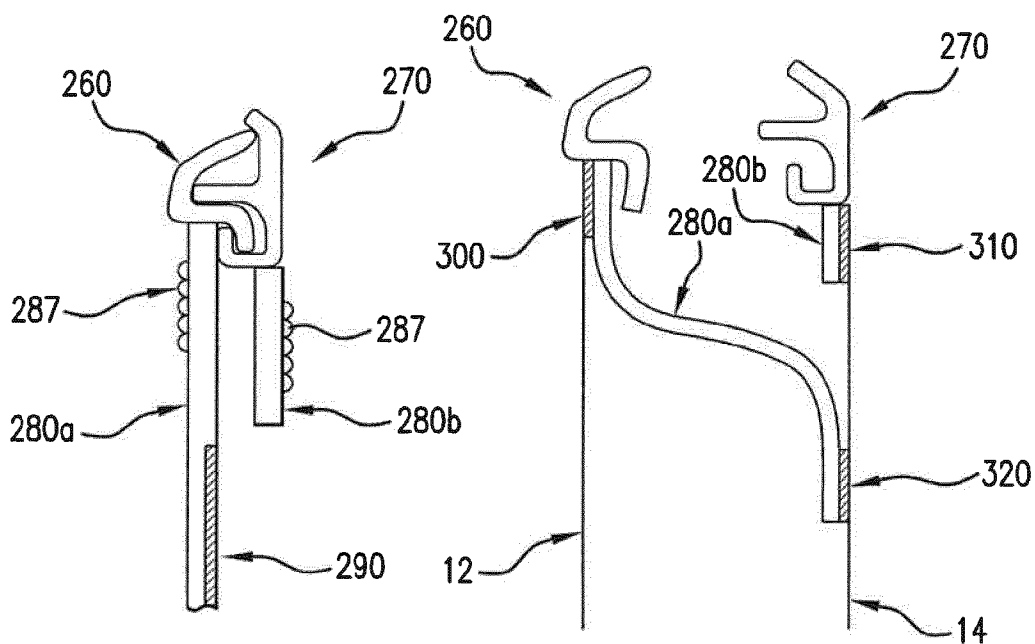


FIG. 6

FIG. 7

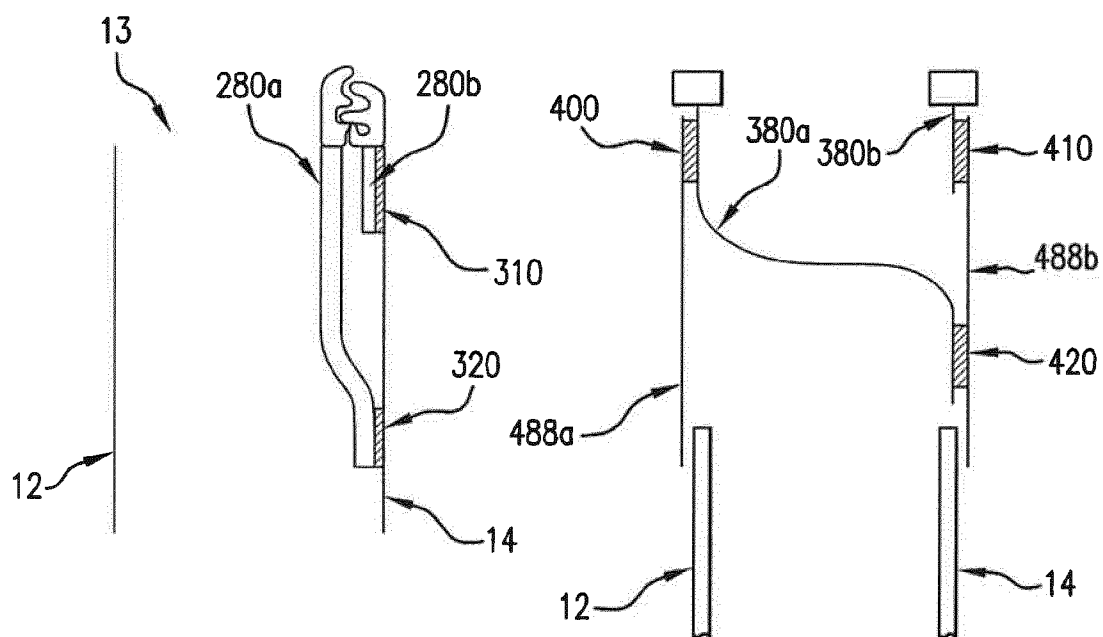


FIG. 8

FIG. 9

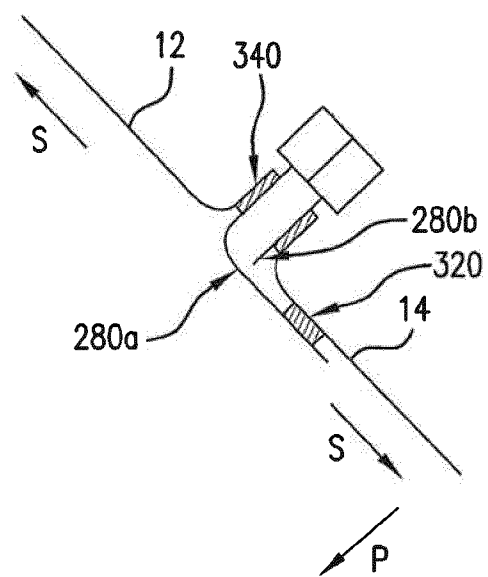


FIG. 10

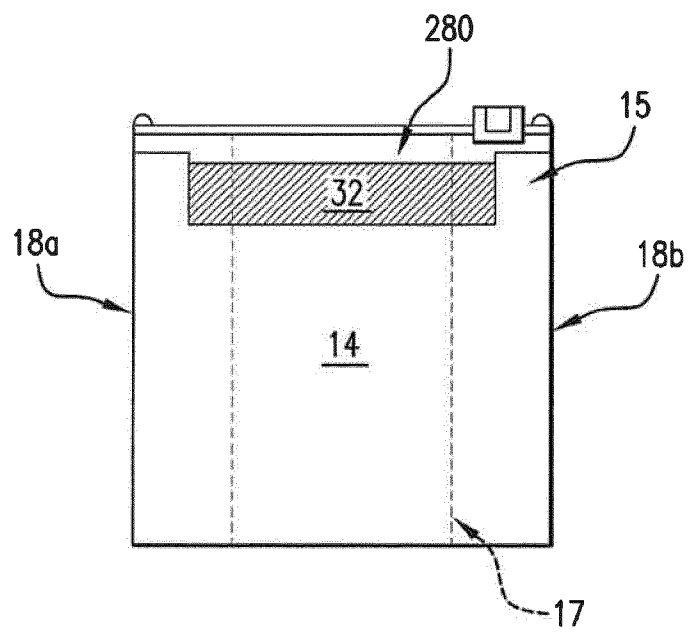


FIG. 11

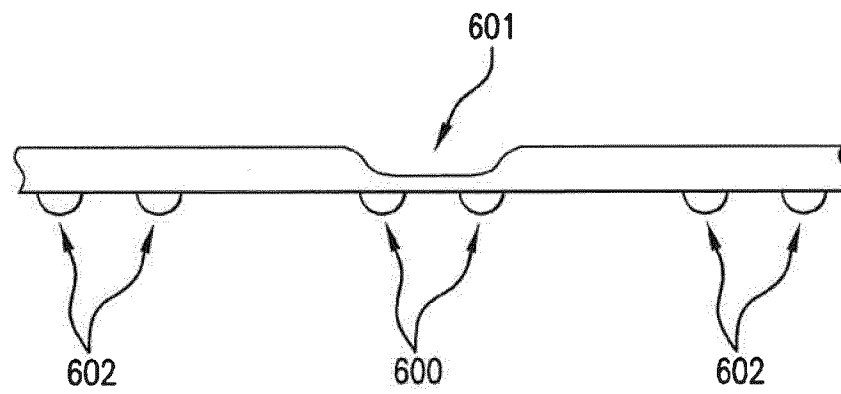


FIG. 12

REFERENCES CITED IN THE DESCRIPTION

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SZABADALMI IGÉNYPONTOK

BELSŐ ERŐKKEL SZEMBEN ELLENÁLLÓ CSOMAGOLÁSLEZÁRÓ

1. Visszazárható csomagolás (10), amely tartalmaz:

egy első panelt (12), amely egy első oldalrészhez (18a) és egy második oldalrészhez (18b) csatlakozik;

egy második panelt (14), amely egy első oldalrészt (18a) és egy második oldalrészt (18b) tartalmaz, az első panel (12) a második panellel (14) szemben van és a második panelhez (14) az első és a második oldalrész (18a, 18b) mentén csatlakozik;

egy, az első és a második panel (12, 14) első és második oldalrésze (18a, 18b) között húzódó fenéket (16), amellyel az első és a második panel egymáshoz csatlakozik;

egy, a fenékkal (16) szemközi, és az első és a második panel (12, 14) első és második része (18a 18b) között elhelyezkedő szájat (13);

egy, a száj mentén kiterjedő záróelemet, a záróelem tartalmaz egy, az első panelhez (12) csatlakozó első szárnyat (280a) és a második panelhez (14) csatlakozó második szárnyat (280b);

az első szárny (280a) egy első vége az első panelhez (12), egy második vége a második panelhez (14) csatlakozik, és azzal jellemezve, hogy az első szárny (280a) alsó része, az első szárny (280a) első panelhez (12) való csatlakozásától lefelé terjed ki, a második szárny (280b) alá, ahol az első szárny (280a) alsó része egy koextrudált (co-ex) anyagból van kialakítva és egy lehúzható lezárást alkot az első szárny (280a) alsó része és a második panel (14) között.

2. Az 1. igénypont szerinti visszazárható csomagolás (10), ahol az első szárnynak és a második szárnyak (280a, 280b) lezáró bordái (287) vannak egy, az első szárny (280a) első panelhez (12) és a második szárny (280b) második panelhez (14) történő lezárás (300, 310) létrehozásához kialakítva,

3. A 2. igénypont szerinti visszazárható csomagolás (10), ahol az első szárny (280a) lezáró bordái (287) egy zárható lezárást (300) alakítanak ki az első szárny (280a) első panelhez (12) történő csatlakozásával.



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4. A 2. igénypont szerinti visszazárható csomagolás (10), ahol a második szárny (280b) lezáró bordái (287) egy zárható lezárást (310) alakítanak ki a második szárny (280b) második panelhez (14) történő csatlakozásával.

5. A 2. igénypont szerinti visszazárható csomagolás (10), ahol az első szárny (280a) a második szárny (280b) alá terjed ki.

6. Egy visszazárható csomagolás (10), amely tartalmaz:

egy első panelt (12) egy első oldalrészhez (18a) és egy második oldalrészhez (18b) csatlakoztatva;

egy második panelt (14), amely egy első oldalrészt (18a) és egy második oldalrészt (18b) tartalmaz, az első panel (12) a második panellel (14) szemben van, és az első és a második oldalrész (18a, 18b) mentén a második panelhez (14) csatlakozik;

egy, az első és második panel (12, 14) első és második oldalrésze (18a, 18b) között húzódó fenéket (16), amellyel az első és a második panel egymáshoz van csatlakoztatva;

egy szájat (13) a fenékkal (16) ellentétes oldalon, az első és második panel (12, 14) első és második oldalrésze (18a, 18b) között elhelyezve;

egy, az első panelhez (12) csatlakozó első filmszalagot (488a);

egy, a második panelhez (14) csatlakozó második filmszalagot (488b);

egy, a száj (13) mentén kiterjedő záróelemet, a záróelem tartalmaz egy, az első filmszalagra (488a) csatlakoztatott első szárnyat (380a) és egy, a második filmszalaghoz (380b) csatlakoztatott második szárnyat (380b); és

ahol az első szárny (380a) egy első vége az első filmszalaghoz (488a), egy második vége a második filmszalaghoz (488b) csatlakozik, azzal jellemezve, hogy az első szárny (380a) alsó része, az első szárny (380a) első filmszalaghoz (488a) való csatlakozásától lefelé terjed ki, a második szárny (380b) alá, ahol az első szárny (380a) alsó része egy koextrudált (co-ex) anyagból van kialakítva, és egy lehúzható lezárást alkot az első szárny (380a) alsó része és a második filmszalag (488b) között.

7. A 7. igénypont szerinti visszazárható csomagolás (10), ahol az első filmszalag (488a) és a második filmszalag (488b) mindegyike az első panel (12) és a második panel (14) egy belső felületéhez van csatlakoztatva.

8. A 7. igénypont szerinti visszazárható csomagolás (10), ahol az első filmszalag (488a) és a második filmszalag (488b) mindegyike az első panel (12) és a második panel (14) egy külső felületéhez van csatlakoztatva.

9. A 7. igénypont szerinti visszazárható csomagolás (10), ahol az első filmszalag (488a) és a második filmszalag (488b) mindegyike az első panel (12) és a második panel (14) egy hozzá tartozó felületéhez van csatlakoztatva.

10. A 7. igénypont szerinti visszazárható csomagolás (10), ahol az első szárny (380a) a második szárny (380b) alá nyúlik.