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(54) **RESEALABLE PACKAGE WITH TAMPER-EVIDENT STRUCTURE AND METHOD FOR MAKING SAME**

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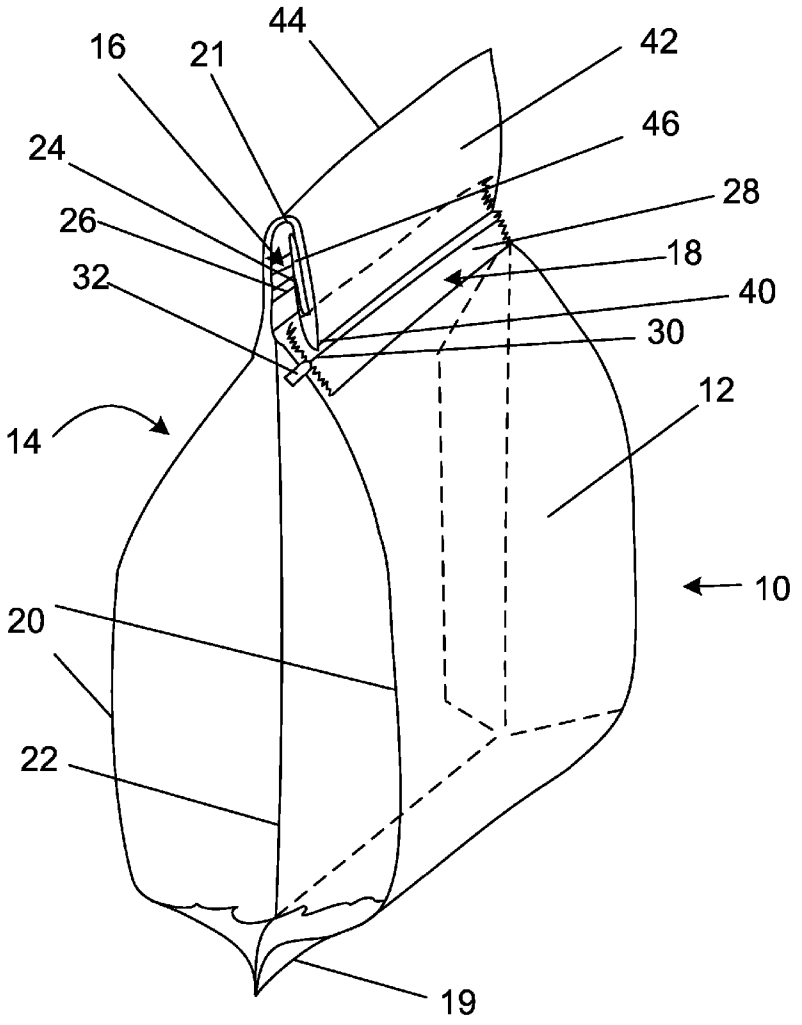
(57) **ABSTRACT**

A resealable package with a tamper-evident structure and methods for making the same are disclosed. The resealable package includes a front panel joined at respective opposite side edges to a rear panel to form a package having an exterior; a reclosable fastener assembly joined to the exterior of the package and including a first fastening member and a second fastening member respectively joined to the rear panel and the front panel, so that at least one marginal portion of the rear panel can be folded over in the direction of said front panel and the first fastening member can be releasably connected to the second fastening member; and a tamper-evident structure joined to the front panel and a folded over marginal portion of the rear panel.



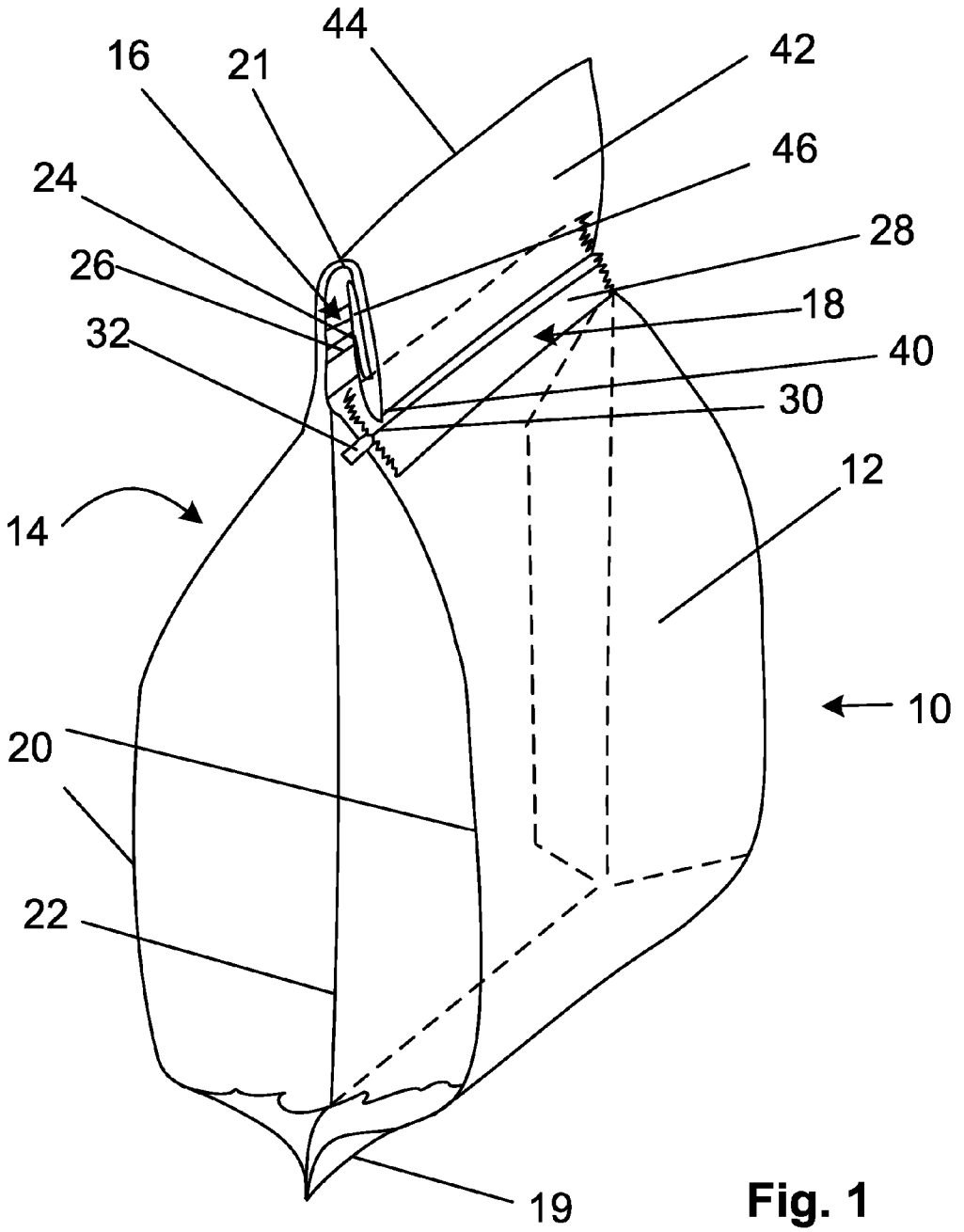


Fig. 1

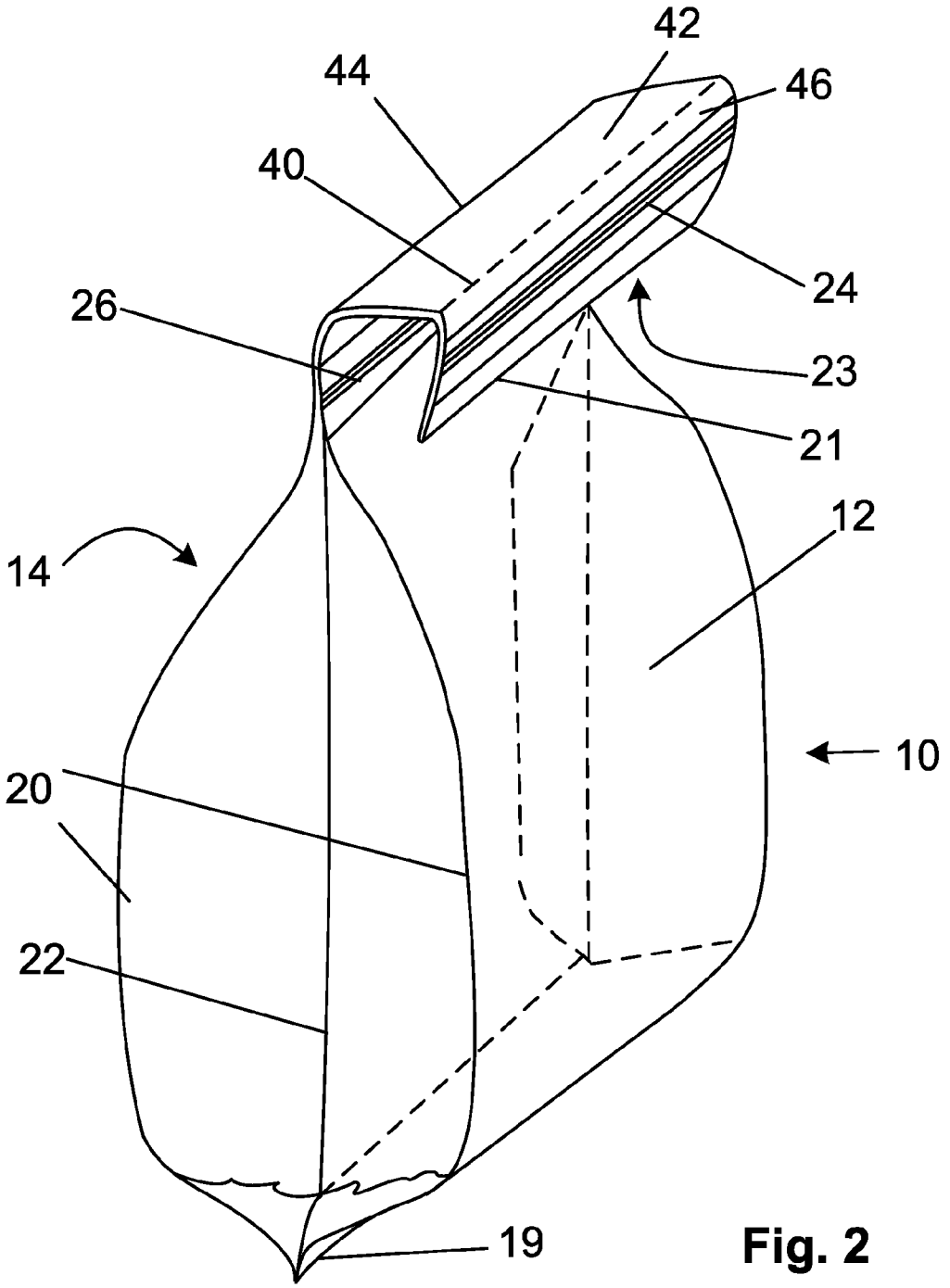


Fig. 2

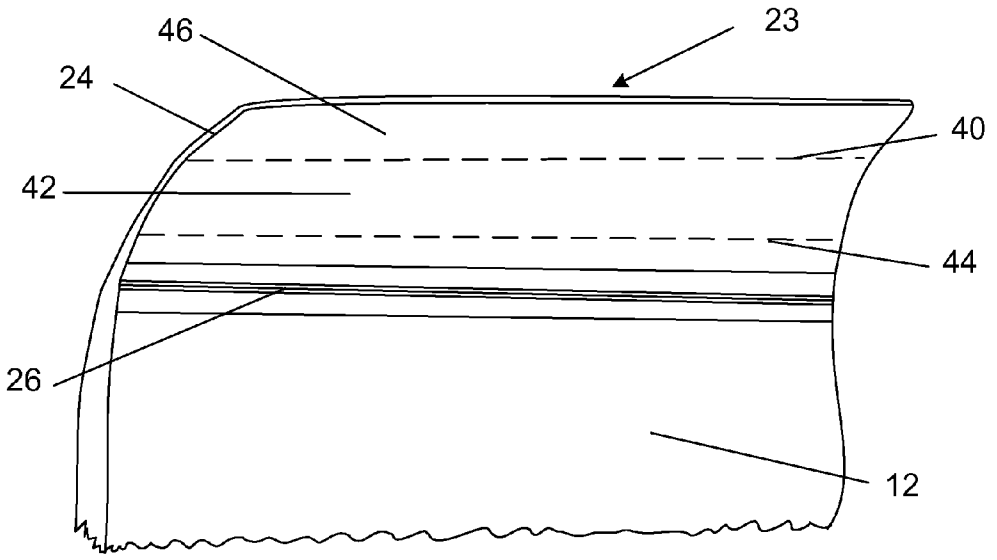


Fig. 3

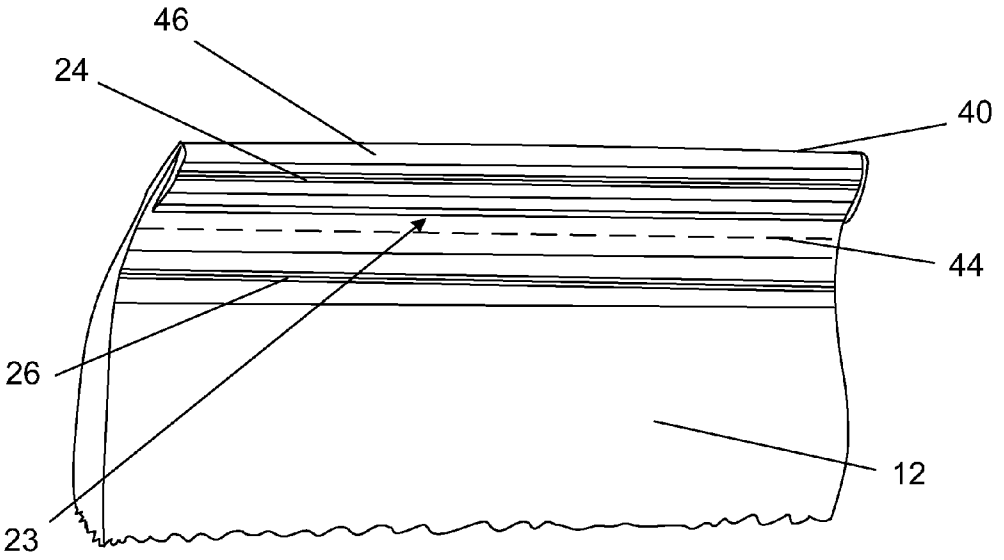


Fig. 4

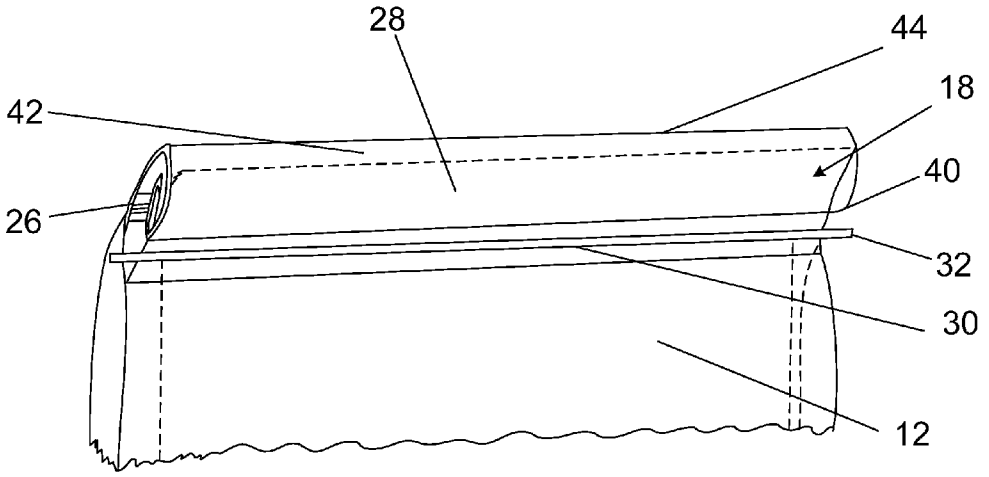


Fig. 5

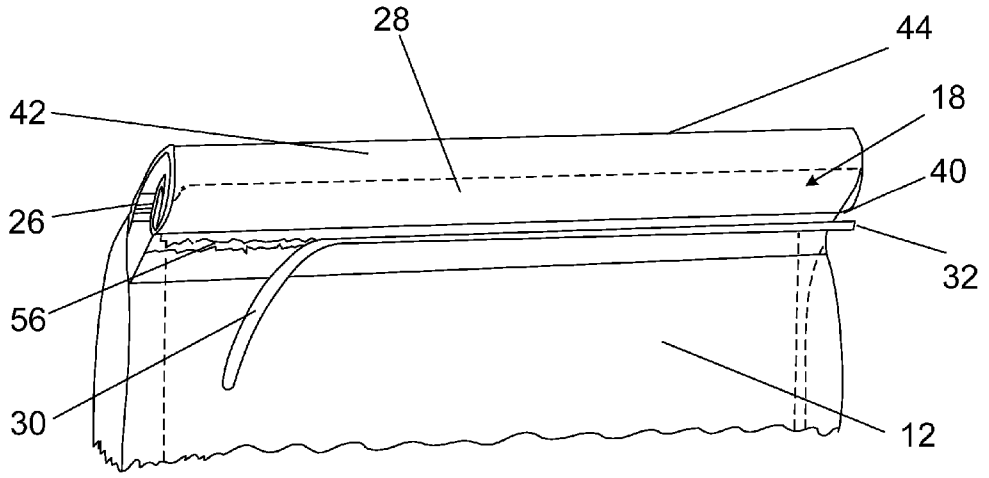


Fig. 6

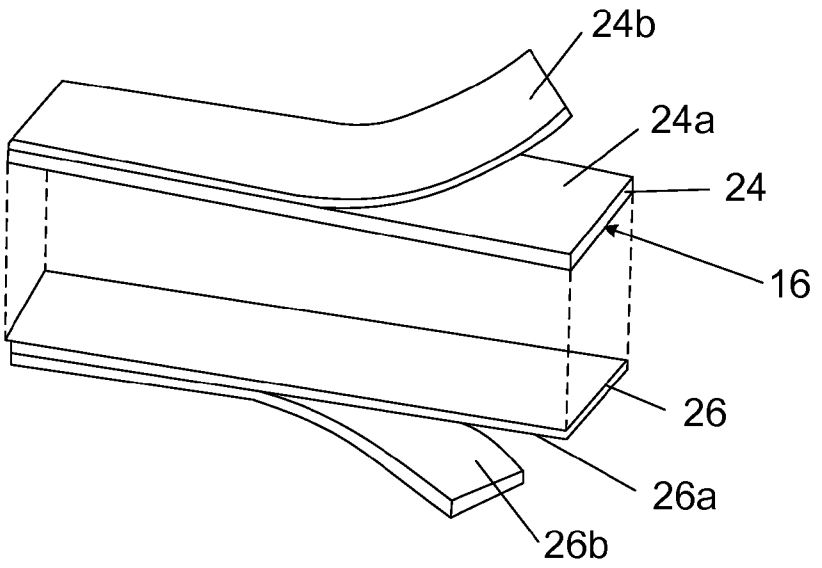


Fig. 7

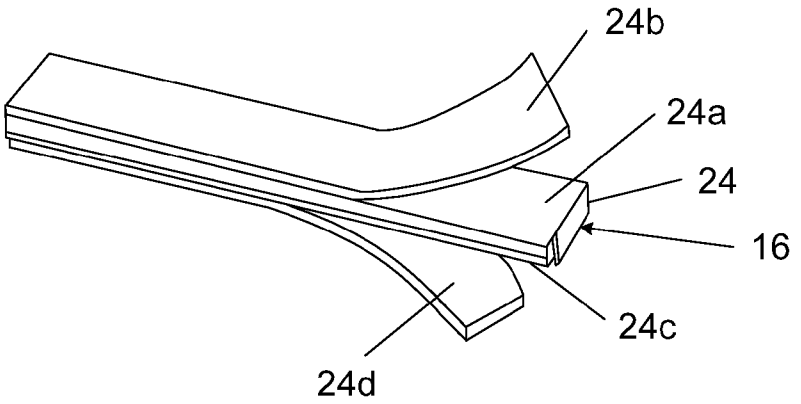


Fig. 8

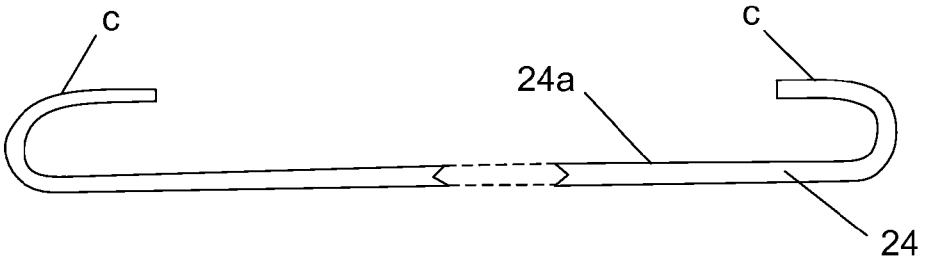


Fig. 9

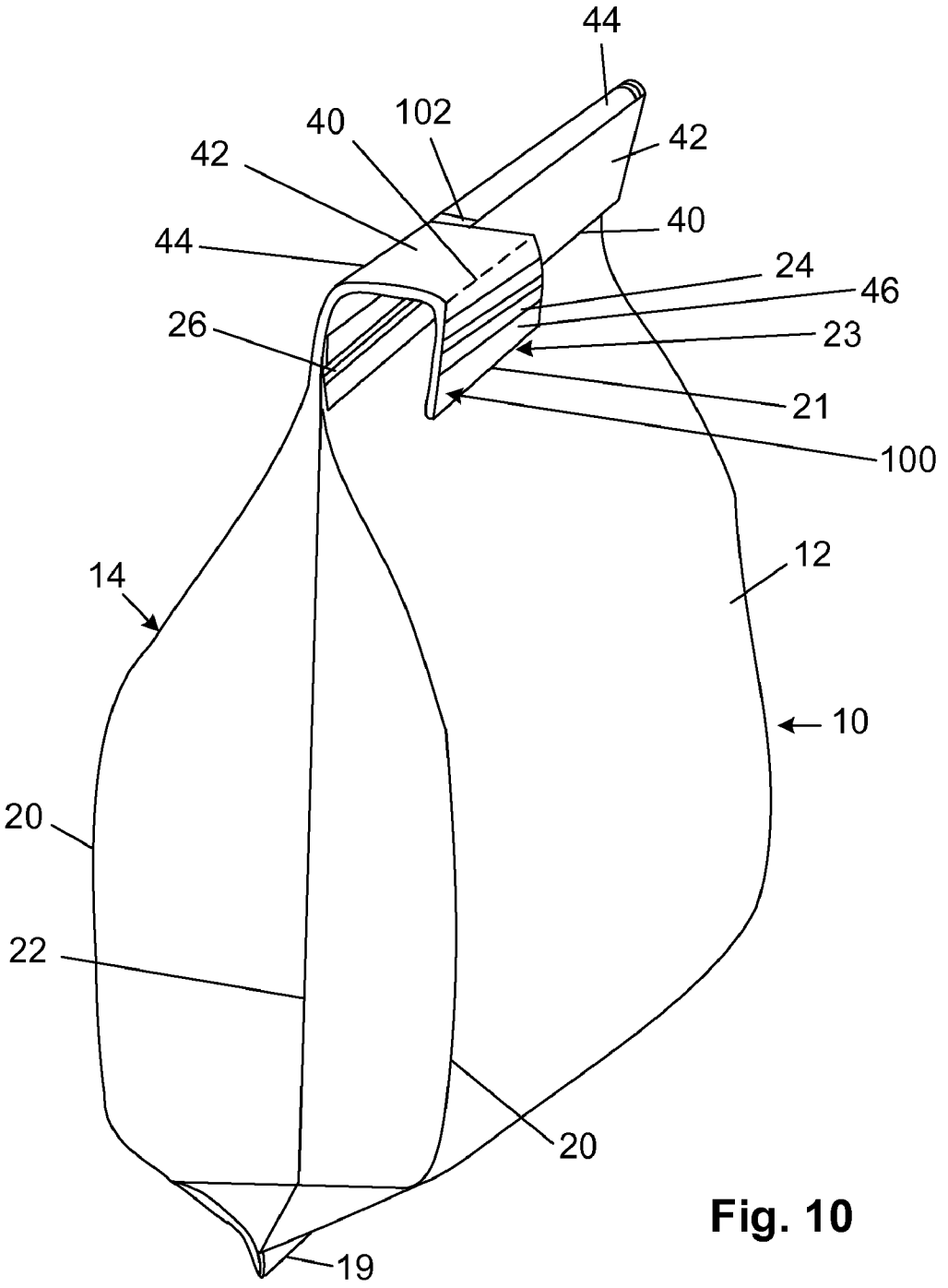


Fig. 10

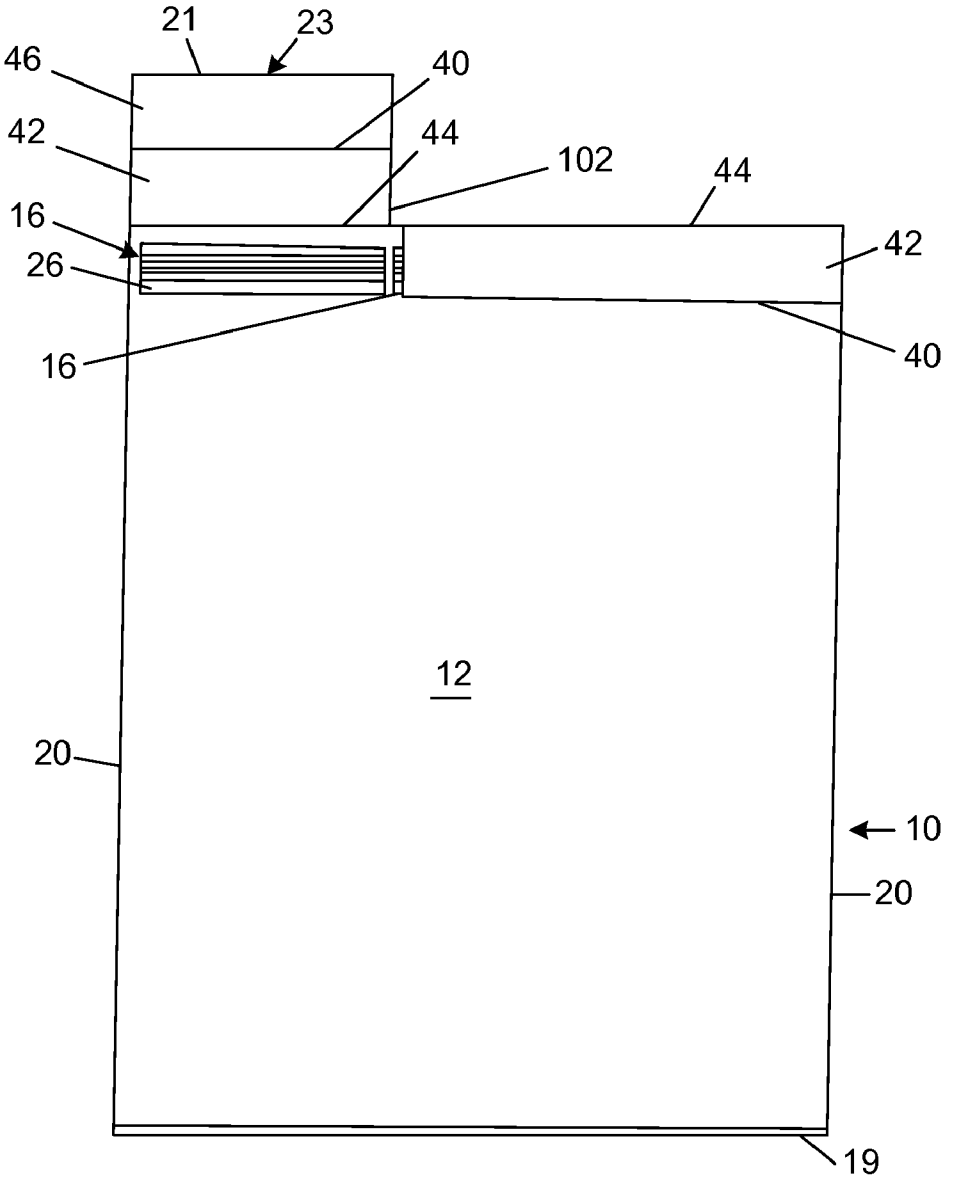


Fig. 11

RESEALABLE PACKAGE WITH TAMPER-EVIDENT STRUCTURE AND METHOD FOR MAKING SAME

CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present application is a continuation-in-part application of U.S. application Ser. No. 11/467,705, filed Aug. 18, 2006.

FIELD OF THE INVENTION

[0002] The present invention relates generally to reclosable packages. More specifically, the present invention relates to a resealable package with a tamper-evident structure and methods of making the same.

BACKGROUND OF THE INVENTION

[0003] Conventional packaging traditionally did not allow for repeated openings and closings. Where packaging is not provided with a reclosable fastener assembly or other resealing means, once the packaging is opened from its manufactured state, the seal is broken and the package cannot be resealed in a fashion equivalent to its original seal. In view of this problem with conventional packaging, reclosable bags and other resealable packages have become increasingly popular for the convenience such packaging offers consumers. Being able to reseal packaging once the original seal is broken is desired for a number of reasons, including to maintain freshness of the product contents, to prevent the contents from spilling out of the packaging, to keep environmental hazards such as, e.g., insects and moisture, from penetrating the packaging and spoiling the contents, and to provide easy access to the contents.

[0004] Packages of this nature typically include a reclosable fastener assembly, which may comprise suitable interlocking profile strips, cooperating adhesive strips, cooperating hook-and-loop fasteners, or like mateable or cooperating elements. After initial opening of the package, and partial removal of its contents, the reclosable fastener assembly permits the package to be suitably manipulated and maintained in a closed state until access to the package's contents is again desired.

[0005] To be acceptable as primary packaging for many products, especially foodstuffs, it is also necessary that the packaging include a tamper-evident structure associated with the original seal to ensure the quality of the product and safeguard the consumer's expectations. From the consumer's perspective, it is desirable to incorporate a tamper-evident structure that is commercially attractive, intuitive and easy to use, and that clearly indicates, without close inspection, that the original seal is either intact or has been broken. From a manufacturer's perspective, it is desirable to incorporate a tamper-evident structure that minimizes any extra production costs and that requires little or no modification of manufacturing and packaging equipment.

[0006] Many types of reclosable packaging materials are provided in the prior art. For example, U.S. Pat. No. 6,969,196 provides a bag having a first portion of a reclosable sealer extending from a first wall of a tube body of a bag and capable of sealing the bag via adhesive layers upon contact with a second portion of the reclosable sealer. Also provided is a tamper indicator wherein a bonding material extends to peripheral portions of the first wall and the reclosable sealer does not extend the entire width of the bag, such that peripheral portions of the reclosable sealer remain unsealed after initial opening of the bag when the reclosable sealer is in a close seal position. The unsealed portion on the edges of the reclosable sealer thus indicates that initial opening has occurred.

[0007] U.S. Patent Application Publication No. 2004/0223665 discloses a reclosable bag with a reclosable fastener assembly joined to the exterior of the bag, and no tamper-evident structure is provided.

[0008] U.S. Patent Application Publication No. 2004/0008908 provides a gusseted bag of disposable packaging material that has a roll-top closure comprising two releasably engageable fastener components. Also disclosed as a tamper evidence feature is a closure strip with a tear rib situated between two mateable fasteners such that when the tear rib is grasped and pulled across the face of the bag, the substrate of the closure is severed into two parallel portions, each carrying an associated one of the mateable fasteners.

[0009] U.S. Pat. No. 6,991,372 provides a resealable package having a slider-operated zipper wherein the contents of the package are accessed through the front wall of the package. A tearable header enclosing the zipper is also provided to indicate previous tampering with the contents of the package.

[0010] U.S. Pat. No. 7,048,442 provides a reclosable package with a closed plastic zipper installed in a gusset, the gusset comprising first and second panels connected at a fold line and the package being reclosable when opposing sides of the mouth of the bag are pressed together. A tamper-evident peel seal is placed between the zipper portions and above interlocked profiled closure elements of the zipper, giving a positive indication of having been broken when the package is first opened.

[0011] In many prior art constructions, the reclosable fastener assembly or resealing means has been positioned on inside surfaces of the package, so as to permit an opening in a front wall of the package to be reclosed, or for permitting a top opening of a package to be reclosed by joining front and rear walls of the package. In other prior art constructions, a reclosable fastener assembly or resealing means is provided on the exterior of the package. This exterior configuration has been recognized as promoting versatile positioning on the package, allowing convenient use by consumers, and affording the opportunity to provide printing indicia or the like on the reclosable fastener assembly (e.g., instructions for use of the assembly, information about the contents of the package, etc.). Positioning of the reclosable fastener assembly on the exterior of the package also largely avoids package contents (e.g., powdered or granulated contents) from interfering with the functioning of the reclosable fastener assembly.

SUMMARY OF THE INVENTION

[0012] The present invention is directed to a resealable package with a tamper-evident structure and methods for making the same. One aspect of the invention includes a resealable package including a front panel joined at respective opposite side edges to a rear panel to form a package

having an exterior. The package includes a reclosable fastener assembly joined to the exterior of the package. The fastener assembly includes a first fastening member and a second fastening member respectively joined to the rear panel and the front panel so that at least one marginal portion of the rear panel can be folded over in the direction of said front panel and the first fastening member can be releasably connected or connectable to the second fastening member, i.e., the fastening members may be either in a connected state or a "pre-connected" state. The package also includes a tamper-evident structure joined to the front panel and a folded over marginal portion of the rear panel.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] These and other features and advantages of the present invention will be more fully disclosed in, or rendered obvious by, the following detailed description of the preferred embodiments of the invention which are to be considered together with the accompanying drawings wherein like numbers refer to like parts and further wherein:

[0014] FIG. **1** is a side isometric view of a resealable package with tamper-evident structure in accordance with an embodiment of the invention;

[0015] FIG. **2** is a side isometric view of the package of FIG. **1** with an unfolded top portion and without a tamper-evident structure;

[0016] FIG. **3** is a front elevational view of the package of FIG. **2** with a portion of the package in an unfolded, open position;

[0017] FIG. **4** is a front elevational view of the package of FIG. **3** after a first fold has been made;

[0018] FIG. **5** is a front elevational view of the package of FIG. **4** after a second fold has been made with first and second fastening members engaged and a tamper-evident structure applied transversely across a top portion of the package;

[0019] FIG. **6** is a front elevational view of the package of FIG. **5** after a tear strip of a tamper-evident structure has been pulled transversely across part of the package.

[0020] FIG. **7** is an isometric view of an embodiment of a fastener assembly.

[0021] FIG. **8** is an isometric view of another embodiment of a fastener assembly.

[0022] FIG. **9** is a front view of yet another embodiment of a fastener assembly.

[0023] FIG. **10** is a front elevation view of another embodiment of a resealable package.

[0024] FIG. **11** is a front elevation view of the resealable package of FIG. **10**.

DETAILED DESCRIPTION OF THE DRAWINGS

[0025] This description of preferred embodiments is intended to be read in connection with the accompanying drawings, which are to be considered part of the entire written description of this invention. The drawing figures are not necessarily to scale and certain features of the invention may be shown exaggerated in scale or in somewhat schematic form in the interest of clarity and conciseness. In the description, relative terms such as "horizontal,""vertical,""up,""down,""top" and "bottom" as well as derivatives thereof (e.g., "horizontally,""downwardly,""upwardly," etc.) should be construed to refer to the orientation as then described or as shown in the drawing figure under discussion. These relative terms are for convenience of description and normally are not intended to require a particular orientation. Terms including "inwardly" versus "outwardly,""longitudinal" versus "lateral" and the like are to be interpreted relative to one another or relative to an axis of elongation, or an axis or center of rotation, as appropriate. Terms concerning attachments, coupling and the like, such as "joined,""connected," and "interconnected," refer to a relationship wherein structures are secured or attached to one another either directly or indirectly through intervening structures, as well as both movable or rigid attachments or relationships, unless expressly described otherwise.

[0026] Referring to FIG. **1**, an embodiment of the invention includes a resealable package **10**. Resealable package **10** includes a front panel **12**, a rear panel **14**, a reclosable fastener assembly **16**, and a tamper-evident structure **18**.

[0027] Resealable package **10** includes a front panel **12** and a rear panel **14** each with a bottom edge **19**, side edges **20**, and a top edge **21**. In some embodiments, the respective opposite edges **20** of front panel **12** and rear panel **14** are joined directly. In other embodiments, the respective opposite side edges **20** of front panel **12** and rear panel **14** are joined via a side gusset **22** (a fold/crease that gives the bag a three-dimensional shape). Side gusset **22** initially projects inwardly between front panel **12** and rear panel **14** and allows resealable package **10** to expand in volume. Side gussets **22** are typically formed integrally with the front and rear panels. Front panel **12** and rear panel **14** may be manufactured integrally as a continuous substrate suitably folded and joined to itself with a longitudinal seam in a tube-like configuration. Alternatively, front panel **12** and rear panel **14** may be manufactured separately as independent films or sheets of substrate to be joined at their respective opposite edges. Bottom edge **19** of front panel **12** is joined to bottom edge **19** of rear panel **14**. When the front and rear panels are joined at their respective opposite side edges **20** and bottom edges **19**, the panels form a bag or pouch defining an interior space. The top portions **21** of the front and rear panels define a mouth or opening **23** (FIG. **2**). Opening **23** communicates with and provides access to the interior of resealable package **10**.

[0028] Front panel **12** and rear panel **14** can be made from any variety of substrates suitable for packaging, wrapping, covering, casing, or encasing materials. Conventionally, packages have been composed of multiple layers of paper and solid plastic films with an outer ply typically including a polymer-coated paper with a smooth printing surface, wherein the paper may be laminated to a layer of film and another paper layer. Some embodiments provide a package comprising a middle layer of woven mesh tubing to which an outer layer of solid plastic film is adhered using polypropylene or other polylaminates. The outside layer of film (comprising the outside of the package) may be printed or reverse-printed with graphics and product labeling. Solid films are utilized, which provide excellent printability and strength and meet or exceed performance standards dictated by the marketplace. Some embodiments also use films that are treated or coated to prevent slippage of packages during

manufacturing, filling, transport, and storage. The materials to be used may partially or wholly comprise compostable, degradable, or recyclable materials. In some embodiments, a resealable package is provided in the form of a multi-layered composite bag used to store bulk-type products such as pet food, seeds, fertilizer, cereals, grains, charcoal, gravel, sand, and other bulk products intended for human and non-human consumption, and other non-consumable bulk products.

[0029] In some embodiments wherein front panel **12** and rear panel **14** are manufactured integrally, a woven mesh material is formed into a tube to which a sheet of plastic film is adhered using a lamination process. The mesh material is comprised of suitable film-forming plastic resin that is split and/or stretched and then woven to form a mesh or net-like material. The woven mesh material is formed into a tubular shape to easily adapt to high-speed bag-forming equipment. The flattened tube is then fed into an extrusion laminator, and laminated on both sides of the flattened tube to a solid plastic film using polypropylene or other polylaminate.

[0030] Among the alternative films that can be employed in making the mesh tubes are, without limitation, thermoplastic synthetic polymers, including polyolefins such as low density polyethylene, linear low density polyethylene, polypropylene coated with a layer of polyethylene, high density polyethylene, metallocene, electron-beam cured solid films, copolymers of ethylene and propylene and combinations of these polymers, polyesters, polyamides, polyvinyl polymers, and copolymers, and polylactic acid (PLA) resins. Preferred resins are polyethylene, low density, high density, or linear low density, and combinations thereof, as well as polypropylene coated or laminated with a layer of polyethylene, and polyesters. The solid plastic film to which the mesh tubes are adhered is comprised of various thermoplastic resins or polymers or combinations thereof, including but not limited to polypropylene, low density polyethylene, high density polyethylene, linear low density polyethylene, metallocene, and/or polypropylene coated with a layer of polyethylene, films coated with electron-beam surfaces that may or may not be pre-printed, and PLA resins.

[0031] An outer solid plastic film layer provides a surface for printing or reverse-printing graphics and/or product labeling. The outer solid plastic film is then adhered to the mesh tubes using adhesives, poly extrusion laminating, or some other known means of attaching the two layers. The mesh tube comprises the inside layer of the package, giving the package strength and integrity. A layer of transparent or colored film may also serve as an inside liner of the package and may or may not be printed. The outside film layer also may be treated or otherwise coated on one side with any material that alters the level of slipperiness or tackiness of the outer surface, including the coefficient of static friction measure, making the package less likely to slip during manufacturing, transporting and/or storing.

[0032] In an embodiment wherein front panel **12** and rear panel **14** are manufactured as separate films to be joined, the respective opposing side and bottom edges of front panel **12** and rear panel **14** may be joined by any number of various methods of sealing and shutting packages, including, but not limited to, using adhesives or heat seals.

[0033] In some embodiments, reclosable fastener assembly **16** includes a first fastening member **24** and a second fastening member **26**. In some embodiments, reclosable fastener assembly **16** includes cooperating extruded profiles wherein the first fastening member **24** is a profile strip element that cooperates with the second fastening member **26**, also a profile strip element, in a press-to-close fashion. In other embodiments, the reclosable fastener assembly **16** may include any number of suitable resealing mechanisms, including, but not limited to, the following: (a) a male strip intersecting with a female groove; (b) slider tabs; (c) metal tabs extending beyond the side edges of either the front or rear panel so that a top portion of the resealable package can be folded over and the tabs can be bent to hold the package closed; (d) hook-and-loop-type closure strips; (e) a conventional zipper; or (f) a re-joinable adhesive release liner. The reclosable fastener assembly **16** is fixed to the exterior of resealable package **10** and configured to permit easy, intuitive, and convenient opening and resealing of opening **23**. Specifically, first fastening member **24** is joined to rear panel **14** and second fastening member **26** is joined to front panel **12**. The first and second fastening members may be joined to the package by any suitable means, including use of adhesives, binders, heat-seals, or cold-seals. In some embodiments, the first and second fastening members are provided with an adhesive or binder pre-applied to a portion of the fastening member to be joined to the package.

[0034] In some embodiments, tamper-evident structure **18** comprises an adhesive tape **28** with or without a tear tape or tear strip **30**. Tear strip **30** extends transversely across front panel **12** in the area of where a top portion of rear panel **14** is folded over to front panel **12**. In some embodiments, tear strip **30** extends from one side edge **20** of front panel **12** to the other side edge **20** of front panel **12** with at least one extension **32** of tear strip **30** extending beyond one side edge **20**. Adhesive tape **28** extends transversely across front panel **12** and the second marginal portion **42** of the package and directly over top of tear strip **30**. In one embodiment, adhesive tape **28** extends at least from one side edge **20** of front panel **12** to the other side edge **20** of front panel **12** and does not extend past any extensions **32** of tear strip **30**. In another embodiment, the adhesive tape **28** and the tear strip **30** extend transversely across front panel **12** from at least one side edge **20** to at least the other side edge, and the adhesive tape may be notched and/or sliced at the tear strip, so that the tear strip may be accessible and easily torn away from the adhesive tape by the end user.

[0035] Tear strip **32** may be made from any suitable material, including, but not limited to polymeric materials including cellulose, cellulose derivatives, acrylics, polyvinyl chloride, vinyl chloride copolymers, linear polyesters and/or polyolefins such as polypropylene, polyethylene or copolymers thereof, or other suitable thermoplastic materials. Tear strip **32** may be non-adhesive or adhesive on one or both sides, Tear strip **32** may be coated with any material suitable for coating, such as a polymeric material. Tear strip **32** may have any suitable width, is preferably between about ⅛ (0.125) inches and about ½ (0.5) inches, and is most preferably about ⅛ (0.125) inches. Tear strip **32** may have a color or be colorless and may be transparent, translucent, or opaque. In one embodiment, tear strip **32** has a color distinctive from and visible through a transparent or translucent adhesive tape **28**. In another embodiment, tear strip **32** is made of a material that allows printing or reverse printing of graphics and/or text. According to an embodiment of the invention, tear strip **32** is combined with an

adhesive tape **28**, and the adhesive tape **28** comprising a tamper-evident security device.

[**0036**] Adhesive tape **28** may be made from any suitable material, including, but not limited to polymeric materials including cellulose, cellulose derivatives, acrylics, polyvinyl chloride, vinyl chloride copolymers, linear polyesters and/or polyolefins such as polypropylene, polyethylene or copolymers thereof, or other suitable thermoplastic materials. Preferably, adhesive tape **28** is made of a material that allows printing or reverse printing of graphics and/or text, such as company logos, product trademarks, directions or instructions, and/or any other relevant information. Adhesive tape **28** is adhesive on one side so as to adhere to resealable package **10** and underlying tear strip **32**. Adhesive tape **28** may have any suitable width, is preferably between about ½ (0.5) inches and about 3½ (3.5) inches, and is most preferably 2 inches. In one embodiment, adhesive tape **28** is a conventional acrylic packaging tape. The adhesive used to join adhesive tape **28** to resealable package **10** is preferably a pressure-sensitive adhesive and is relatively strong so as not to come un-joined from and/or re-adhered to the package without leaving an obvious, visible demarcation or signal that it has been so removed. In another embodiment, the adhesive tape may be notched and/or sliced at one or the other side edges, so that the tape may be easily tearable in a transverse direction, and may easily be torn away from the packaging by the end user.

[**0037**] In some embodiments, tamper-evident structure **18** comprises an adhesive tape **28** with or without a tamper-evident, security device. In a further embodiment, a tear tape or tear strip **30** is combined with the tamper-evident security device. One such tamper-evident, security device comprises a transferable substance that will leave a residue, such as, a visible stain, printed message or visible strip on the bag, when the adhesive side of the tape **28** is adhesively adhered against the bag. For example, such a transferable substance comprises a pigment, for example, an ink or powder pigment. Whenever the tape **28** is peeled away from the bag, the adhesive side of the tape **28** will delaminate from the bag. However, at least a portion of the transferable substance on the adhesive side of the tape **28** will have transferred onto the bag, and will remain as a residue on the bag after the tape **28** has been peeled away, at least partially, which residue indicates in that the bag has been opened. According to an alternative embodiment of the invention, a tamper-evident, security device comprises a hologram on the tape **28**. Such tapes **28** having tamper-evident, security devices are commercially available from Payne, also known as, Payne P P Ltd., Nottingham, United Kingdom.

[**0038**] From the foregoing description, use of the exemplary resealable package will be readily apparent. Referring to FIGS. **2-5**, one embodiment of resealable package **10** is folded and closed in the following manner: Front panel **12** and rear panel **14** are flattened or pressed together and a first marginal portion **46** (e.g., the top or distal portion of the package **10**) of resealable package **10** is rolled or folded in the direction of front panel **12** such that top edge **21** of front panel **12** is folded down toward front panel **12** and a first crease **40** is made transversely across the top of resealable package **10**. First crease **40** provides a primary seal of opening **23**. After first crease **40** is formed, first fastener member **24** is positioned on the same side of resealable package **10** as second fastener member **26**. After first crease **40** is formed, a second marginal portion **42** (e.g., the penultimate portion of the package, immediately adjacent to the first marginal portion) of resealable package **10** is rolled or folded in the direction of front panel **12** such that first crease **40** is folded down toward front panel **12** and a second crease **44** is made transversely across the top of resealable package **10**.

[**0039**] In some embodiments, after second crease **44** is made, first fastening member **24** is aligned with and able to be releasably connected to second fastening member **26**. In other embodiments, multiple folds and creases (e.g., more than two) may be implemented to close resealable package **10**. For example, in some embodiments, two folds forming two creases may be implemented before a third fold brings first fastening member **24** to the same side of resealable package **10** as second fastener member **26**, such that a fourth fold is used to align and engage the fastener members. In some embodiments, pressure is applied across second marginal portion **42** to releasably connect first fastening member **24** and second fastening member **26**. First marginal portion **46** and second marginal portion **42** may be of any width or widths suitable for releasably sealing package **10** and may be dependent on, and may be greater than or equal to, the width of the first and second fastening members. The marginal portions may be of any suitable width or widths, preferably the marginal portions are each about ½ (0.5) inches to about 2 inches, and most preferably the marginal portions are each about 1¼ (1.25) inches. First marginal portion **46** may or may not have a width equal to the width of second marginal portion **42**. Resealable package **10** is opened from this closed state by disengaging the reclosable fastener assembly **16** and unfolding the first and second marginal portions to gain access to opening **23**. In the above-described fashion, resealable package **10** can be easily and conveniently opened, closed and sealed, reopened, and reclosed and resealed several times.

[**0040**] In other embodiments (not shown), the package may have an additional first fastening member **24** and an additional second fastening member **26** positioned further from the top (distal) end of the package for resealing the package when a substantial portion of the contents have been removed, and several marginal portions have been folded over.

[**0041**] Referring to FIG. **5**, when resealable package **10** is folded over and sealed for the first time after its manufacture, tamper-evident structure **18** is applied transversely across resealable package **10** over second marginal portion **42** and front panel **12**, such that tear strip **30** is substantially near crease **40**. As initially sealed with tamper-evident structure **18**, reclosable fastener assembly **16** cannot be disengaged and resealable package **10** cannot be unfolded.

[**0042**] Referring to FIG. **6**, tamper-evident structure **18** is opened for the first time after initial sealing of resealable package **10** by grasping and pulling extension **32** of tear strip **30** transversely across the package. As tear strip **30** is pulled across the package, adhesive tape **28** is severed substantially linearly along split **56**. Once tear strip **30** has been pulled completely across the package, adhesive tape **28** is fully severed and reclosable fastener assembly **16** may be disengaged to open resealable package **10** for the first time. Split **56** along adhesive tape **28** indicates that resealable package **10** has been tampered with or opened.

[0043] In further embodiments, the reclosable fastener assembly comprises a first fastening member pre-mated to a second fastening member, with the reclosable fastener assembly being first joined to the front panel, and later joined to the first marginal portion, or alternatively, the reclosable fastener assembly comprises a first fastening member pre-mated to a second fastening member, with the reclosable fastener assembly being first joined to the first marginal portion, and later joined to the front panel.

[0044] In an embodiment disclosed by FIG. **7**, the pre-applied adhesives or binders **24***a* and **26***a* on undersides of respective fastening members **24** and **26** are covered by corresponding peel away paper coverings **24***b* and **26***b* that cover and protect the adhesive or binder **24***a* and **26***a*, respectively, until the paper coverings **24***b* and **26***b* are removed to expose the adhesive or binder **24***a* and **26***a* in preparation for assembly of the respective fastening members **24** and **26** to the respective panels **14** and **12**. Another embodiment of an adhesive or binder pre-applied on the underside comprises a pressure sensitive adhesive composition of a type preferably forming a permanent adhesive bond with a high resistance to tearing or release of the adhesive, as disclosed by U.S. Pat. No. 7,101,615. Another embodiment of a pre-applied adhesive is disclosed by U.S. Pat. No. 7,101,615, in which tackiness is brought about by thermal activation. Such a composition is only slightly tacky such that the fastening member **24** and **26** are adjusted in position on the respective panels **12** and **14** until heat and/or pressure is applied to the first and second fastening members to heat activate the sealant, and effect a pressure sensitive, adhesive state.

[0045] In a further alternative embodiment, the adhesive or binder **24***a* and **26***a* are pre-applied on the respective panels **14** and **12** prior to joining respective fastening members **24** and **26**. In further alternative embodiments, the respective adhesive or binder **14***a* and **26***a* are pre-applied, in part, on the respective first and second fastening members **24** and **26**, and further, in part, on the respective panels **14** and **12**, prior to respective joining of the fastening members **24** and **26** to the panels **14** and **12**.

[0046] In an embodiment disclosed by FIG. **8**, a fastener assembly **16** comprises one fastening member **24** in the form of an adhesive tape having respective adhesives or binders **24***a* and **24***c* pre-applied on opposite sides of the tape. The adhesive tape is covered by corresponding peel away paper coverings **24***b* and **24***d* that cover and protect the adhesive or binder **24***a* and **24***c*, respectively. The paper covering **24***b* is removed to expose the adhesive or binder **24***a* in preparation for the adhesive **24***a* on an underside to form a pressure-sensitive joining of the fastening member **24** to one of; either a first exterior of the first panel **12** (in place of the fastening member **26** disclosed by FIG. **2** below the second marginal portion **42**) or a second exterior of the bag at the first marginal portion **46**, and more specifically, at the exterior of the rear panel **14** of the bag at the first marginal portion **46**. The paper covering **24***d* remains while a user of the bag performs filling of the bag with bag contents. After filling the bag with bag contents, the paper covering **24***d* is removed, and sealing the bag is performed by folding the bag at the first crease **40**, and folding the bag at the second crease **44**. The one fastening member **24** is adapted with the adhesive **24***c* that disengagingly connects the one fastening member **24** to the other of, either said first exterior or said second exterior, to provide a resealable bag.

[0047] In an embodiment disclosed by FIG. **9**, a fastener assembly **16** comprises one fastening member **24** in the form of the metal tabs (c) on a metal strip having the adhesive or binder **24***a* for joining to one of, either a first exterior of the first panel **12** (in place of the fastening member **26** as disclosed by FIG. **2** below the second marginal portion **42**) or to a second exterior of the bag at the first marginal portion **46**, and more specifically, at the exterior of the rear panel **14** of the bag at the first marginal portion **46**. After filling the bag with bag contents, sealing the bag is performed by folding the bag at the first crease **40**, and folding the bag at the second crease **44**. The one fastener member **24** is adapted with the metal tabs (c) that are bent to hold the bag closed, thereby disengagingly connecting the tabs (c) of the one fastening member **24** to the other of, either said first exterior or said second exterior, to provide a resealable bag.

[0048] The first crease **40** and the second crease **44** are formed by a crease-forming manufacturing apparatus during a bag manufacturing operation performed, in various manufacturing order, as described below, while the front panel **12** and the rear panel **14** are flattened or pressed together, as described above, and with the side gussets **22** folded. According to embodiments of a method of the invention, the creases **40** and **44** are formed, either simultaneously, or in sequence, in various manufacturing order. According to further embodiments of a method of the invention, the respective fastening members **24** and **26** are assembled to the respective panels **12** and **14**, either simultaneously, or in sequence in various manufacturing order. Further, according to various manufacturing order, either one or both of the fastening members **24** and **26** are assembled. either prior to, or after, either one or both of the creases **40** and **44** are formed.

[0049] According to the disclosed embodiments of the package or bag **10**, the bottom edges **19** of the panels **12** and **14** are joined to each other after filling the bag **10** with contents through an opening between the bottom edges **19**. Because the fastening members **24** and **26** are on the exterior of the bag, they avoid contact with the bag contents, and avoid being contaminated by the bag contents, and avoid obstructing the bag contents while filling the bag and removing the bag contents.

[0050] According to alternative embodiments of the package or bag **10**, the bottom edges **19** of the panels **12** and **14** are joined to each other before the bag is filled with bag contents through the opening **23**. A user of the bag opens the bag by separating the top portions **21** and separating the front panel **12** and the rear panel **14**, and filling the bag with desired bag contents. Because the fastening members **24** and **26** are on the exterior of the bag, they avoid contact with the bag contents, and avoid being contaminated by the bag contents, and avoid obstructing the bag contents while filling the bag and removing the bag contents. After a user of the bag has filled the bag, the user closes the top portions **21** of the bag either manually or by machine operation, by flattening the first and second marginal portions **46** and **42**, followed by folding the bag along the creases **40** and **44** to seal the bag, followed by releasably connecting the fastening member **24** to the fastening member **26**. or alternatively, disengagingly connecting the fastener member **24** in the

form of the adhesive tape **24** having adhesive on opposite sides or in the form of the metal tabs (c). The bag contents may shift, and yet closure and sealing of the bag is maintained by folding along the second crease **44**. The further closure and sealing of the bag by folding along the first crease **40** aligns the corresponding fastening member **24** and the corresponding fastening member **26** for releasable connection, and isolates the releasably connected fastening members **24** and **26** from forces due to shifting of the bag contents to avoid inadvertent disconnection of the fastening members **24** and **26**.

[**0051**] In an embodiment, the adhesive tape **28** without the tear strip **32** or the combined tear tape **30** and adhesive tape **28** are adhered (joined) after filling the bag with bag contents and folding of the bag at the creases **40** and **44**. Either manual or machine operation adheres the adhesive tape **28** without the tear strip **32** or the combined tear strip **32** and adhesive tape **28**. In another embodiment, the adhesive tape **28** without the tear strip **32**, or the combined tear strip **32** and adhesive tape **28** are adhered, first on an exterior of the rear panel **14** at the second marginal portion substantially near the first crease **40**, as disclosed by FIG. **1**, prior to opening the bag in preparation for filling the bag with bag contents. After filling the bag and folding the filled bag along the first crease **40** and the second crease **44**, the adhesive tape **28** without the tear strip **32**, or the combined tear strip **32** and adhesive tape **28** are then adhered to an exterior of the first panel **12**, which retains the folded first crease **40** in place until the tear strip **32** is deployed to sever the adhesive tape **28** during the course of opening the bag for access to the bag contents.

[**0052**] According to an embodiment of the invention, at least one releasable fastener member **24**, in the form of an adhesive tape **24** having adhesive on both sides or in the form of an bendable metal tabs (c), is provided on each bag. Alternatively, at least one reclosable fastener assembly **16** is provided on each bag for releasable fastening.

[**0053**] FIG. **10** discloses another embodiment of the resealable package **10** having a front panel **12** and a rear panel **14** each with a bottom edge **19**, side edges **20**, and a top edge **21**, wherein top portions **21** of the front and rear panels define a mouth or opening **23**, similarly as in the embodiments disclosed with reference to FIG. **2**. Opening **23** communicates with and provides access to the interior of resealable package **10**. In some embodiments, the respective opposite edges **20** of front panel **12** and rear panel **14** are joined directly. In other embodiments, the respective opposite side edges **20** of front panel **12** and rear panel **14** are joined via a side gusset **22** similarly as in the prior disclosed embodiments. The embodiment of FIG. **10** further has creases **40** and **44** and a first marginal portion **46** and a second marginal portion **42** similarly as in the prior disclosed embodiments.

[**0054**] The embodiment of FIG. **10** further has a spout **100** provided by severing along a sever **102** extending from the opening **23** and away from the opening and through the marginal portions **46** and **42**. The sever **102** separates a portion of each of the first marginal portion **46** and the second marginal portion **42** from the remainder of the marginal portions **46** and **42** by the sever **102** to comprise the spout **100** having a portion of the opening **23**. The entire opening **23** of the bag, including the portion of the opening **23** of the spout **100**, is available through which the bag is filled with bag contents. The marginal portions **46** and **42** of the bag, including the spout **100**, are folded at the creases **40** and **44** after filling the bag with bag contents, such that a top of the bag is closed and sealed.

[**0055**] A fastener assembly **16** similar to one of the embodiments previously disclosed has at least one fastening member **24** joining to one of an exterior of the first panel **12** or to an exterior of the bag at the first marginal portion **46** of the spout **100**, and more specifically, an exterior of the rear panel **14** of the bag at the first marginal portion **46**.

[**0056**] In some embodiments wherein the one fastening member **24** is joined to the exterior of the second panel **14** at the first marginal portion, and which is provided to be releasably connected with a second fastening member **26**, the fastener assembly **16** includes a second fastening member **26**, similar to one of the embodiments previously described, joining an exterior of the first panel **12**, and which is provided to be releasably connected with the one fastening member **24** after having folded the first marginal portion and the second marginal portion at the creases **40** and **44**. The remainder of the first marginal portion **46** and the remainder of the second marginal portion **42**, excluding the spout **100**, are folded at the creases **40** and **44**, and the first marginal portion after filling the bag with bag contents. According to an embodiment, the remainder of the first marginal portion **46** excluding the spout **100** is glued to the exterior of the panel **12**. According to another embodiment, the remainder of the first marginal portion **46** excluding the spout **100** is disengagingly connected to another disengagingly connecting fastener assembly **16** having the one fastening member **24** or, alternatively having the fastening member **24** and the second fastening member **26** for releasable connection to the one fastening member **24**.

[**0057**] It is to be understood that the present invention is by no means limited only to the particular constructions herein disclosed and shown in the drawings. The appended claims should be construed broadly to cover any variations or modifications within the scope or range of equivalents of the claims.

We claim:

1. A resealable package comprising:

a front panel;

a rear panel joined at respective opposite side edges thereof to said front panel to form a package having an exterior;

a reclosable fastener assembly joined to the exterior of said package, said fastener assembly comprising a first fastening member and a second fastening member respectively joined to said rear panel and said front panel, so that at least one marginal portion of said rear panel can be folded in the direction of said front panel, and said first fastening member can be releasably connected to said second fastening member; and

a tamper-evident structure joined to said front panel and to said at least one folded over marginal portion of said rear panel.

2. The resealable package as in claim 1, wherein the tamper-evident structure comprises an adhesive tape, wherein the adhesive tape is notched or sliced.

3. The resealable package as in claim 1, wherein the tamper-evident structure comprises an adhesive tape having a tamper-evident, security device.

4. A method for manufacturing a resealable package which comprises:

(a) providing a packaging substrate comprising a front panel and a rear panel and a top edge defining an opening;

(b) folding at least one first marginal portion of said rear panel in the direction of said front panel so as to seal said opening;

(c) folding a second marginal portion of said rear panel in the direction of said front panel;

(d) joining a reclosable fastener assembly to said front panel and said first marginal portion; and

(e) joining a tamper-evident structure to said front panel and said second marginal portion.

5. A method of making a resealable bag, comprising:

creasing transversely the bag at a first panel and a second panel with one crease and a further crease to define a foldable first marginal portion and a foldable second marginal portion, wherein the first marginal portion is adjacent to an opening at top portions of the first and second panels, and the second marginal portion is adjacent to the first marginal portion; and

joining at least one fastening member of a fastener assembly to one of, either a first exterior of the first panel or a second exterior of the bag at the first marginal portion, wherein the one fastener member is adapted for disengagingly connecting to the other of, either said first exterior or said second exterior, to provide a resealable bag, after sealing the bag by folding the bag at the one crease and folding the bag at the further crease.

6. The method of claim 5, wherein the one fastening member comprises an adhesive tape having adhesive on opposite sides, wherein the adhesive of one of said sides joins the one fastening member to said one of, said exterior or said second exterior, and the one fastening member is adapted with the adhesive on another of said sides for disengagingly connecting the one fastening member to the other of, either said first exterior or said second exterior, to provide a resealable bag.

7. The method of claim 5, wherein the one fastening member is adapted with metal tabs for being bent and disengagingly connecting the one fastening member to the other of, either said first exterior or said second exterior.

8. The method of claim 5, comprising:

joining a second fastening member of the fastener assembly to the other of, either said first exterior or said second exterior; and

releasably fastening the one fastening member to the second fastening member to provide a resealable bag, in place of disengagingly connecting the one fastening member to the other of, either said first exterior or said second exterior.

9. The method of claim 5, comprising:

joining bottom edges of the panels before filling the bag with the bag contents.

10. The method of claim 5, comprising:

attaching a tamper-evident structure to the second marginal portion; and

attaching the tamper-evident structure to the exterior of the first panel after folding the first marginal portion and the second marginal portion.

11. The method of claim 5, comprising:

attaching a tamper evident, adhesive tape to the second marginal portion; and

attaching the adhesive tape to the first panel after folding the first marginal portion and the second marginal portion.

12. A resealable bag, comprising:

the bag having one transverse crease and a further transverse crease at a first panel and a second panel defining a foldable first marginal portion and a foldable second marginal portion, wherein the first marginal portion is adjacent to an opening at top portions of the first and second panels, and the second marginal portion is adjacent to the first marginal portion;

at least one fastening member of a fastener assembly joining to one of, either a first exterior of the first panel or an exterior of the bag at the first marginal portion;

the bag being adapted for sealing by folding the bag at the first crease while the bag is filled with the bag contents;

the bag being adapted for folding at the second crease; and

the one fastening member adapted for disengagingly connecting to the other of, either said first exterior or said second exterior, to provide a resealable bag, with the bag folded at the first crease and folded at the second crease.

13. The bag of claim 12, wherein the one fastening member comprises an adhesive tape having adhesive on opposite sides, and the adhesive on one of said sides disengagingly connecting to the other of said first exterior and said second exterior.

14. The bag of claim 12, wherein the one fastening member comprises metal tabs being bendable and disengagingly connecting to the other of said first exterior and said second exterior.

15. The bag of claim 12, wherein the one fastening member is joined to the exterior of the second panel at the first marginal portion, and further comprising:

a second fastening member of the fastener assembly joining to an exterior of the first panel; and

the one fastening member being adapted for releasably fastening to the second fastening member to provide a resealable bag, in place of disengagingly connecting the one fastening member to the other of said first exterior and said second exterior.

16. The bag of claim 12, comprising:

a tamper evident, combined tear strip and adhesive tape attaching to the second marginal portion; and

the combined tear strip and adhesive tape being adapted for attaching to the exterior of the first panel while the first marginal portion and the second marginal portion are folded.

17. The bag of claim 12, comprising:

a tamper evident, adhesive tape attaching to the second marginal portion near the first crease; and

the adhesive tape being adapted for attaching to the first panel while the first marginal portion and the second marginal portion are folded.

18. The bag of claim 12, wherein bottom edges of the first panel and the second panel are joined before filling the bag with bag contents through the opening; comprising:

side gussets integral with the first panel and the second panel.

19. A resealable bag, comprising:

the bag having one transverse crease and a further transverse crease at a first panel and a second panel defining a foldable first marginal portion and a foldable second marginal portion, wherein the first marginal portion is adjacent to an opening at top portions of the first and second panels, and the second marginal portion is adjacent to the first marginal portion;

a first fastening member of a fastener assembly joining to an exterior of the bag at the first marginal portion;

a second fastening member of the fastener assembly joining to an exterior of the first panel;

the bag being adapted for sealing by folding the bag at the first crease while the bag is filled with the bag contents;

the bag being adapted for folding at the second crease; and

the first fastening member adapted for disengagingly connecting to the second fastening member to provide a resealable bag, with the bag folded at the first crease and folded at the second crease to align the first fastening member for disengageably connecting to the second fastening member.

20. A method of making a resealable bag, comprising:

creasing transversely the bag at a first panel and a second panel with one crease and a further crease to define a foldable first marginal portion and a foldable second marginal portion, wherein the first marginal portion is adjacent to an opening at top portions of the first and second panels, and the second marginal portion is adjacent to the first marginal portion;

joining a first fastening member of a fastener assembly to an exterior of the bag at the first marginal portion;

joining a second fastening member of the fastener assembly to an exterior of the first panel; and

disengagingly connecting the first fastening member to the second fastening member to provide a resealable bag, after filling the bag with bag contents, sealing the bag by folding the bag at the one crease and folding the bag at the further crease.

21. A resealable package comprising:

a first panel;

a second panel joined to the first panel to form a package adapted to be filled with contents and sealed;

the package having a foldable portion adjacent an opening of the package, wherein the foldable portion is foldable to close and seal the package; and

a tamper-evident structure comprising an adhesive tape adhered to the foldable portion and removably adhering to the first panel with the foldable portion being folded to close and seal the package.

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