PILLOW POUCH PACKAGING WITH REINFORCING ELEMENTS

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The present invention is a pouch, which is generally flat in shape having two opposite side walls and reinforcing elements. The reinforcing elements enable the pouch to stand upright.

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ABSTRACT
PILLOW POUCH PACKAGING WITH REINFORCING ELEMENTS

[0001] This application is a continuation-in-part application of U.S. application Ser. No. 10/988,934, which was filed on Mar. 8, 2002 which was the National Stage of International Application Number PCT/FR00/02461 filed on Sep. 7, 2000.

TECHNICAL FIELD

[0002] The present invention relates to packaging devices. More particularly, the invention relates to a packaging device that contains reinforced elements. The reinforced element enables a flexible package to stand up-right.

BACKGROUND OF THE INVENTION

[0003] Packaging devices may be classified into two types. One type is a rigid packaging device, for example, tins, bottles, canisters, cans, etc. Rigid devices require the same space when the device is full or empty. Moreover, the cost to manufacture these devices, which are often made of steel, glass or aluminum, is relatively high.

[0004] A second type of packaging device is a flexible packaging device, such as a pouch. Flexible pouches are generally constructed of laminated plastic material. These pouches constitute a simple and cost-effective packaging device. Additionally, flexible pouches do not have the same space requirements when the pouch is full compared to when the pouch is emptied.

[0005] Although flexible pouches are a simple, cost-effective packaging device, flexible pouches pose several disadvantages. One such disadvantage is that flexible pouches are not able to stand up-right, which complicates storage and presentation of the pouches. Also, once the pouch is opened, generally by removing the top of the pouch, the flexibility of the sheets constituting the pouch make it difficult to manipulate. In particular, it may be difficult to keep the pouch open and to dispense the contents properly. In order to solve this problem, some manufacturers have used gussets to produce self-standing packages. A gusset can be present in the side and/or bottom of the pouch. The gusset allows the pouch to expand, thus covering a larger surface area and allowing the pouch to be self-standing. Gusset pouches require an increase in production time, thus, they are more expensive to produce than flexible pouches. Another disadvantage of pouches is that graphic printing on the exterior surface of pouches often requires substantial printing machine setup time, which increases the unit cost price of the pouches.

[0006] Therefore, there is a need to produce a less expensive self-standing package. The aim of the invention is to make it possible to produce a flexible pouch, freed from the above disadvantages of known flexible pouches.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] For a more complete understanding of the present invention, reference is now made to the following descriptions taken in conjunction with the accompanying drawing, in which:

[0012] FIG. 1A and FIG. 1B are respectively a longitudinal transverse cross-section view and a side view of a first embodiment of the invention;

[0013] FIG. 2A, FIG. 2B and FIG. 2C are side views of alternative embodiments of the present invention;

[0014] FIG. 3A and FIG. 3B are two diagrammatic views of the device in FIG. 1A and FIG. 2A, shown in two respective operating positions;

[0015] FIG. 4A and FIG. 4B are two diagrammatic views of alternative packaging devices according to the invention according to two different embodiments;

[0016] FIG. 5A, FIG. 5B and FIG. 5C are three longitudinal transverse cross-section views of three embodiment variants of the invention, able to be implemented with any one of the two embodiments shown in FIG. 4A and FIG. 4B;

[0017] FIG. 6A and FIG. 6B are a side view and a perspective view of a packaging device according to the
invention including a flexible pouch reinforced by elements having an attractive visual appearance;

[0018] FIG. 7A, FIG. 7B, FIG. 7C and FIG. 7D are four front views of the device in FIGS. 6A and 6B according to an embodiment variant including reclosure means of the device;

[0019] FIG. 8A is an elevation view of a device according to the invention having an easy opening means;

[0020] FIG. 8B and FIG. 8C are respectively a diagrammatic representation of the upper part of the device in FIG. 8A, and a view in partial vertical transverse cross-section of this device;

[0021] FIG. 9A and FIG. 9B are two views according to different viewpoints of an embodiment of the invention including two flexible pouches;

[0022] FIG. 9C is a diagrammatic representation of the upper part of the device in FIG. 9A and FIG. 9B, and

[0023] FIG. 9D and FIG. 9E are respectively a horizontal cross-section view and a partial vertical transverse cross-section view of the device in FIG. 9A and FIG. 9B;

DETAILED DESCRIPTION OF THE INVENTION

[0024] It is readily apparent to one skilled in the art that various embodiments and modifications can be made to the invention disclosed in this Application without departing from the scope and spirit of the invention.

[0025] As used herein, the use of the word “a” or “an” when used in conjunction with the term “comprising” in the sentences and/or the specification can mean “one,” but it is also consistent with the meaning of “one or more,” “at least one,” and “one or more than one.”

[0026] As used herein, the term “vertical direction” is defined as corresponding to the longitudinal direction of greatest elongation of devices.

[0027] As used herein, the term “horizontal plane” is defined as being the plane orthogonal to the vertical direction.

[0028] Referring to the figures, the pouch (10) is formed from a flexible material, for example, but not limited to polyolefins (oriented & cast polypropylene, low density polyethylene (LDPE), medium density polyethylene (MDPE), high density polyethylene (HDPE)), polyamide (nylon), polyethylene terephthalate and glycol copolymer, paper, foil, ethylene vinyl alcohol, poly(vinyl chloride), or polyvinlidene chloride. It is also envisioned that these flexible materials can be used to form lamination or multilayer plastic film and multi-layered film. All of these materials can be retorted, using standard procedures, in order to sterilize the contents of the pouch. Standard retorting processes are well known in the art of pouch manufacturing. Yet further, the food item may be a solid liquid or semi-solid food item examples include but are not limited to confections, baked goods, pet food, fresh food, snack food, etc.

[0029] The pouch may be formed using a processing line configured for the formation of the pouches from a heat sealable, continuous plastic film as is known to one skilled in the art of forming pouches. In a typical pouch forming process known to one skilled in the art, rolls of film are provided in which the film is fed through a plow in order to fold the sheet of film. The vertical sides of the folded film are sealed as well as the bottom of the pouch if necessary. This process creates a continuous strip of individual flexible pouches. Quick splicing techniques can be used to change from one film to another film source. In specific embodiments of the present invention, the film is not printed with text or graphics. Alternatively, a portion of the continuous plastic film can be printed with text and graphics that would be appropriate for any variety of food item and a program- mable high speed printing system that imprints text on the front and/or back of each of the pouches in the continuous strip can be used to print specific text for any single variety or and single pet food product. In another embodiment, the processing line can utilize non-printed film in which the processing line would include the programmable high speed printing system for imprinting the text and graphics on the front and back of each of the pouches in the continuous strip as it runs through the printing system portion of the line.

[0030] Referring to FIG. 1A, a pouch (10) is formed by joining two flexible sheets (11 and 12) edge to edge to form a pouch. The pouch can be any flexible pouch, for example, but not limited to a pillow pouch or a flat pouch. Each pouch wall (as shown in the side view of FIG. 11B) contains a top (110), a bottom (120) and coplanar sides (130) edges. The top (110) and bottom (120) side edges have transverse seals. The pouch edges are sealed using standard techniques that are well known and used in the art of packaging. All flexible films can be made heat sealable with coatings or co-extrusion or naturally sealable (oriented & cast polypropylene or LDPE). In specific embodiments, a horizontal heat seal (not shown) extends along the top edge (110) of the pouch to complete the sealing of the pouch. A nip (150) is provided at the top (110) edge of the pouch (10). The nips are V-shaped cut-outs extending horizontally from the top (110) edge of the pouch (10). The nips are used to initiate tearing along a horizontal line of weakness (not shown).

[0031] Reinforcement elements (21, 22) as shown in FIG. 1A, are bonded onto the two opposing faces of the pouch (110, 120), one opposite the other. These reinforcement elements are made of a relatively rigid material, but the material has sufficient flexibility for the elements to be distorted by the hand of a user. In specific embodiments, the reinforcement elements (21, 22) may be, for example, made of cardboard. Other materials may be used for the reinforcement elements. Materials that may be used to form the reinforcement elements (21, 22) include, but are not limited to polyolefins (oriented & cast polypropylene, low density polyethylene alcohol, poly(vinyl chloride), or polyvinlidene chloride. It is also envisioned that these flexible materials can be used in combination as laminations of two or more materials. All of these materials can be retorted, using standard procedures, in order to sterilize the contents of the pouch. Standard retorting processes are well known in the art of pouch manufacturing. Yet further, the food item may be a solid liquid or semi-solid food item examples include but are not limited to confections, baked goods, pet food, fresh food, snack food, etc.
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[0032] In specific embodiments, the reinforcement element (21) extends around the pouch as shown in FIG. 2A and FIG. 2B. The reinforced elements can extend all the way across the pouch (10), and extend beyond it on both sides. Specifically, the reinforcement elements are used to provide stability to the flexible pouch so that the pouch may stand up right once the elements have been attached to the pouch. It is envisioned that one or more reinforcement elements may cover the entire outside of the pouch (FIG. 2B) or only a portion of the outside of the pouch (FIG. 2A).

[0033] A specific embodiment, as shown in FIG. 2C, is that the reinforcement element also covers the bottom of the pouch to enable the pouch to be self-standing. The bottom of the reinforced element (23) may be a gusset bottom. This embodiment is not limited to having a gusset bottom, the bottom (23) may be in any shape that enables the pouch to be self-standing, such as an oval, circular, elliptical, or egg shape.

[0034] FIG. 3A and FIG. 3B illustrate a pouch (10) which has been torn open to provide access to its content. A user places its hand on the reinforcement elements (21, 22) and moves them closer together (shown in FIG. 3A). This movement results in distortion of the reinforcement elements by arching them and separating them into their respective median parts. The two opposing walls (110, 120) of the pouch, which are bonded respectively to the median of the reinforcement elements (21, 22), are separated by this action. Thus, the distortion of the reinforcement elements of a torn package results in an open package that can reliably be handled to effectively dispense the contained item.

[0035] The reinforcement elements (21, 22) may be bonded to the pouch walls by a continuous adhesive strip covering all or part of the width of the pouch wall, or by the application at discrete places or bonding points on the pouch walls. For example, bonding points may be deposited in the median area or middle of each pouch wall and/or on the lateral edges of each pouch wall. In every circumstance, it is important according to the invention for at least the median area of each pouch wall to be bonded to the reinforcement element. In specific embodiments, each reinforcement element can be bonded to its associated pouch wall at the level of the two lateral edges of the pouch, in order to increase the coherence of the unit and to make it easier to open the pouch. It is within the skill of one in the art to attach each reinforcement element (21, 22) to its associated pouch wall by any known means other than bonding, for example, the reinforcement elements may be engaged in adjustments of the pouch walls, or the elements may be welded together. Thus, it is envisioned that the bonding of the reinforcement elements to the pouch walls may be by any mechanical and/or chemical means, for example, but not limited to heat seal, adhesives, extrusion laminate, ultrasonic seal, static seal, staples, stitches, zip strip, clamps, mesh, or punched.

[0036] It is also possible to provide in the reinforcement elements (21, 22) folds, bellows or cuts in order to make possible the manipulation described with reference to FIGS. 3A and 3B even in the presence of a relatively rigid base and/or top.

[0037] It is also envisioned that the reinforcement elements can be used as a graphic surface to display information about the product or promotional data. In this respect, it will be noted that printing on a material such as cardboard requires an appreciably smaller amount of machine adjustment time compared with the synthetic films which usually constitute known pouches; it is thus possible, in particular where the reinforcement elements (21, 22) extend all the way up the pouch, not to print on the pouch wall, but only on the reinforcement elements which surround it. It will additionally be noted that it is possible to print on both faces of each reinforcement element (21, 22), which considerably increases the graphically usable service of the pouch.

[0038] FIG. 4A shows a diagrammatic view of a pouch (10) surrounded by two reinforcement elements (21, 22), which are bonded to it. Specifically, the two reinforcement elements (21, 22) are connected to each other by an extrusion laminate (24) made of the same material as the reinforcement elements. This embodiment provides a stable base so that the pouch is able to stand up-right. It will also be noted that covering the pouch surface all the way up with the semi-rigid frame formed by the reinforcement elements (21, 22) makes it possible to offer to the hand of the user a “smoother” contact surface than that of the “crude” pouch, which may be required for some products.

[0039] FIG. 5A to FIG. 5C show three embodiment variants, which are capable of being implemented with each of the two embodiments shown in FIGS. 4A and 4B.

[0040] In FIG. 5A, the lower ends of the reinforcement elements (21, 22) are located underneath the pouch and are joined together by a horizontal base (23) made of the same material as the reinforcement elements. This embodiment variant provides a stable base so that the pouch is able to stand up-right. It will also be noted that covering the pouch surface all the way up with the semi-rigid frame formed by the reinforcement elements (21, 22) makes it possible to offer to the hand of the user a “smoother” contact surface than that of the “crude” pouch, which may be required for some products.

[0041] In FIG. 5B, the reinforcement elements (21, 22) extend all the way up the pouch, but their lower ends are disconnected. This variant corresponds to the embodiment where the pouch is simply “sandwiched” between two flexible sides (embodiment in FIG. 5A), or surrounded by a sheath open at its two ends and the walls of the pouch is are bonded (embodiment in FIG. 5B).

[0042] In FIG. 5C, the two reinforcement elements (21, 22) have disconnected lower ends but their upper ends are covered by part (24) made from the same material. Thus, according to the invention, it is possible to completely surround the pouch with an embodiment comprising a base and a top.

[0043] FIGS. 6A and 6B show a pouch or packaging device according to the invention, corresponding to the
configurations in FIG. 4B, which illustrates that the lateral ends of the reinforcement elements are joined together at specific points, and FIG. 5B, which illustrates that the lower ends of the reinforcement elements are joined together by a base. In specific embodiments, the reinforcement elements have been cut so as to have a characteristic appearance, for example, a cat head. Each upper corner of the reinforcement element, which corresponds to a cat ear, is bonded to the opposite reinforcement element to increase the rigidity of the device. Other shapes can be used, for example, but not limited to a dog, bird, or horse. Thus, it is envisioned that a package having a specific shape appearance is used as a container for that specific food item, such as a cat shaped container is used for cat food.

Yet further, it is possible to incorporate between the base (23) and the pouch (10) an additional element (30). This additional element (30) can be an advertisement or promotional item.

In embodiments where the reinforcement elements do not completely enclose the pouch, the user is able to touch the pouch directly and to tactically feel the contained product in the pouch. Thus, depending on the nature of the product and the required marketing positioning, it is possible to choose a reinforcement structure which is more open or less open to allow more direct contact or less direct access to the product.

FIGS. 7A to 7D are four views of the pouch in FIGS. 6A and 6B once the top of the pouch has been cut.

In FIG. 7A, it will be seen that a part of the element (21) has itself been cut out so as to constitute a tab (210). The tab (210) is able to be set upright and folded back over the top of the pouch, which can be engaged into a slot (220) of the opposing reinforcement element (22) (FIG. 7B). Engaging tab (210) into slot (220) results in a closing mechanism for the pouch.

FIG. 7C and FIG. 7D show the embodiments of the pouch once the tab is engaged in the slot. This arrangement makes it possible to re-close the pouch when only a part of its content has been dispensed.

It will be noted that the pouch of the present invention may be made in different sizes. In particular, it is possible to provide large dimensional pouches which are manipulated with both hands so as to separate the two reinforcement elements and open the pouch. One such example, is a large pouch that may be used for dog food.

An advantage according to the invention is that each reinforcement element can contain a pre-cut tear line, given the reference L in FIGS. 8A to 8C, at the same height that the reinforcement elements (21, 22) are bonded to the pouch. Thus, the adhesive may be deposited between each reinforcement element and its associated pouch wall along two continuous lines C as shown in FIGS. 8B and 8C. The continuous lines C may extend approximately from one lateral edge to the other of their associated pouch wall. Yet further, the continuous lines C may also be parallel to their associated tear line L. It is envisioned that the tear line L runs along the vertical direction between the two lines of adhesive C. In this case, the pouch is opened by tearing off the upper part of the reinforcement elements (21, 22) (and possibly the top connecting these reinforcement elements). According to the invention, tearing the upper part of the pouch is made easier and more reliable by bonding the pouch walls to the support elements at the same height as the tear lines of the reinforcement elements. Indeed, this arrangement makes it possible to guide the tearing of the pouch by hand, which results in an easy to open device.

Pouches may include opening means such as a weakening line which might be made, for example, by laser beam etching of the pouch sheet so as to reduce its thickness. It will be noted that according to the invention two notches may be located on the opposing edges of the pouch, at the same height as the weakening lines of the reinforcement elements. Such notches E are shown in FIG. 8B, in which the upper parts of each reinforcement element (21, 22) have been shown diagrammatically with their weakening line L surrounded by their two lines of adhesive C. This arrangement makes it possible to remove one stage in the process of manufacturing the pouch (such as a stage of etching the pouch walls by laser beam), allowing the manufacturing cost per pouch to be reduced.

It should also be noted that the two lines of adhesive C constitute a “channel” which frames the desired place for tearing the walls of the pouch, and thus, plays a part in guiding the tearing of the two lines of adhesive by constituting obstacles to the tear lines of the pouch walls.

The design of the pouch according to the invention may also be adapted in such a way that the tear lines of the reinforcement elements define the path for opening the pouch. For example, it may be possible to have a rectilinear opening path, a curvilinear opening path, or even a path according to any required design.

Referring to FIG. 9A to FIG. 9E, shows a packaging device containing two pouches (10, 10'). As shown particularly in FIG. 9C and FIG. 9E, two pouches (10, 10') are bonded together by two lines of adhesive C', which approximately cover the lateral extent of the surface on which the two pouches are opposite one another. FIG. 9D and FIG. 9E show the longitudinal median plane P of the device where the pouches may be aligned approximately perpendicular to this plane. The reinforcement elements are, as in the case of the device with a single pouch, arranged symmetrically relative to the plane P. It is understood that the embodiment in FIGS. 9A to 9E, which includes two pouches can include any or all of the embodiments that have been described for a single pouch. Yet further, each pouch may be bonded to a reinforcement element (element 21 for the pouch 10, 22' for the pouch 10') by two lines of adhesive C. The bonding of the elements are similar to the previous discussions of bonding, of which those discussions are hereby incorporated by reference.

The pouches may be opened simultaneously or sequentially. To prevent simultaneous opening of the pouches, the lateral edges of the two pouches (10, 10') are not opposite one another, but are offset as shown in FIG. 9A and FIG. 9D. Thus, when opening the device, only a single edge of the pouch is torn at one time. Yet further, it is envisioned that pouches of different width may also conceivable facilitate the opening of a single pouch. This embodiment makes it possible to package in a single device products with different characteristics. It will be possible, for example, to package in one pouch pieces of meat with or without sauce, while the other pouch contains rice or accompanying vegetables. Thus, the possibility is offered for
providing the consumer with several products, constituting a combination dish, in a same device. Yet further, it may also be possible to incorporate into the two respective pouches food with different tastes, different textures, or even two different functions (one pouch being able to contain a food such as a complete cooked dish, the other pouch being able to contain a product such as a medicine). And in a more general way, the two (or more) pouches may contain products or chemical compounds to be mixed before use.

Another advantage is that each product packaged separately in a pouch may retain its intrinsic characteristics before the pouch is opened and the respective products, which it contains, are mixed together. In this respect, it will be noted that it is also possible to subject a pouch containing a specific product and having already been re-closed to different treatments (sterilization, preservation treatments, etc.), and to join this first pouch to a second pouch not having been subjected to the same treatment so as to constitute a device such as shown in FIGS. 9A to 9E. This type of device may also be practical since it allows different pouches to be opened at different times or the same time. Yet further, this device also has a high degree of safety, since it allows the manufacturer to incorporate in the different pouches the exact quantities of product which are to be mixed together.

Also, this device is advantageous in terms of presentation since it allows the respective products contained in the respective pouches to be dispensed in the same receptacle. It is thus possible depending to conceive of any number of pouches aligned in series and bonded together in by their adjacent walls, preferably at the same height as notches of their lateral edges, surrounded by two reinforcement elements also bonded (or fixed to the pouches by any other known means), the reinforcement elements being able to comprise tear lines. The reinforcement elements may also in this case not comprise tear lines, the pouches then being able to be equipped with opening means such as weakening lines made by laser etching.

Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the invention as defined by the appended claims. Moreover, the scope of the present application is not intended to be limited to the particular embodiments of the process, machine, manufacture, composition of matter, means, methods and steps described in the specification. As one of ordinary skill in the art will readily appreciate from the disclosure of the present invention, processes, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized according to the present invention. Accordingly, the appended claims are intended to include within their scope such processes, machines, manufacture, compositions of matter, means, methods, or steps.

What is claimed is:

1. A self-standing pouch comprising two opposing walls in sheet form extending essentially parallel to a longitudinal median plane and at least one reinforcement element, wherein the reinforcement element enables the pouch to be self-standing.
2. The pouch of claim 1, wherein each opposing wall comprises a top, bottom and coplanar side edges.
3. The pouch of claim 1, wherein the pouch is a pillow pouch.
4. The pouch of claim 1, wherein the pouch is retorted prior to addition of the reinforcement element.
5. The pouch of claim 1, wherein the reinforcement element wraps around the entire pouch.
6. The pouch of claim 5, wherein the reinforcement element further wraps around the bottom of the pouch.
7. The pouch of claim 1, wherein the reinforcement element contains printed graphics.
8. The pouch of claim 1, further comprising a second reinforcement element.
9. The pouch of claim 8, wherein the first and second reinforcement elements are attached to the two respective pouch walls and extend essentially opposite each other across their associated pouch wall.
10. A device for packaging products comprising at least one flexible pouch, having two opposing walls extending essentially parallel to a longitudinal median plane of the device,

two reinforcement elements respectively associated with the respective pouch walls, the reinforcement elements extending at least approximately opposite each other all the way across their associated pouch wall,

and means for fixing each reinforcement element to its associated pouch wall at least in a median area of the wall.
11. The device of claim 10, wherein the means for fixing compromises fixing the reinforcement element and its associated wall in the vicinity of its lateral edges.
12. The device of claim 10, wherein the means for fixing compromises bonding the reinforcement element to the pouch wall.
13. The device of claim 10, wherein the reinforcement elements and the pouch walls are bonded together at discrete bonding points.
14. The device of claim 13, wherein the reinforcement elements and the pouch walls are bonded together by at least one continuous adhesive strip deposited between each reinforcement element and its associated wall.
15. The device of claim 14, characterized in that at least one continuous adhesive strip extends approximately all the way across the wall.
16. The device of claim 10, wherein the means for fixing compromises adjustments to the wall.
17. The device of claim 10, wherein the lateral ends of the reinforcement elements are connected so as to surround the lateral edges of the pouch.
18. The device of claim 10, wherein the lateral ends of the reinforcement elements are not connected.
19. The device of claim 10, wherein the reinforcement elements are connected by a base located under the pouch.
20. The device of claim 10, wherein the reinforcement elements extend all the way up the pouch.
21. The device of claim 10, wherein the upper ends of the reinforcement elements are connected by a top covering the pouch.
22. The device of claim 10, wherein the reinforcement elements include a means to re-cover the top of the pouch once the upper part has been torn.

23. The device of claim 22, wherein the re-covering means includes a tab made from the same material as one of the reinforcement elements which engages with a slot of the other reinforcement element.

24. The device of claim 10, wherein the reinforcement elements are printed on both their faces.

25. The device of claim 10, wherein at least one reinforcement element includes a tear line along a desired path for opening the device, extending opposite the means for fixing the pouch walls and the reinforcement elements so as to guide the user in tearing the pouch walls.

26. The device of claim 10, wherein the pouch comprises a means to weaken its walls, located at the same level as the tear lines of the reinforcement elements.

27. The device of claim 26, wherein the weakness points of the pouch walls are provided by notches on its lateral edges.

28. The device of claim 10, wherein distortion of the reinforcement elements is obtained by arching these elements.

29. The device of claim 10, wherein distortion of the reinforcement elements is obtained by folding these elements.

30. The device of claim 10 further comprising a second pouch.

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