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TWIST-WRAP PACKAGING FOR FOOD PRODUCTS, METHOD AND CORRESPONDING DEVICE

DREHEINSCHLAGVERPACKUNG FÜR LEBENSMITTEL, VERFAHREN UND ENTSPRECHENDE VORRICHTUNG

EMBALLAGE FERMÉE PAR DES PAPILOTTES POUR PRODUITS ALIMENTAIRES, PROCÉDÉ ET DISPOSITIF CORRESPONDANT

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References cited:
WO-A-03/106267

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Description

Field of the invention

[0001] The invention concerns packages for food products.

Description of the related art

[0002] When packaging food products, different needs must be kept under consideration.

[0003] A particularly felt need is that of insuring that the product is maintained unaltered for as long a time as possible after packaging. In order to pursue such object, the use of flow-pack sealing wrappers, that is, VFFS/HFFS (acronym for Vertical or Horizontal Form Fill and Seal) has long been known, also for small sized food products (such as chocolates, candies, pralines, etc.). The documents WO-A-99/58421 and EP-A-1 593 603 are representative of this technique. The latter document also illustrates the possibility of providing extremity (figure 1) or longitudinal (figure 2) package welding lines with zigzag edges, allowing the package to be opened by tearing the sheet material of which the package is made along a longitudinal or transversal trajectory with respect to the package itself.

[0004] There is also a strong branch of research aimed at providing traditional candy-like packages (that is, packages with one or both extremities twisted like a bow) with characteristics of improved isolation from the external environment. Representative of such branch are, for example, the documents GB-A-993 981, US-A-5 935 686, EP-A-0 816 229, EP-B-1 299 285 or WO-A-02/22445. The solution described in EP-B-1 477 423, uniting hermetic sealing characteristics with the appearance of a traditional candy-like wrapper, essentially falls in the same branch. A package according to the preamble of claim 1 is disclosed in WO-A-03/106267.

Object and summary of the present invention

[0005] As was said, in the case of flow pack packaging, the package is usually opened by tearing the wrapping material along a longitudinal or transversal trajectory with respect to the package itself. In the case of candy-like packages, even when modified in various ways to insure hermetic sealing properties, the user tends to open the package starting by untwisting the bow or bows, rotating the central part of the wrapper itself, where the packaged product is located.

[0006] In both cases, the product could easily escape from the wrapper, making it difficult for the user to avoid its undesired falling. The risk of product dropping is even more evident in cases in which the product is of small size (for example, a small pastille or confectionery product) and/or when the package is opened while the attention of the consumer is occupied by other operations, for example, while the consumer is walking.

[0007] Solutions such as the flow pack solution described in WO-A-99/58421, in which a transverse pre-incision is present, could virtually solve the product dropping problem, but they are critical both for the generally reduced visibility of the pre-incision itself, and because the latter is susceptible to compromising package sealing since it is provided on the welding.

[0008] The object of the present invention is providing a solution capable of overcoming such inconveniences.

[0009] According to the present invention, such object is achieved thanks to a package having the characteristics set forth in claim 1. Advantageous developments of the invention are object of the subordinate claims. The invention concerns also a corresponding package realisation method as well as a corresponding device. The claims are integral parts of the disclosure of the invention provided herein.

[0010] In the currently preferred embodiment, in addition to overcoming the inconveniences outlined above concerning the package opening operation, the invention allows the realisation of airtight sealed packages of the "hermetic" type: this being a characteristic very much appreciated in the case of products commercialised in humid areas, since it allows isolation of the product from the surrounding environment. Furthermore, such technology provides also, using appropriate films, isolation from oxygen and the migration of aromas.

Brief description of the attached drawings

[0011] The invention will now be described as a non-limiting example.

[0012] The description refers to the attached drawings, in which:

- figure 1 is a general prospective view of a package of the type described herein,
- figure 2 schematically illustrates the criteria of realisation of the package in figure 1,
- the figures 3 and 4 illustrate a possible variant sequence of the opening of the package in figures 1 and 2,
- figure 5 illustrates a possible variant realisation of the solution in the previous figures and
- figure 6 schematically illustrates a method and device usable for realising the packages in figures 1 to 5.

Detailed description of exemplary embodiments

[0013] In the figures in the attached drawings, the numeric reference 1 indicates a package in laminar or sheet material in its entirety, used to package the food product P such as, for example, a confectionery product, a candy, a chocolate, a praline or like product. Reference to these dimensional data should not be interpreted as limiting to the scope of the invention; the solution described herein can be used also for products P of very small sizes, such as, for example, confectionery products of a few millime-
tres in length. Also, the product P can be either single or multiple as is illustrated, for example, in EP-A-0 814 030.

[0014] The package 1 is essentially made of a laminar or film wrapping material (on which more will be said in the following) initially wrapped according to a general U conformation around the product P as is schematically illustrated in figure 2.

[0015] Successively, a closing line 2, extending in a general arch-like trajectory so as to surround the product P, is provided around the product P. The above-said sealing line 2 (also susceptible to having a certain length) has its extremities located in correspondence with the loop part of the sheet material folded in a U around the product P.

[0016] The extremity portions in the packaging intermediate thus realised (refer again to figure 2) are then subjected to a general twisting movement in correspondence to one or both of the extremities (observe the arrows F in figure 2) so to confer the general "candy-like" appearance represented in figure 1 to the package 1, with a central part enclosing the product P (airtight sealed, thanks to the presence of the sealing line 2) and two extremity parts 3 twisted into a general bow-like conformation.

[0017] In a currently, less preferred embodiment, not represented in the figures, the package 1 may have only one bow at the extremity 3.

[0018] The general realisation criteria of the package 1 described so far substantially correspond to the solution object of the document EP-B-1 477 423, already cited in the introductory part of the present description: therefore, all of the elements illustrated, described or in any way deducible from such prior art document will not be further described herein.

[0019] The fact that the distal edges 3a of the two bows 3 have a saw-like or zigzag trajectory creating a plurality of incisions in each distal edge 3a with V-shaped notches, instead of a general straight-line trajectory, is an important characteristic of the solution described herein. Each of such parts having V-shaped notches can act as a triggering point for a wrapper-tearing phenomenon directed at freeing the product P from the package 1.

[0020] The sequence in figures 3 and 4 shows how, starting on one of the distal edges 3a, and in particular starting from one of the V-shaped notched points of the zigzag configuration, the user wanting to open the package 1 can trigger a gradual wrapper-tearing phenomenon. Starting at the previously cited trigger point, generically indicated with 4, the tearing action proceeds along a trajectory 40 (indicated with a dotted line in figure 3 and instead, represented as a solid line in figure 4) so to determine the gradual lengthwise tearing of the package 1.

[0021] Experiments performed by the Applicant show that it is advantageous to realise the package 1 using "oriented film" sheet wrapping material with the oriented direction aligned longitudinally with respect to the package 1, that is, in the direction of the ideal axis around which the wrapping material of the package is twisted to from the extremity bow or bows 3, although this solution must not be taken categorically (in particular in the presence of extremely thin wrapping materials).

[0022] The term "oriented film" meaning a film material (typically a plastic material in, for example, a cyclo olefin copolymer (COC) and polyethylene) that, during production (usually by extrusion) is subjected to stretching in the longitudinally advancing direction of the extruder. Such stretching makes the structure of the film material more stable against possible successive stretching in the oriented direction: in other words, the film, after being stretched, has a higher resistance to stretching than before being subjected to stretching.

[0023] In a complementary way, the oriented-film material is easier to tear in the direction of the orientation. In practice, the film is less resistant to cutting attempts such to induce tearing in the oriented direction that the film was subjected to during its manufacturing phase.

[0024] In any case, both if it derives from an intrinsic characteristic of the film used for the wrapper or if the result is favoured by the use of an oriented-film material, it is possible to discover the fact that in the solution described herein the action of tearing along the line 40 triggered starting from one of the notched points of the zigzag profile (for example from the trigger point indicated with 4 in figure 3) the action propagates longitudinally with respect to the package. All of this (at least most of the time) without involving, if not to a relatively reduced extent, the untwisting of the bow-like part 3 involved in the tearing action.

[0025] In the case of the solution described herein, the tearing of the bow proceeds along a substantially longitudinal line with respect to the package, without inducing a marked twisting movement of the bow. Furthermore, while the bow 3 through which the tearing line 40 propagates can somehow be subjected to a slight untwisting, the opposite bow 3, not involved in the propagation of the tearing line, remains essentially stably twisted.

[0026] The net result thus obtainable is represented in figure 4. Once the tearing action made along line 40 traverses the greater part, and then practically the entire central part of the package (the condition actually represented in figure 4), it is possible to observe that the product P is still found inside of the central part of the package 1, housed in a sufficiently stable and safe way in the residual part of the package having a general shell-like conformation, retained in such shell by the two longitudinal margins of the tearing line indicated with 40, which, as is schematically represented in figure 4, advances on both sides of the product P.

[0027] The presence of distal edge or distal edges 3a with a zigzag or similar pattern suggests to and allows the consumer, even in the presence of the twisted bow or bows, to open the package 1 not by untwisting the bows (as the consumer would tend to do with a normal candy-like package, but through a longitudinally induced tearing. In turn, such tearing occurs gradually thanks to the bow through which the tearing is propagated.
In this way, it is possible to open the package (which, recall that in the case described herein is an air-tight sealed hermetic package) without running the undesired risks of product dispersion mentioned in the introductory part of the present description and without running into the possible problems that may be encountered if a technique according to the teachings of the document WO-A-99/58421 was adopted.

In this regard, it is also convenient to observe the following.

Experiments performed by the Applicant demonstrate that - other characteristics being equal (and in particular, with the same material and thickness of the wrapping sheet) - a package substantially identical to the one illustrated here as an example, but with distal edges 3a having a straight line pattern, lacking tear-triggering points 4, is very often impossible to tear in a longitudinal direction, without the application of a very significant effort.

Furthermore, the presence of a tear-triggering point, such as that provided by the zigzag pattern on the edges 3a, suggests to the consumer to tear the package 1 in the above described way. On the contrary, in the presence of edges 3a with strait-line patterns, the consumer is unavoidably led to try to open the package by untwisting the bows 3: an operation which, in the case of a hermetic package (see figure 3) in any case, does not give access to the product P.

The same experiments demonstrate that the use of an oriented type wrapping material helps both in triggering of tearing and in its propagation across the region of the twisted bow.

Also, it was possible to determine that the best result can be obtained when the length of the portion of wrapping subjected to twisting for formation of the or each bow, measured longitudinally with respect to the package (see figure 2), has a length A included between 5 millimetres and 5 millimetres plus X (the length of the product), protruding with respect to the length X of the product P.

Figure 5 highlights the possibility of realising the distal edge 3a, always having a general zigzag pattern, but with rounded incisions along the external perimeter and with V-shaped notches along the internal perimeter, so to form respective triggering points 4 for tearing of the package wrapper.

Therefore, it follows that for the distal edge 3a it is possible to adopt any configuration such to create wrapper tear-triggering points 4.

Figure 6 schematically illustrates the possible realisation criteria of a package of the type represented in the previous figures.

In particular, on the left side of figure 6, one sees the blank, indicated with 10, of wrapping material made of a sheet material folded in a general U conformation opened toward the top (ideally considered as moving from left to right).

The techniques allowing the realisation of a U-shaped blank of this type, starting from a roll of sheet material, are well known in flow-pack packaging methodology and therefore do not need describing herein.

The numeric reference 12 indicates a filling and sealing station in its entirety (itself also of know type) in which the products P are inserted in the tubular blank 10 inserting them inside the part of the loop of the blank through the upper edges not yet connected together. Coordinately with the filling operation, operating according to a method of the type described in document EP-B-1 477 423 previously cited, the unit 12 makes the sealing line 2, which provides the hermetic seal around each product P inserted in the blank of sheet material.

Successively, the hermetic package thusly obtained is advanced (usually after a 90° rotation with respect to its advancing axis, indicated with X10, although such choice is obviously not compulsory) toward the cutting unit 14 (for example, with intermittent or rotating knives - itself also of known type) which provides the cutting of the individual packages forming the distal edges 3a with saw-like pattern (or analogous) visible in figures 1 to 4.

Next, a bow-realisation station indicated with reference 16 in which, operating in a way itself known (for example, according to the method described in the document EP-B-1 299 285), the extremities of each package are subjected to twisting so to provide the extremity bows 3.

The products P housed in the now completed packages 1 are then collected (usually by falling) in a container C.

The solution described herein is adaptable to a wide range of variants.

For example, according to the currently preferred form of embodiment, the solution illustrated herein is designed so that the seal characteristic of the package around the product P, provided by the sealing line 2, tightly surround the product P, so that the opening pre-inclusions provided on the distal edges 3a, as already cited, do not compromise the sealing. Naturally, it would also be possible to delegate this function to terminal package sealing lines (realised according to widely known criteria in flow-pack type packaging technology) defining the distal edges 3a with a zigzag pattern.

It follows that, keeping the principle of the invention constant, the details of realisation and the embodiments could be widely varied with respect to what was illustrated herein as a non-limiting example, without departing from the scope of the invention, as defined in the attached claims. In particular, concerning the choice of material of which the wrapping film is constituted, different choices are possible, at least in principle, such as that of using a film of polypropylene (PP), polyethylene (PE), polyethylene phthalate (PET), etc.. The use of a multi-layer cyclo olefin co-polymer (COC) and polyethylene based film was demonstrated to be a particularly advantageous choice. A film material of this type was found ideal for the realisation of the solution described.
herein in the field of packaging of a wide range of products varying in size and genre, such as small confectionary products, chocolate eggs, wafer-like products.

Claims

1. A package for food products (P) including a sheet of wrapping material air-tight sealed (2) around at least one product (P) and provided with at least one bow-like twisted extremity portion (3) having a distal edge (3a), the method including the operation of providing at least one triggering point (4) for the tearing of said wrapper, characterised in that said at least one triggering point (4) for the tearing of said wrapper is provided at said distal edge (3a) of said bow-like twisted extremity portion (3).

2. A package according to claim 1, in which said sheet material is constituted of an oriented film having the oriented direction longitudinal with respect to the package.

3. A package according to claim 1 or claim 2, in which said distal edge (3a) has a general zigzag pattern with V-shaped incisions susceptible to providing triggering points (4) for the tearing of said wrapper.

4. A package according to any of the previous claims, in which said distal edge (3a) has a general zigzag pattern, with rounded incisions along the external perimeter and V-shaped incisions along the internal perimeter so to provide respective triggering points (4) for the tearing of said wrapper.

5. A package according to any of the previous claims, in which said distal edge (3a) has a configuration such to create a plurality of triggering points (4) for the tearing of said wrapper.

6. A package according to any of the previous claims, in which said wrapper has a sealing line (2) extending in a general arch-like trajectory around said at least one product (P).

7. A package according to claim 6, in which said wrapper is wrapped around said at least one product (P) according to a general U-conformation with said product (P) housed in the loop part of said U-conformation, and in which said sealing line (2) has its extremities in correspondence with said loop part.

8. A package according to claim 1, in which said at least one extremity portion (3), has a minimum length (A) equal to 5 millimetres and a maximum length (A) equal to 5 millimetres plus the dimension (X) of the wrapped product.

9. A method for packaging food products (P) in a wrap-
ceptible to forming respective triggering points (4) for the tearing of said wrapper.

18. A device according to claim 16 or claim 17, including a cutting unit (14) to provide said distal edge (3a) with a general zigzag pattern having rounded incisions along the external perimeter and V-shaped incisions along the internal perimeter so to form respective triggering points (4) for the tearing of said wrapper.

19. A device according to any of the claims 16 to 18, including a cutting unit (14) to provide said distal edge (3a) with a configuration such to create a plurality of triggering points (4) for the tearing of said wrapper.

20. A device according to any of the claims 16 to 19, including a sealing unit (12) to realise said sealing line (2) according to a general arch-like trajectory around said at least one product (P).

21. A device according to claim 20, including a shaping tool to wrap said wrapper around said at least one product (P) according to a general U-conformation with said product (P) housed in the loop part of said U-configuration, with said sealing unit (12) providing said sealing line (2), having its extremities in correspondence with said loop part.

Patentansprüche

1. Verpackung für Lebensmittel (P), die einen Bogen Hüllenmaterial (2) aufweist, das luftdicht um wenigstens ein Produkt (P) versiegelt ist und das mit wenigstens einem schleifenförmig verdrehten Endabschnitt (3) versehen ist, der eine distale Kante (3a) aufweist, wobei die Verpackung wenigstens einen Auslösepunkt (4) zum Abreißen der Hülle aufweist, dadurch gekennzeichnet, dass der wenigstens eine Auslösepunkt (4) zum Abreißen der Hülle an der distalen Kante (3a) des schleifenförmig verdrehten Endabschnitts (3) vorgesehen ist.

2. Verpackung nach Anspruch 1, wobei das Bogenmaterial aus einer orientierten Folie besteht, deren Orientierungssichtung bezüglich der Verpackung längs verläuft.

3. Verpackung nach Anspruch 1 oder Anspruch 2, wobei die distale Kante (3a) im Allgemeinen ein Zickzackmuster mit V-förmigen Einschnitten aufweist, die leicht Auslösepunkte (4) für das Abreißen der Hülle zur Verfügung stellen.

4. Verpackung nach einem der vorherigen Ansprüche, wobei die distale Kante (3a) im Allgemeinen ein Zick-
Einschnitten entlang des äußeren Umfangs und V-förmigen Einschnitten entlang des inneren Umfangs aufweist, um so jeweilige Auslösepunkte (4) zum Abreißen der Hülle zu bilden.

13. Verfahren nach einem der Ansprüche 9 bis 12, das den Schritt des Versehens der distalen Kante (3a) mit einer Konfiguration, so dass mehrere Auslösepunkte (4) zum Abreißen der Hülle gebildet werden, aufweist.

14. Verfahren nach einem der Ansprüche 9 bis 13, das den Schritt des Anbringens einer Versiegelungslinie (2) entlang einer im Allgemeinen bogenförmigen Bahn um das wenigstens eine Produkt (P) aufweist.


16. Vorrichtung zum Verpacken von Lebensmitteln (P) in einer Hülle aus einem Bogenmaterial (2), das luftdicht um das wenigstens eine Produkt (P) versiegelt ist und das mit wenigstens einem schleifenförmig verdrehten Endabschnitt (3) versehen ist, der eine distale Kante (3a) aufweist, wobei die Vorrichtung eine Einheit (14) aufweist, um die distale Kante (3a) mit wenigstens einem Auslösepunkt (4) zum Abreißen der Hülle zu versehen.

17. Vorrichtung nach Anspruch 16, die eine Schneideeinheit (14) aufweist, um die distale Kante (3a) im Allgemeinen mit einem Zick Zackmuster zu versehen, das V-förmige Einschnitte aufweist, die leicht jeweilige Auslösepunkte (4) zum Abreißen der Hülle bilden.

18. Vorrichtung nach Anspruch 16 oder Anspruch 17, die eine Schneideeinheit (14) aufweist, um die distale Kante (3a) im Allgemeinen mit einem Zick Zackmuster zu versehen, das abgerundete Einschnitte entlang des äußeren Umfangs und V-förmige Einschnitte entlang des inneren Umfangs aufweist, um somit jeweilige Auslösepunkte (4) zum Abreißen der Hülle zu bilden.

19. Vorrichtung nach einem der Ansprüche 16 bis 18, die eine Schneideeinheit (14) aufweist, um die distale Kante (3a) mit einer Konfiguration zu versehen, um so mehrere Auslösepunkte (4) zum Abreißen der Hülle zu bilden.

20. Vorrichtung nach einem der Ansprüche 16 bis 19, die eine Versiegelungseinheit (12) zum Bilden der Versiegelungslinie (2) gemäß einer im Allgemeinen bogenförmigen Bahn um das wenigstens eine Produkt (P) herum aufweist.

21. Vorrichtung nach Anspruch 20, die ein Formungswerkzeug zum Umwickeln der Hülle um das wenigstens eine Produkt (P) gemäß einer allgemeinen U-Konfiguration mit dem Produkt (P) im Schleifenteil der U-Konfiguration aufweist, wobei die Versiegelungseinheit (12) die Versiegelungslinie (2) zur Verfügung stellt, die ihre Endpunkte entsprechend dem Schleifenteil hat.

Revendications

1. Emballage pour produits alimentaires (P) comprenant une feuille de matériau d’enveloppement scellé hermétiquement (2) autour d’au moins un produit (P) et pourvu d’au moins une partie d’extrémité torsadée en un noeud (3) ayant un bord distal (3a), l’emballage comportant au moins un point de déclenchement (4) pour le déchirage de ladite enveloppe, caractérisé en ce que ledit au moins un point de déclenchement (4) pour le déchirage de ladite enveloppe est situé audit bord distal (3a) de ladite partie d’extrémité torsadée en un noeud (3).

2. Emballage selon la revendication 1, dans lequel ledit matériau en feuille est constitué d’un film orienté ayant la direction orientée longitudinale par rapport à l’emballage.

3. Emballage selon la revendication 1 ou la revendication 2, dans lequel ledit bord distal (3a) a un motif général en zigzag avec des incisions en forme de V susceptibles de constituer des points de déclenchement (4) pour le déchirage de ladite enveloppe.

4. Emballage selon l’une quelconque des revendications précédentes, dans lequel ledit bord distal (3a) a un motif général en zigzag, avec des incisions arondies le long du périmètre externe et des incisions en forme de V le long du périmètre interne afin de constituer des points de déclenchement (4) respectifs pour le déchirage de ladite enveloppe.

5. Emballage selon l’une quelconque des revendications précédentes, dans lequel ledit bord distal (3a) a une configuration permettant de créer une pluralité de points de déclenchement (4) pour le déchirage de ladite enveloppe.

6. Emballage selon l’une quelconque des revendications précédentes, dans lequel ladite enveloppe comporte une ligne de soudage (2) s’étendant suivant une trajectoire arquée générale autour dudit au
moin un produit (P).

7. Emballage selon la revendication 6, dans lequel la-

dite enveloppe est enroulée autour dudit au moins

un produit (P) suivant une configuration générale en U,

ledit produit (P) étant logé dans la partie formant

boucle de ladite conformation en U, et dans lequel

ladite ligne de soudage (2) a ses extrémités en cor-

respondance de ladite partie formant boucle.

8. Emballage selon la revendication 1, dans lequel la-

dite au moins une partie d’extrémité (3) a une lon-

gueur minimale (A) égale à 5 millimètres et une lon-

gueur maximale (A) égale à 5 millimètres plus la di-

mension (X) du produit enveloppé.

9. Procédé pour emballer des produits alimentaires (P)

dans une enveloppe de matériau d’enveloppement

scellé hermétiquement (2) autour d’au moins un pro-

duit (P) et pourvu d’au moins une partie d’extrémité

torsadée en un noeud (3) ayant un bord distal (3a),

le procédé comprenant l’opération de fourniture d’au

moins un point de déclenchement (4) pour le déchi-

rage de ladite enveloppe, caractérisé en ce que

ledit au moins un point de déclenchement (4) pour

le déchirage de ladite enveloppe est situé audit bord

distal (3a) de ladite partie d’extrémité torsadée en

un noeud (3).

10. Procédé selon la revendication 9, comprenant l’opé-

ration d’utilisation, en tant que dit matériau en feuille,

d’un film orienté, ayant la direction orientée alignée

longitudinalement par rapport à l’emballage.

11. Procédé selon la revendication 9 ou la revendica-

tion 10, comprenant l’opération de fourniture dudit bord

distal (3a) ayant un motif en zigzag général avec des

incisions en forme de V susceptibles de former des

points de déclenchement (4) respectifs pour le déchi-

rage de ladite enveloppe.

12. Procédé selon l’une quelconque des revendications

9 à 11, comprenant l’opération de fourniture dudit bord

distal (3a), ledit bord distal (3a) ayant un motif général

en zigzag, avec des incisions arrondies le long du péri-

mètre externe et des incisions en forme de V le long du

périmètre interne afin de former des points de déclen-

chement (4) respectifs pour le déchirage de ladite

enveloppe.

13. Procédé selon l’une quelconque des revendications

9 à 12, comprenant l’opération de fourniture dudit bord

distal (3a) ayant une configuration permettant de créer une pluralité de points de déclenchement

(4) pour le déchirage de ladite enveloppe.

14. Procédé selon l’une quelconque des revendications

précedentes 9 à 13, comprenant l’opération de réa-

lisation de ladite ligne de soudage (2) le long d’une

trajectoire arquée générale autour dudit au moins un

produit (P).

15. Procédé selon la revendication 14, comprenant

l’opération d’enroulement de ladite enveloppe

autour dudit au moins un produit (P) suivant une con-

formation générale en U, ledit produit (P) étant logé

dans la partie formant boucle de ladite conformation

en U et l’opération de fourniture de ladite ligne de

soudage (2) ayant ses extrémités en correspondan-

c de ladite partie formant boucle.

16. Dispositif pour emballer des produits alimentaires

(P) dans une enveloppe de matériau en feuille scellé

hermétiquement (2) autour d’au moins un produit (P)

et pourvu d’au moins une partie d’extrémité torsadée

en un noeud (3) ayant un bord distal (3a), le dispositif

comprenant une unité (14) pour doter ledit bord distal

(3a) d’au moins un point de déclenchement (4) pour

le déchirage de ladite enveloppe.

17. Dispositif selon la revendication 16, comprenant une

unité de coupe (14) pour doter ledit bord distal (3a)

d’un motif général en zigzag ayant des incisions en

forme de V susceptibles de former des points de déclen-

chement (4) respectifs pour le déchirage de ladite

enveloppe.

18. Dispositif selon la revendication 16 ou la revendica-

tion 17, comprenant une unité de coupe (14) pour
doter ledit bord distal (3a) d’un motif général en zig-

zag ayant des incisions arrondies le long du périmè-

tre externe et des incisions en forme de V le long du

périmètre interne afin de former des points de déclen-

chement (4) respectifs pour le déchirage de ladite

enveloppe.

19. Dispositif selon l’une quelconque des revendications

16 à 18, comprenant une unité de coupe (14) pour
doter ledit bord distal (3a) d’une configuration per-

mettant de créer une pluralité de points de déclen-

chement (4) pour le déchirage de ladite enveloppe.

20. Dispositif selon l’une quelconque des revendications

16 à 19, comprenant une unité de coupe (14) pour
réaliser ladite ligne de soudage (12) suivant une tra-

jectoire arquée générale autour dudit au moins un

produit (P).

21. Dispositif selon la revendication 20, comprenant un

outil de façonnage pour enrouler ladite enveloppe

autour dudit au moins un produit (P) suivant une con-

formation générale en U, ledit produit (P) étant logé

dans la partie formant boucle de ladite conformation

en U, ladite unité de soudage (12) réalisant ladite

ligne de soudage (2) ayant ses extrémités en cor-

respondance de ladite partie formant boucle.
REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 9958421 A [0003] [0007] [0028]
- GB 993981 A [0004]
- US 5935686 A [0004]
- EP 0816229 A [0004]
- EP 1299285 B [0004] [0041]
- WO 0222445 A [0004]
- EP 1477423 B [0004] [0018] [0039]
- WO 03106267 A [0004]
- EP 0814030 A [0013]