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(54) **Flexible packages with opening device**

Flexibler Behälter mit Öffnungsvorrichtung

Récipient flexible avec dispositif d'ouverture

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Description

[0001] This invention relates to flexible packages formed by bags made from plastics film which are closed by a weld line which is arranged at the filling mouth thereof in such a way as to leave a free skirt of the bag for the formation of holding and/or suspension means therefor, and more particularly the bags of this type which are for containing a plurality of articles which must be kept a controlled-moisture environment and/or be removed one by one, in one or more operations, through a delivery orifice of small section, which must be small so as to maintain the internal environment as long as possible and avoid the uncontrolled spilling of the bag content.

[0002] The majority of flexible packages of the plastics film bag type, where the mouth is closed by a weld line, lack specific manual opening means and must be opened either with the use of scissors, knives or other means, by which it is possible attain control of the position and section of the aperture, or by tearing with brute force, whereby neither the position nor the size of the aperture can be controlled.

[0003] Patent FR 1.399.493 discloses a system for manually tearing open a flexible bag the filling mouth of which is closed by an individual wide weld band, in the inside of which there is provided an oblique cut which, in one case, can be narrowly enclosed in a frame made up of wide weld lines that do not extend from side to side of the bag, with the tear initiated in said cut determining the complete opening of the bag.

[0004] Where the packaged article is one in number, the means used for opening the package are of no import, since it must be disposed of. On the other hand, where the articles enclosed are plural in number, and they are to be used one by one or in small numbers in each removal operation, some integrity of the package must be maintained so as adequately to contain the remaining articles for keeping them for future use. In this case, it is of interest to form an aperture in the pack, serving as a delivery orifice for removal of the articles, which is of the smallest possible size, depending on the dimensions of the articles. In such cases, it is absolutely necessary to use scissors, knives or other cutting instruments, so as to form the aperture at a particular point and with the resulting size of the delivery orifice being adjusted to the dimensions of the articles.

[0005] Under these circumstances, the problem may arise that the user does not have to hand the appropriate tools for forming the aperture in the desired way, or the operation is troublesome, such as is the case where the user is up a stepladder or in another situation where handling of the package is difficult.

[0006] Thus, for all cases, it would be desirable to have an arrangement allowing the controlled opening of flexible packages, by direct manual operation, without the need for any tool whatsoever.

[0007] With a view to satisfying such need, a flexible package according to the invention has been developed. This consists of the arrangement, at one side end of the filling mouth of the bag, of a weakening line of defined length and of stiffened edges which, being located between the weld line of closure of the bag mouth and the free edge of this mouth, is directed in such a way as to be located in a contemplated trajectory of manual tearing of the bag, which intersects the said weld line of closure and extends across the corner of the bag immediately adjacent the weakening line.

[0008] One feature of the invention is to be found in the fact that the weakening line arranged in the bag filling mouth is formed by a line of cut which passes through the walls of said mouth and is stiffened by a perimetral weld line, forming a buttonhole-like arrangement. Alternatively, the weakening line contemplated in the bag filling mouth may be formed by a perforated line, the perforations of which extend through the walls of the mouth and which may in turn by stiffened by a perimetral weld line.

[0009] A further feature of the invention resides in the fact that the weakening line is located between two parallel weld lines, one of which is the weld line of closure of the bag and the other is disposed in the skirt of the mouth, comprising between both holding and/or hanging means for the bag.

[0010] Yet a further feature of the invention is to be found in the fact that the extension of the weakening line intersects the weld line of closure at an angle of about 60°.

[0011] The invention envisages that the ends of the weakening line are respectively equidistant from both weld lines and the distance between the end closest to the weld line of closure and the side edge of the bag is determined by the dimension that the delivery orifice is required to have to allow for removal of the packaged articles one by one.

[0012] It is also envisaged that the section of the delivery orifice resulting from a tearing operation is of such a small size that, when open, it allows the controlled environment inside the bag to be essentially maintained and controlled delivery of the packaged articles.

[0013] To facilitate the understanding of the foregoing ideas, there is described hereafter one preferred embodiment of the invention, with reference to the accompanying drawings, in which:

Figure 1 shows the filling mouth of a flexible package of the plastics bag type, in which two weld lines, suspension means and the opening device of the invention are to be observed.

Figure 2 shows the mouth of the previous figure, once the flexible package has been opened by means of the device of the invention.

[0014] The flexible package, such as bag 1, consists of the arrangement, at one side end of the filling mouth 2 of the bag 1, of a weakening line 3 of defined length

and stiffened edges, which, situated between the weld line of closure 4 of the mouth 2 of the bag 1 and the free edge 5 of said mouth 2, is directed in such a way as to be located in a contemplated trajectory of manual tearing of the bag 1 which intersects the said weld line of closure 4 and extends across the corner 6 of the bag 1 immediately adjacent the weakening line 3.

[0015] The weakening line 3 may be formed by a line of cut which passes through the walls of said mouth 2 in buttonhole-like fashion, or by a line of perforations, being provided in both cases with a perimetral stiffening 7 which may be formed by a continuous or discontinuous line of weld.

[0016] Preferably the weakening line 3 will be located between two parallel weld lines, one of which forms the weld line of closure 4 and the other of which consists of an auxiliary weld line 8 arranged on the skirt of the mouth 2, there being comprised between both weld lines also suspension and/or holding means 9.

[0017] Practice has shown that the most efficient embodiment of the invention comprises the fact that the extension of the weakening line 3 intersects the weld line of closure 4 at an angle of 60°.

[0018] Also, the ends 3A and 3B of the weakening line 3 are equidistant, respectively, from the weld line of closure 4 and auxiliary line 8, and the distance between the end 3B, which is the one closest to the weld line of closure 4, and the side edge 1A of the bag 1, is determined by the size of the delivery orifice 10 required for one-by-one removal of the packaged articles 11 which, as shown as an example in the drawing, may consist of polyamide ties for binding electric cables.

[0019] The said delivery orifice 10 must be small so as to maintain essentially the conditions of the internal environment of the bag 1 and to avoid accidental spilling of the content thereof.

[0020] Manual opening is achieved by applying oppositely directed forces, as shown by the arrows F1 and F2, with the fingers of the hand in the edge areas bordering on the weakening line 3, which, with the aid of the perimetral stiffening 7, cause the bag 1 to tear in the direction of the weakening line 3, breaking through the weld line of closure 4 and cutting the corner 6 of the bag, all in a direction and size contemplated for the delivery orifice 10.

[0021] This device for opening flexible packages is obviously applicable to all types of flexible packages containing solid articles pertaining to the food, cosmetic, pharmaceutical industries, hardware stores, electrical and electronic components, etc.

Claims

1. A manually openable flexible package, concretely a bag (1) made from a plastic film their walls are closed by a first weld line (4) parallel to free edge (5) of the bag (1) and arranged at an area which includes a filling mouth (2) of said bag (1) to allow a free skirt of said bag (1) to be left to form a holding and/or suspension means (9) for the bag (1), the bag containing a plurality of articles (11) which are removed one by one, in one or more operations, through a small sectioned emptying mouth (10), wherein the bag further comprises:

   a second weld line (8) completely parallel to the first weld line (4), the first and second weld lines limiting an intermediate area (2) at the said filling mouth (2);
   a weakening line (3), at a side of the intermediate area (2), edges (3A-3B) of the weakening line (3) being stiffened by welding, the weakening line being located at an angle relative to the first (4) and second (8) weld lines, without contacting the first and second weld lines and extending according to a contemplated trajectory of manual tearing of the bag (1) and
   the manual tearing of the bag (1) being performed by acting on said weakening line (3), the trajectory of the manual tearing intersecting the first (4) and second (8) welding lines and separating a small single corner (6) of the bag (1) to define a delivery orifice (10).

2. The device of claim 1, wherein:

   said weakening line (3) of said bag (1) is formed by a line of cut which passes through the two walls of said area intermediate of said filling mouth (2).

3. The device of claim 1, wherein said weakening line (3) is formed by a perforated line, perforations of which pass through the walls of said area intermediate (2) of said filling mouth (2).

4. The device of claim 2 and 3, wherein said weakening line (3) is provided with a perimetral stiffening (7) comprising a continuous or discontinuous weld line (8).

5. The device of claim 1, comprising:
   wherein
   said first (3B) and second (3A) ends are equidistant from said first (4) and second (6) weld lines, respectively, and
   a distance between a first end (3B) of the weakening line (3) and a side (1A) of said bag corresponding thereto is determined by a required dimension of said delivery orifice (10) to allow for removal of the articles (11) one by one.

6. The device of claim 1, wherein
   the device further comprises centrally holding and/or hanging means (7) between the first (4) and

second (8) weld lines.

7. The device of claim 1, wherein an extension of said weakening line (3) intersects the first (4) and second (8) weld lines at an angle of the weakening line relative to the first weld line comprised between 45° and 75°.

Patentansprüche

1. Manuell zu öffnende flexible Verpackung, konkret eine Tasche (1) hergestellt aus Kunststofffilm, deren Wände durch eine erste Schweißlinie (4) parallel zur freien Kante (5) der Tasche (1) geschlossen werden, und angeordnet in einem Bereich, welcher eine Einfüllöffnung (2) der Tasche (1) beinhaltet, um es einer freien Randleiste der Tasche (1) zu gestatten, übrig gelassen zu werden, um ein Halte- und/oder Aufhängungsmittel (9) für die Tasche (1) zu bilden, wobei die Tasche eine Vielzahl von Artikeln (11) enthält, die Stück für Stück in einer oder mehreren Handhabungen durch eine schmale abgeschnittene Ausgabeöffnung (10) entfernt werden, wobei die Tasche weiter aufweist:

eine zweite Schweißlinie (8), vollständig parallel zur ersten Schweißlinie (4), wobei die ersten und zweiten Schweißlinien einen unmittelbaren Bereich (2) an der Einfüllöffnung (2) abgrenzen;
eine Abschwächungslinie (3) an einer Seite des zwischenliegenden Bereichs (2), Kanten (3A, 3B) der Abschwächungslinie (3), die durch Schweißen versteift sind, wobei die Abschwächungslinie in einem Winkel relativ zu den ersten (4) und zweiten (8) Schweißlinien angeordnet ist, ohne die ersten und zweiten Schweißlinien zu kontaktieren und sich entlang einer ausgedachten Trajektorie von manuellem Aufreißen der Tasche (1) erstreckt, und das manuelle Aufreißen der Tasche (1) durch Agieren auf die Abschwächungslinie (3) erfolgt, wobei die Trajektorie des manuellen Aufreißens die ersten (4) und zweiten (8) Schweißlinien schneidet, und eine kleine einzige Ecke (6) der Tasche (1) abtrennt, um eine Ausgabeöffnung (10) vorzugeben.

2. Vorrichtung nach Anspruch 1, wobei:

die Abschwächungslinie (3) der Tasche (1) aus einer Schneidelinie gebildet wird, welche durch zwei Wände des Bereichs zwischen der Einfüllöffnung (2) durchgeht.

3. Vorrichtung nach Anspruch 1, wobei die Abschwächungslinie (3) aus einer perforierten Linie gebildet wird, deren Perforationen durch die Wände des Bereichs (2) zwischen der Einfüllöffnung (2) durchtreten.

4. Vorrichtung nach Anspruch 2 und 3, wobei die Abschwächungslinie (3) mit einer umfänglichen Versteifung (7) versehen ist, welche eine fortlaufende oder unterbrochene Schweißlinie (8) aufweist.

5. Vorrichtung nach Anspruch 1, aufweisend:

erste (3B) und zweite (3A) Enden, die jeweils äquidistant von den ersten (4) und zweiten (6) Schweißlinien beabstandet sind, und
ein Abstand zwischen dem ersten Ende (3B) der Abschwächungslinie (3) und einer Seite (1A) der Tasche, die ihm entspricht, wird durch eine benötigte Abmessung der Ausgabeöffnung (10) bestimmt, um die Entfernung von Artikeln (11) Stück für Stück zu gestatten.

6. Vorrichtung nach Anspruch 1, wobei die Vorrichtung weiter zentrale Halte- und Aufhängungsmittel (7) zwischen den ersten (4) und zweiten (8) Schweißlinien aufweist.

7. Vorrichtung nach Anspruch 1, wobei eine Verlängerung der Abschwächungslinie (3) die ersten (4) und zweiten (8) Schweißlinien in einem Winkel der Abschwächungslinie relativ zur ersten Linie zwischen 45° und 75° schneidet.

Revendications

1. Emballage flexible pouvant être manuellement ouvert, en pratique un sac (1) fabriqué dans un film plastique dont les parois sont fermées par une première ligne de soudure (4) parallèle au bord libre (5) du sac (1) et agencée sur une zone qui comprend une bouche de remplissage (2) dudit sac (1) afin de permettre à une jupe libre dudit sac (1) de pouvoir former un moyen de tenue et/ou de suspension (9) pour le sac (1), le sac contenant une pluralité d'articles (11) qui sont retirés un par un, en une ou plusieurs opérations, à travers une petite bouche de vidage sectionnée (10), dans lequel le sac comprend en outre :

une seconde ligne de soudure (8), complètement parallèle à la première ligne de soudure (4), les première et seconde lignes de soudure limitant une zone intermédiaire (2) au niveau de ladite bouche de remplissage (2) ;
une ligne d'affaiblissement (3), sur un côté de la zone intermédiaire (2), des bords (3A-3B) de la ligne d'affaiblissement (3) étant raidis par la soudure, la ligne d'affaiblissement étant située

à un angle par rapport aux première (4) et seconde (8) lignes de soudure, sans entrer en contact avec les première et seconde lignes de soudure et s'étirant conformément à une trajectoire envisagée de déchirure manuelle du sac (1) et
la déchirure manuelle du sac (1) étant réalisée en agissant sur ladite ligne d'affaiblissement (3), la trajectoire de la déchirure manuelle croisant les première (4) et seconde (8) lignes de soudure et séparant un petit coin unique (6) du sac (1) afin de définir un orifice de distribution (10).

2. Dispositif selon la revendication 1, dans lequel ladite ligne d'affaiblissement (3) dudit sac (1) est formée par une ligne de découpe qui passe à travers les deux parois de ladite zone intermédiaire de ladite bouche de remplissage (2).

3. Dispositif selon la revendication 1, dans lequel ladite ligne d'affaiblissement (3) est formée par une ligne perforée, dont les perforations passent à travers les parois de ladite zone intermédiaire (2) de ladite bouche de remplissage (2).

4. Dispositif selon les revendications 2 et 3, dans lequel ladite ligne d'affaiblissement (3) est dotée d'un raidissement sur tout le périmètre (7) comprenant une ligne de soudure continue ou discontinue (8).

5. Dispositif selon la revendication 1, dans lequel
lesdites première (3A) et seconde (3B) extrémités sont équidistantes desdites première (4) et seconde (6) lignes de soudure, respectivement, et
une distance entre une première extrémité (3B) de la ligne d'affaiblissement (3) et un côté (1A) dudit sac correspondant à celui-ci, est déterminée par une dimension requise dudit orifice de distribution (10) afin de permettre le retrait des articles (11) un par un.

6. Dispositif selon la revendication 1, dans lequel le dispositif comprend en outre des moyens de tenue et/ou de suspension centraux (7) ente les première (4) et seconde (8) lignes de soudure.

7. Dispositif selon la revendication 1, dans lequel une extension de ladite ligne d'affaiblissement (3) croise les première (4) et seconde (8) lignes de soudure à un angle de la ligne d'affaiblissement par rapport à la première ligne de soudure compris entre 45° et 75°.

FIG. 1

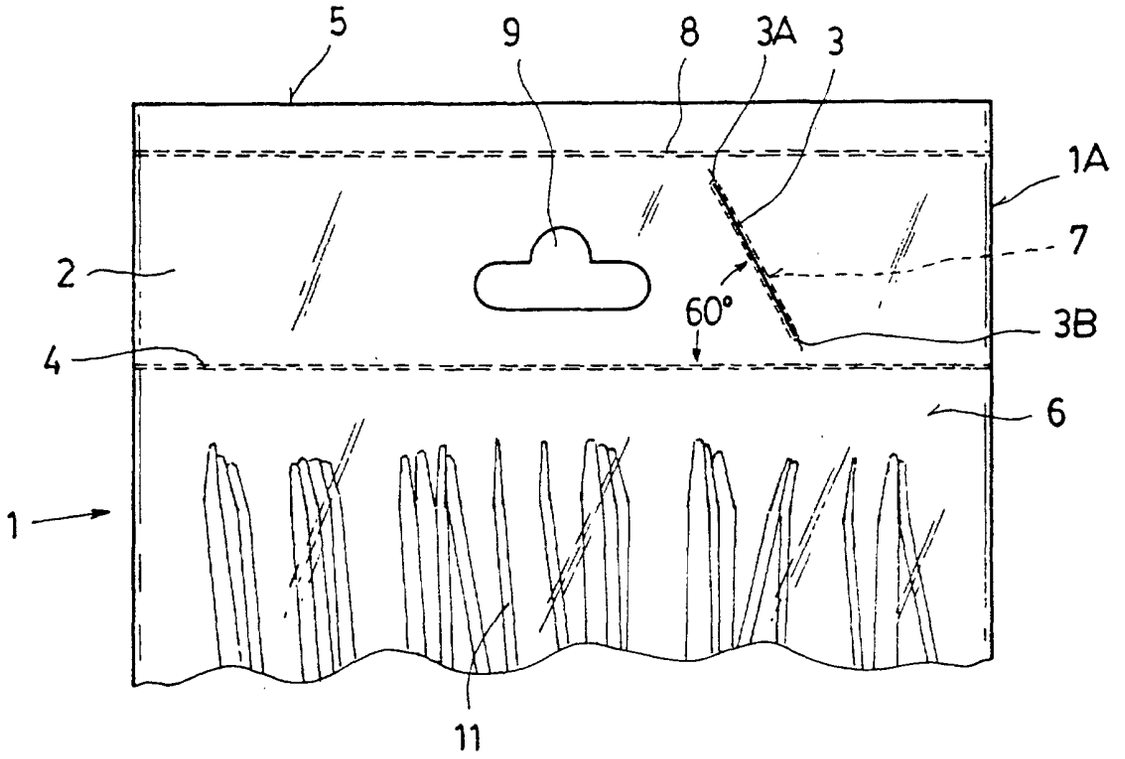

FIG. 2