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Von Flotow et al.(10) **Pub. No.: US 2007/0068965 A1**(43) **Pub. Date: Mar. 29, 2007**(54) **RE-CLOSABLE FLEXIBLE DISPENSING
PACKAGE PROVIDING A SEAL****Publication Classification**(51) **Int. Cl.****B65D 35/00** (2006.01)**B65D 33/30** (2006.01)**B65D 47/10** (2006.01)(52) **U.S. Cl.** **222/107**; 383/89; 383/905;
383/908; 222/541.6(76) Inventors: **Andreas H. Von Flotow**, Hood River,
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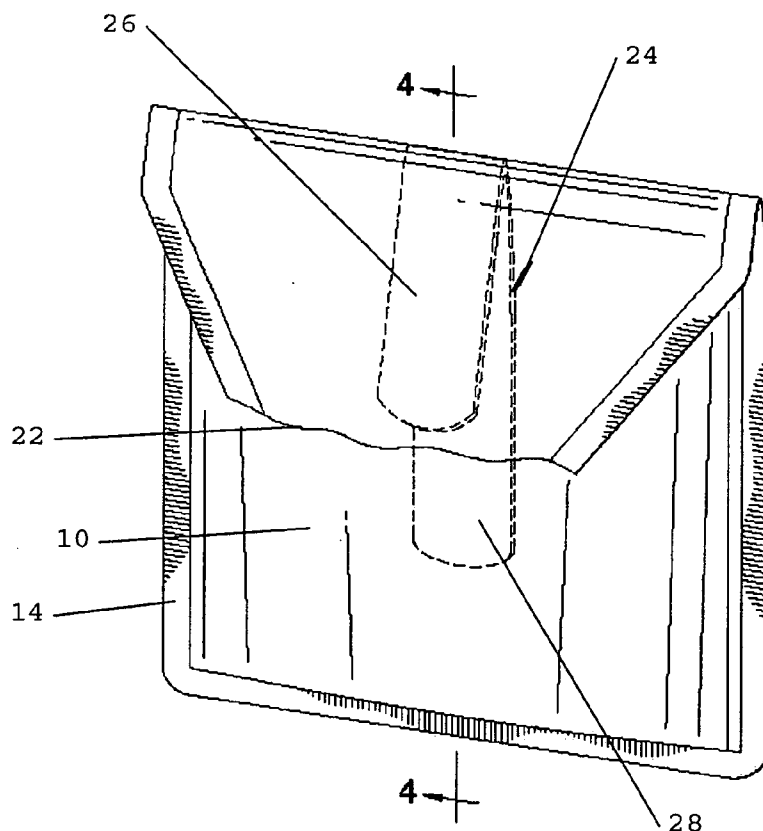
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(57)

ABSTRACT

A flexible and resealable package for dispensing viscous material is provided. The package has front and back sides with a malleable, inelastic, member fixed to at least one of the sides to enable the package to be folded into a sealed position to close off the opening and reseal the package. The malleable member does not extend the full length of the package so that package may be opened in an unobstructed manner.



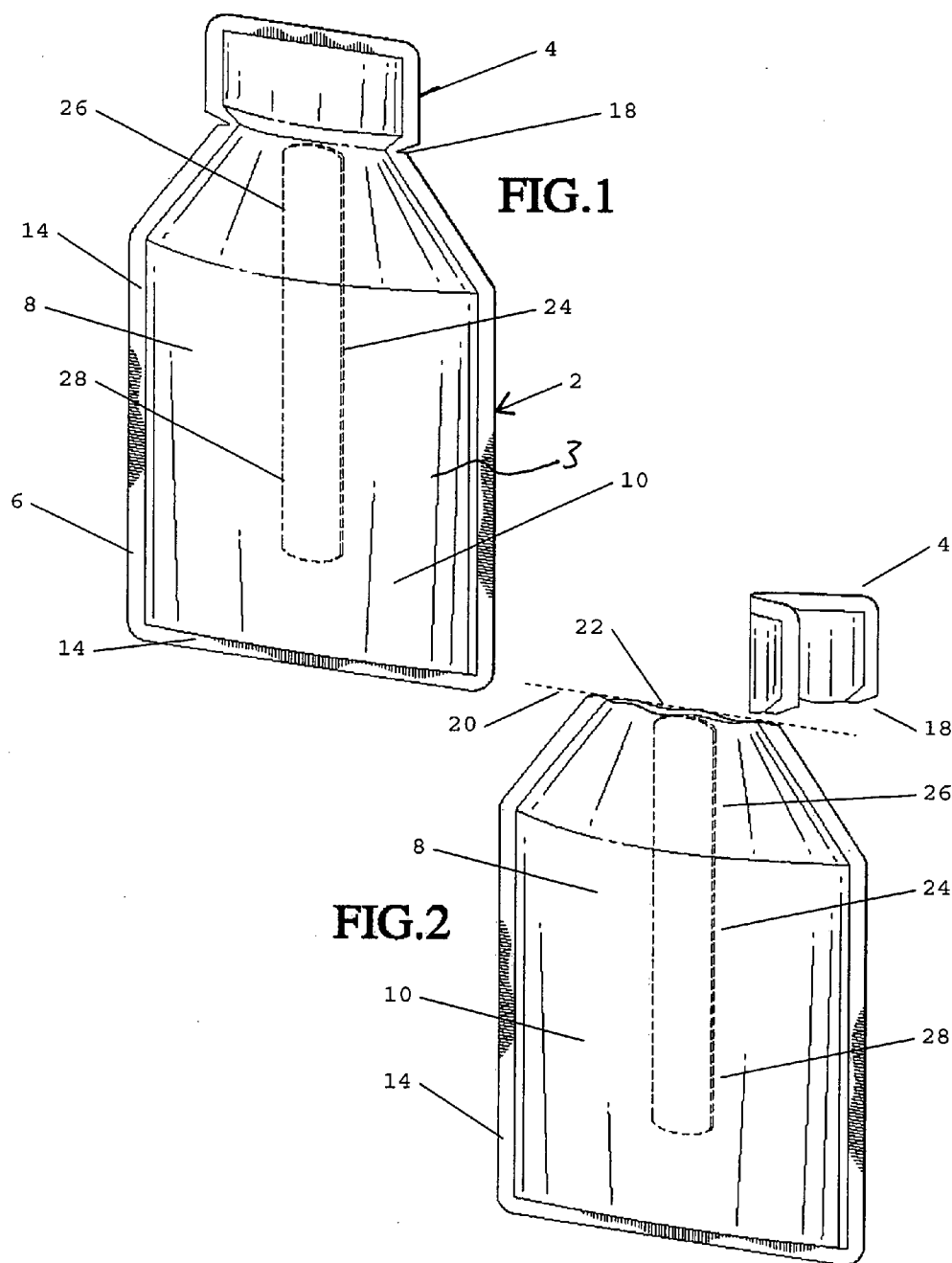
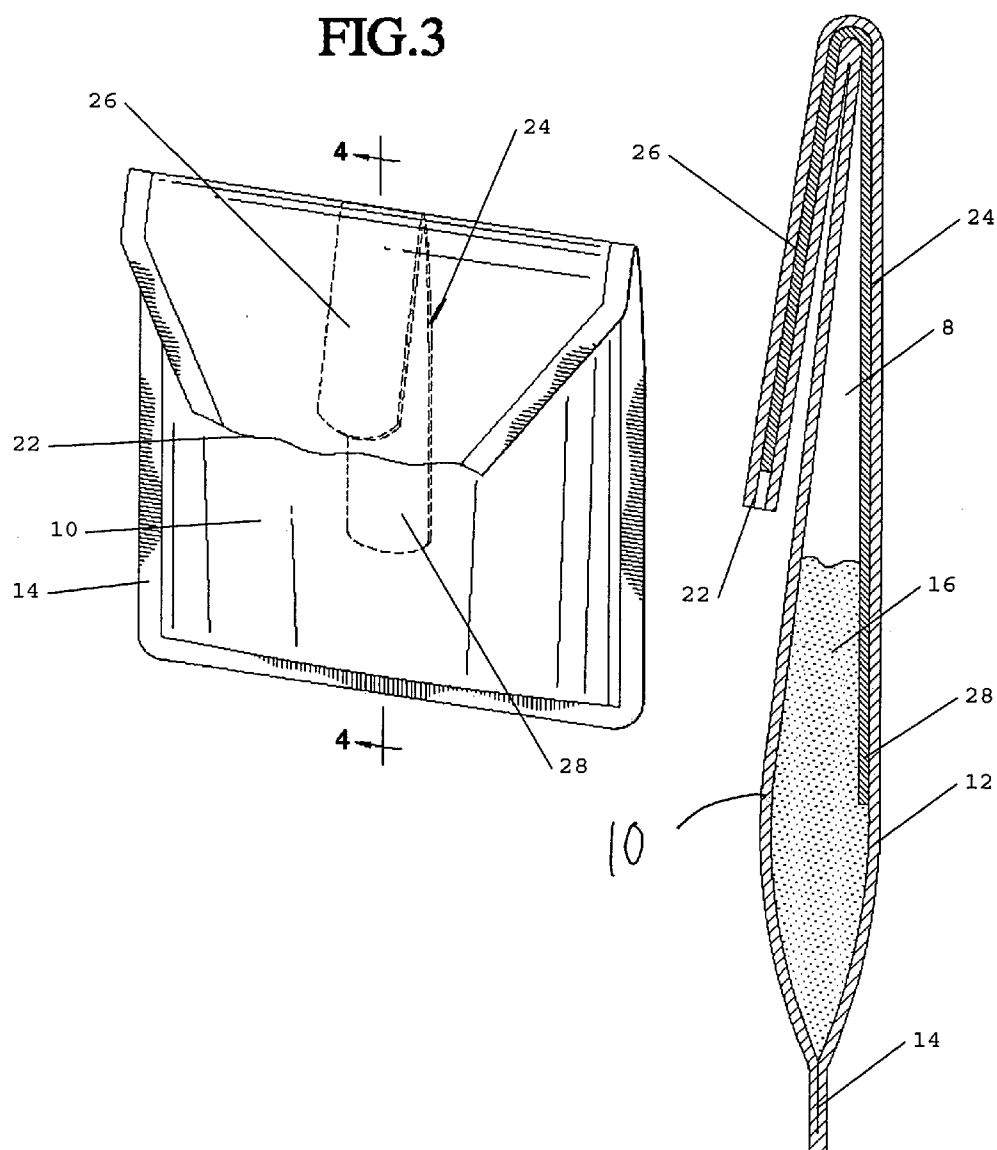


FIG.4

FIG.3



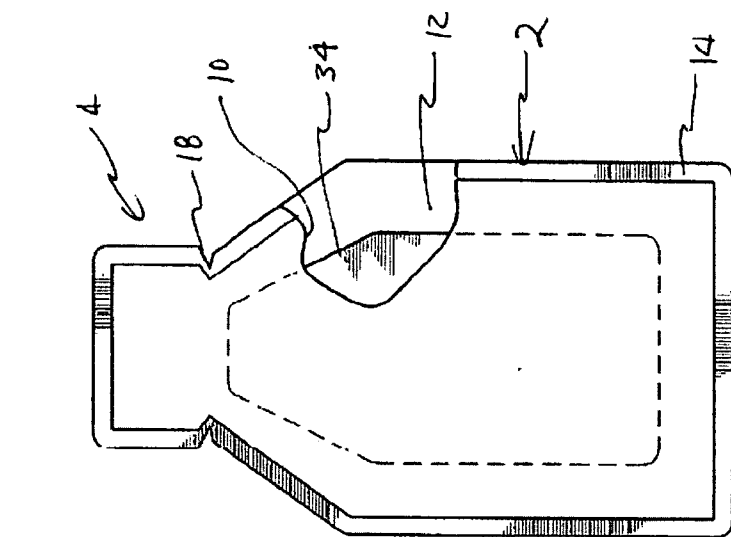


FIG. 5

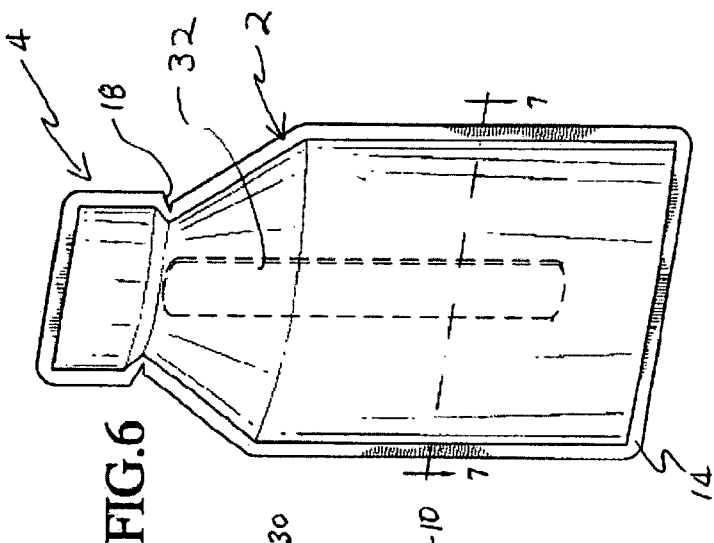


FIG. 6

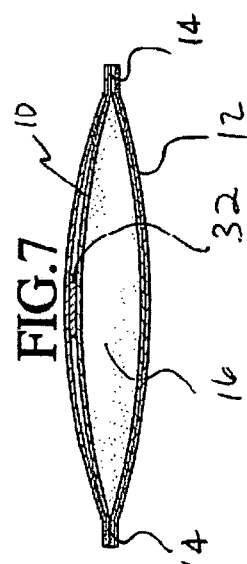


FIG. 7

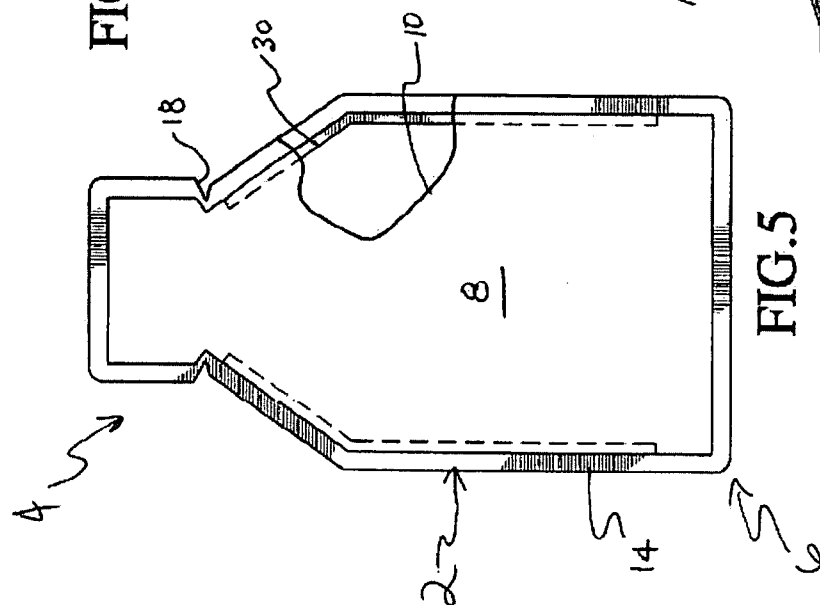
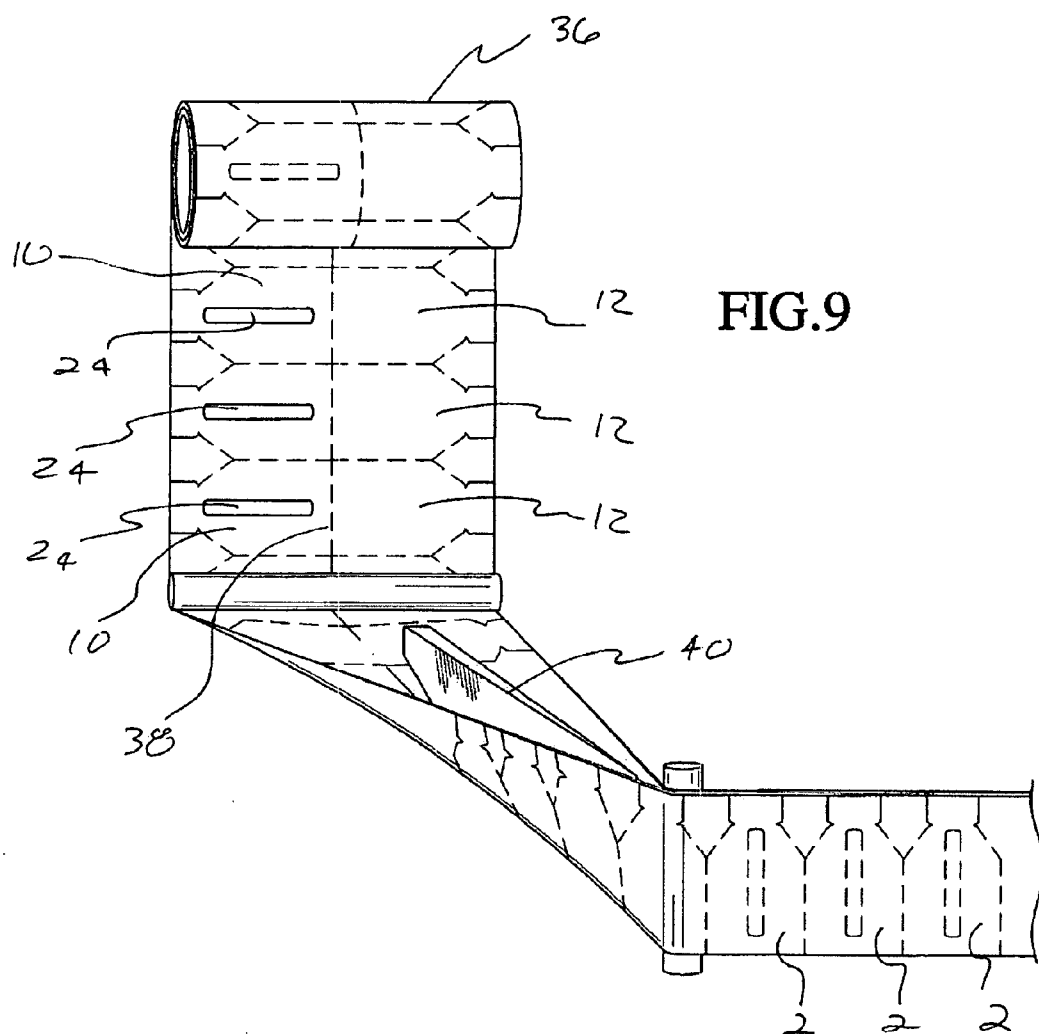


FIG. 8



RE-CLOSABLE FLEXIBLE DISPENSING PACKAGE PROVIDING A SEAL

FIELD

[0001] The present invention relates to a dispensing package, and in particular to a re-closeable flexible dispensing package configured to be sealed after being opened.

BACKGROUND

[0002] Single use or single serve packages are readily commercially available in the marketplace. For example, many products such as carbohydrate energy gels, tooth-pastes, shampoos, cosmetics, and condiments (such as ketchup, mustard, mayonnaise and relish) are packaged in single-serve or single use packages. The contents of such packages are usually partially or completely dispensed and such packages are usually thereafter discarded. Such packages are typically formed from sheets of flexible material that are sealed along a perimeter edge to provide an interior region for containing the product as in a conventional disposable ketchup package. Other more sophisticated packages such as stand up pouches have gusseted bottoms, but generally serve the same purpose. To dispense the product from these types of packages, the user or consumer usually forms an opening by tearing along an edge of the package and then squeezes, pushes, pours or shakes the product from the package through the opening.

[0003] One problem associated with such packages is that the entire product in the package must be dispensed after the package is opened, or any product remaining in the package will continue to leak through the opening. For example, when an endurance athlete is racing or training, he or she may use only a portion of an energy gel in the package and leave some energy gel for later consumption or disposal. This requires that the athlete repeatedly fold the walls of the package which define the open end of the package in an effort to prevent leakage of the energy gel from the package. However, because such packages are usually formed from materials that tend to return to their originally formed shape, the package resist being maintained in a folded position, and the remaining energy gel in the package usually leaks through the opening. Clips and other similar devices used to close the packages are not practical in such environments. Thus, certain athletes use the entire contents at one time or waste the rest of the contents because there is no mechanism for easily temporarily closing the package for later use of the contents.

[0004] Another issue is that such packages must be able to be easily and quickly opened since the contents of the packages are often consumed while an athlete is running, cycling or otherwise performing. If the sheet material from which the package is constructed cannot be opened quickly, easily and without interference, the package is impractical in such environments.

[0005] Accordingly, there is a need for better closeable flexible dispensing packages.

SUMMARY

[0006] The present invention solves the above problems by providing a re-closable flexible dispensing package which provides a seal such that after the package is opened,

the package may be closed such that the seal is formed to prevent leakage of the contents of the package.

[0007] One embodiment of the re-closable flexible dispensing package, which is sometimes referred to herein as the package or the dispensing package, includes at least a pair of flexible sheets joined together along a perimeter edge to form a compartment for containing a product to be dispensed from the package. The package has a top portion, a bottom portion and a malleable member having a top edge. The malleable member is preferably inelastic or substantially inelastic. The malleable member is connected to, associated with or coupled to at least one of the flexible sheets such that when the package is folded into a closed position, the flexible sheets are held in that position by the malleable member to form a seal. The package includes a tear notch located adjacent to the top portion of the package. The tear notch provides a tear line extending across or transversely to the compartment to enable a person to open the package to access the compartment. The tear notch is positioned above the top edge of the malleable member so that the tear line is formed along an unobstructed path (i.e., above the malleable member) to open the package and dispense the product from the compartment. After the package is opened, when the person wishes to close the package, the person folds the package along a path across or transverse to the malleable member such that the malleable member is also folded. The folded malleable member (which has a suitable memory characteristic stronger than the memory characteristic of the flexible sheets) causes the folded package and particularly the folded flexible sheets to remain folded and to form a seal which prevents leakage and thus keeps the product in the compartment for subsequent use.

[0008] One embodiment of the present invention provides a re-closeable dispensing package including a body member having an interior region for containing a product to be dispensed, a top end, a bottom end, and at least one malleable member. Each malleable member is preferably inelastic or substantially inelastic. Each malleable member is operatively associated with the body member to enable the dispensing package to be selectively folded into a fixed position to maintain the body member in a closed position after the body member is opened. The body member has a tear notch or score line adjacent the top end to provide a tear line extending across or transverse to the body member interior region when the package is opened. The tear notch or score line is positioned above the top edge of each of the malleable member so that the tear line is formed along an unobstructed path in the package. In other words, the malleable members do not interrupt the opening of the package. After the package is opened, when the person wishes to close the package, the person folds the package along a path across or transverse to the malleable members such that the malleable members are also folded. The folded malleable members (which have a suitable memory characteristic stronger than the memory characteristic of the body member) causes the folded package and particularly the folded body member to remain folded and to form a seal which prevents leakage and thus keeps the product in the interior region for subsequent use.

[0009] The present invention further provides a method for manufacturing such packages as described below. It should be appreciated that in the various embodiments

disclosed herein, the malleable, pliant, inelastic members not extend the full length of the package so heat sealing is no different than the current state of the art and that the tear line is not obstructed by the malleable member.

[0010] Additional features and advantages are described herein, and will be apparent from, the following Detailed Description and the figures.

BRIEF DESCRIPTION OF THE FIGURES

[0011] FIG. 1 is a perspective view of the dispensing package of one embodiment of the present invention with the malleable member shown in phantom.

[0012] FIG. 2 is a perspective view showing the dispensing package in FIG. 1 after being opened.

[0013] FIG. 3 is a perspective view showing the opened dispensing package of FIG. 2 after being folded into a closed position to form a seal.

[0014] FIG. 4 is a cross-sectional view taken substantially along line 4-4 of FIG. 3.

[0015] FIG. 5 is a perspective view showing another embodiment of the dispensing package of the present invention with a portion of the package broken away to illustrate the malleable member.

[0016] FIG. 6 is a perspective view showing another embodiment of the dispensing package of the present invention with the malleable member shown in phantom.

[0017] FIG. 7 is a cross-sectional view taken substantially along line 7-7 of FIG. 6.

[0018] FIG. 8 is a perspective view showing another embodiment of the dispensing package of the present invention with a portion of the package broken away to illustrate the malleable member.

[0019] FIG. 9 is a diagrammatic general illustration of one embodiment of a process for fabricating the flexible dispensing package depicted in FIGS. 1 through 4.

DETAILED DESCRIPTION

[0020] Referring now to the drawings, FIGS. 1 through 4 illustrate a dispensing package 2 according to one embodiment of the present invention. The package 2 generally includes a body 3 having a top or proximal portion or end 4 (shown in the drawings as having a progressively narrowing width) and, at the opposite end, a bottom or distal portion or end 6. The present invention contemplates packages having other suitable shapes and sizes. For example, a package for toothpaste may have a generally elongated shape to depict a tube of toothpaste whereas a package for a condiment may have the familiar shape of a ketchup bottle.

[0021] Package 2 is preferably constructed from a sheet material that is adapted to contain a liquid or semi-liquid material such as an energy gel, condiment, cosmetic or other material as is known in the packaging industry. For example, the sheet material may be a polymeric foil. FIG. 4 shows that body 3 defines a compartment 8 for holding or storing a product 16 to be dispensed after the package 2 is opened. The compartment 8 is formed by pressing together or otherwise joining a front panel or wall 10 and rear panel or wall 12 along or adjacent to a common perimeter edge 14 in

any suitable manner such as the manners conventionally known in the art. A single sheet of material (not shown) may be folded to provide the compartment 8. Alternatively, multiple sheets of material (not shown) may be used to provide the compartment 8. The construction materials from which the package is formed may be selected from any of a variety of suitable materials in the packaging art and the present invention is not limited to a specific material so long as the material selected may be adapted for a package 2 as set forth below.

[0022] In one embodiment, each of the front and rear panels 10 and 12 include a tear notch 18 as best seen in FIG. 1. The tear notch 18 is adjacent the top portion 4 of package 2 and may be formed during manufacture by cutting, punching or in any other suitable manner. It should be appreciated the present invention contemplates providing a single tear notch, multiple tear notches, or in substitution for a tear notch, a score line or weakened area in the panel defined by punching or some other readily rupturable structure that will enable the package to be selectively torn opened along a defined path. Dotted line 20 in FIGS. 1 and 2 extends transverse to the longitudinal axis of package 2 and is aligned with a tear line or path (not shown) extending across the top portion 4 along which an opening into the package is made by a tear notch or score line.

[0023] The package 2 includes at least one malleable or pliant member 24 having a proximal end 26 and a distal end 28. The malleable member 24 is secured to or otherwise incorporated within one of the panels or walls forming the package body 3. Alternatively, multiple malleable members are secured to or otherwise incorporated within one or more of the panels or walls, preferably in alignment and in opposing relation. The malleable member is preferably inelastic or substantially inelastic. The malleable member is formed in one embodiment from an inert, non-toxic malleable material capable of being reshaped or bent by hand into a fixed position and of remaining in that position until bend into another position by a substantially same amount of force. A representative malleable material is a sheet, strip or mesh formed from a thin foil of metal such as brass, steel, tin, copper or aluminum. Another representative malleable material is a sheet, strip or mesh formed from a suitable plastic. It should be appreciated that the material may alternatively be a composite material.

[0024] As best seen in FIGS. 1 through 4, member 24 preferably has a thickness not substantially exceeding that of panels 10 and 12 and a length that extends along the longitudinal axis of package body 3. In the illustrated embodiment, the proximal end 26 of malleable member 24 does not extend above tear notch 18 or the corresponding score line. Accordingly, malleable member 24 does not interfere with or otherwise obstruct any tear line made across the top portion 4 through the interior compartment 8.

[0025] To dispense the product or contents of the package 2 shown in FIG. 2, a user tears at the tear notch 18 and continues pulling in a direction across the top portion 4 of body 3 to form an opening 22 across the interior compartment 8 as shown in FIG. 2. In this position, the package 2 is open and the product or contents may be dispensed. To close the package 2 and provide a seal such that the product or contents does not leak out of the open compartment, a user bends or folds over the package body 3 such as in the

manner shown in FIGS. 3 and 4. This position effectively seals off the product or contents 16 that remain in the interior compartment 8 as best illustrated in FIG. 4. The malleable member 24 retains the package in the folded or closed position until such time as the user bends the package into an upright or unfolded position to dispense the remaining product or contents. Thus, the malleable member does not interfere with the opening of the package and causes the panels or walls 10 and 12 to remain closed and to form a seal which prevents leakage because the walls or panels when in the folded position exert less force on the malleable member than needed to bend the malleable member.

[0026] FIG. 5 illustrates another embodiment of the present invention where the malleable member 30 is disposed adjacent the perimeter edge 14 of the package body 3 and below the tear notch 18 at the top end 4. In alternative embodiments, this malleable member extends to a portion of the front and/or back walls.

[0027] FIGS. 6 and 7 illustrate another embodiment of the present invention where malleable member 32 is incorporated within or otherwise laminated with a front panel 10 of the package. In an alternative embodiment of the present invention, the malleable member is incorporated within or otherwise laminated with a back wall or panel of the package. In further alternative embodiments of the present invention, two or more malleable members are incorporated within or otherwise laminated with the front wall, the back wall or both the front and back walls of the package.

[0028] FIG. 8 illustrates another embodiment of the present invention where malleable member 34 is in the form of a sheet secured to front panel 10. In an alternative embodiment, the malleable member is in the form of a sheet secured to back panel. In further alternative embodiments, two or more malleable members are in the form of sheets secured to front panel, the back panel, or both the front and back panels.

[0029] In alternative embodiments, the package include two or more different types of malleable members such as the malleable members described above.

[0030] In one alternative embodiment, the package includes a leash which maintains connection between the torn off top and the rest of the body of the package. Examples of such leashes are described in U.S. Pat. No. 6,244,467.

[0031] FIG. 9 generally illustrates a process for the formation of a series of filled packages in accordance with one embodiment of the present invention. A roll 36 of a single sheet material is used in the illustrated example. The sheet material has a series of front panels 10 with malleable members 24 and cooperating rear panels 12. These panels are folded along a central line 38 via mandrel 40 to form a series of interconnected package bodies 3 that may be separated at a later stage of production. It should be appreciated that other suitable methods are employed to form the packages of the present invention.

[0032] While this invention has been described as having a preferred design, it is understood that it is capable of further modifications, and uses and/or adaptations of the invention and following in general the principle of the invention and including such departures from the present invention as come within the known or customary practice

in the art to which the invention pertains, and as may be applied to the central features hereinbefore set forth, and fall within the scope of the invention or limits of the claims appended hereto.

The invention is claimed as follows:

1. A re-closable flexible dispensing package comprising:

a plurality of sheets of flexible material which form walls on opposite sides of a cavity for containing a product; and

at least one malleable inelastic member, each said malleable inelastic member attached to or within at least one of the walls such that said malleable inelastic member does not extend a full length of the package and does not cross a tear line extending across the cavity so that the tear line has an unobstructed path.

2. The re-closable flexible dispensing package of claim 1, which includes a leash connecting a portion of the walls on one side of the tear line and a portion of the walls on an opposite side of the tear line.

3. The re-closable flexible dispensing package of claim 1, where the malleable member includes a metal sheet.

4. The re-closable flexible dispensing package of claim 1, where the malleable member includes a plastic material.

5. The re-closable flexible dispensing package of claim 1, where the malleable inelastic member is affixed to an inside surface of one of the walls.

6. The re-closable flexible dispensing package as in claim 1, where the malleable inelastic member is affixed to an outside surface of one of the walls.

7. The re-closable flexible dispensing package of claim 1, where the malleable inelastic member is affixed between two plies of the sheets of flexible material.

8. A re-closable flexible dispensing package comprising:

at least a pair of flexible sheets joined together along a perimeter edge to form a compartment for containing a product to be dispensed from the package, said flexible sheets having a top portion and a bottom portion;

a tear notch located adjacent to the top portion of the flexible sheets, said tear notch providing a tear line extending across the compartment to enable a person to open the flexible sheets to access the compartment;

a malleable member having a top edge, said malleable member associated with at least one of the flexible sheets such that when the flexible sheets are folded into a closed position, the flexible sheets are held in that position by the malleable member; and

said tear notch positioned above the top edge of the malleable member so that the tear line is formed along an unobstructed path to open the flexible sheets and dispense the product from the compartment.

9. The re-closable flexible dispensing package of claim 8, which includes a leash connecting the top portion on one side of the tear line and a portion on an opposite side of the tear line.

10. The re-closable flexible dispensing package of claim 8, where the malleable member includes a metal.

11. The re-closable flexible dispensing package of claim 8, where the malleable member includes a plastic material.

12. The re-closable flexible dispensing package of claim 8, where the malleable member is affixed to an inside surface of one of the flexible sheets.

13. The re-closable flexible dispensing package as in claim 8, where the malleable member is affixed to an outside surface of one of the flexible sheets.

14. The re-closable flexible dispensing package of claim 8, where the malleable member is affixed between two plies of the flexible sheets.

15. A re-closable flexible dispensing package comprising:

a body member having an interior region for containing a product to be dispensed, a top end and a bottom end; and

a tear notch or score line adjacent the top end to provide a tear line extending across the body member interior region when the body is opened;

an inelastic or substantially inelastic malleable member, said malleable member operatively associated with the body member to enable the body to be selectively

folded into a fixed position to maintain the body member in a closed position after the body member is opened; and

said tear notch or score line positioned above a top edge of the malleable member so that the tear line is formed along an unobstructed path in the package.

16. The re-closable flexible dispensing package of claim 15, where the malleable inelastic member includes a metal sheet.

17. The re-closable flexible dispensing package of claim 15, where the malleable member includes a plastic material.

18. The re-closable flexible dispensing package of claim 15, where the malleable member is affixed to an inside surface of the body member.

19. The re-closable flexible dispensing package as in claim 15, where the malleable member is affixed to an outside structure of the body members.

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