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(54) Benævnelse: **EMBALLAGE TIL ET TIXOTROPISK PRODUKT**

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PACKAGING FOR A THIXOTROPIC PRODUCT

FIELD OF THE INVENTION

[0001] The present invention relates to packaging for a thixotropic product, in particular for a foodstuff, in particular for animal feed.

BACKGROUND OF THE INVENTION

[0002] From EP 2 432 330 A1, DE 10 2009 022 945 A1 and DE 21 2010 000 014 U1 packaging is known that is designed as a tubular bag for animal feed, the top and bottom of which are sealed at their front and rear ends on a respective transverse sealing area, wherein a predetermined breaking point for tearing open the packaging is provided in a sealing area at the front end. Tubular bags usually have a longitudinal seam that is located on the underside and is folded flush there. The packaging shown in the publications mentioned above is also called a "stick pack".

[0003] However, such generic packaging has certain disadvantages. For example, the process of tearing open the packaging can fail in such a way that the packaging remains unopened despite a part of the packaging being torn off.

[0004] FR 2 126 578 A5 shows packaging for liquid, semi-liquid or powdery contents. An additional sealing line with a perforation in the immediate vicinity of an end sealing line is provided for tearing open the packaging. However, this packaging has reduced ergonomics because it does not offer a sufficiently large holding surface. In addition, the tear propagation is uncertain due to this construction.

[0005] During the production of the above packaging from the prior art, in particular during sealing, temperatures that are too high can also form, which impair the quality of the packaging.

OBJECT OF THE INVENTION

[0006] It is therefore an object of the invention to provide improved packaging which addresses these problems.

SUMMARY OF THE INVENTION

[0007] The invention relates to packaging for a thixotropic product, the packaging having:

[0008] a first longitudinal edge,

[0009] a second longitudinal edge opposite the first longitudinal edge,

[0010] a first end sealing area at a first end of the package,

[0011] a second end sealing area at a second end of the package opposite the first end,

[0012] a predetermined tearing point, which is positioned and aligned in such a way that an opening can be produced on the packaging by tearing open starting at the predetermined tearing point, which opening is smaller than a cross-section of the packaging, the packaging having a first additional sealing area which is separated and spaced apart from the first and second end sealing area and which protrudes from the first longitudinal edge into the packaging, and the predetermined tearing point is incorporated into the first additional sealing area, wherein the first additional sealing area, viewed from the first longitudinal edge, tapers towards the second longitudinal edge.

[0013] In some embodiments, the packaging has a longitudinal sealing area, the longitudinal sealing area being arranged on the second longitudinal edge and the opening being able to be produced as a first channel which is delimited by the first additional sealing area and the longitudinal sealing area.

[0014] In some embodiments, the opening can be produced as a second channel, which is delimited by the first additional sealing area and the first end sealing area.

[0015] In certain embodiments, the packaging has a longitudinal sealing area and a flap, the longitudinal sealing area being arranged on the first longitudinal edge, the flap being arranged on the second longitudinal edge and the opening being able to be produced as a third channel which is delimited by the first additional sealing area and the flap.

[0016] In special embodiments, the packaging has a longitudinal sealing area and a flap, with the longitudinal sealing area forming the first or second longitudinal edge of the packaging and the packaging thus being designed as a three-edge sealed bag, with the respective other longitudinal edge being formed by the flap.

[0017] The predetermined tearing point can include a perforation and/or a laser cut.

[0018] Viewed from the first longitudinal edge to the second longitudinal edge, this perforation or this laser cut can be incorporated into the first additional sealing area, with an imaginary extension line of the perforation or the laser cut running through a channel which is delimited either by the first additional sealing area and a flap or is delimited by the first additional sealing area and a longitudinal sealing area.

[0019] The packaging can also have a second additional sealing area, which is separated and spaced apart from the first additional sealing area and the first and second end sealing areas and protrudes into the packaging from the second longitudinal edge,

and the opening can be produced as a fourth channel, which is limited by the first additional sealing area and the second additional sealing area.

[0020] Viewed from the second longitudinal edge in the direction of the first longitudinal edge, this second additional sealing area can have a tapering course.

[0021] The packaging according to any one of the preceding claims, wherein the predetermined tearing point comprises a perforation or cut machined into the first longitudinal edge.

[0022] In particular, a ratio of a length of the first or second longitudinal edge to a length of the first or second end is between 2 and 4, in particular 3.

[0023] In a preferred embodiment, the packaging is made of a film, the film being in particular a plastic film which is coated on its inside and/or its outside.

[0024] The invention also relates to a thixotropic foodstuff, in particular animal feed, which is packaged by a packaging as described herein.

[0025] The invention also relates to a method of packaging a thixotropic foodstuff in a packaging as described herein, the method comprising the following steps:

[0026] continuous feeding of a film and

[0027] during the feed:

[0028] folding the film over so that the flap is formed at the first longitudinal edge or at the second longitudinal edge,

[0029] producing a longitudinal sealing area on the longitudinal edge opposite the flap,

[0030] producing the second end sealing area,

[0031] filling the packaging with the thixotropic food,

[0032] producing the first end sealing area,

[0033] separated and spaced from the first and second end sealing area, producing the first additional sealing area,

[0034] producing the predetermined tearing point in the first and

[0035] separating the packaging adjacent to the first and second end sealing area.

[0036] The above process steps do not necessarily have to be carried out in the order stated. For example, the first end sealing area and the first additional sealing area can be produced first and only then is the second end sealing area sealed. The production of the additional sealing area and the incorporation of the predetermined tearing point can also take place in a common step, i.e. essentially at the same time. The filling of the packaging with the thixotropic product can take place, for example, during the production of the longitudinal sealing area.

[0037] In one embodiment, the film is a single layer, with the film material being plastic.

In other embodiments, the film used can be a composite film containing aluminium or another metal as a barrier layer. In further embodiments, however, a film without aluminium or without any metal is used, it being possible for the aluminium or metal to be replaced by barriers. However, in each of the above cases, the barrier properties are optional.

[0038] A nozzle effect caused by the taper towards the opening that is created mixes the product again before it emerges from the packaging. If the content has separated over the storage period, this is not noticeable during use. The content can also be ideally dosed through the constriction, similar to a pipette. Furthermore, the open packaging does not leak through the constriction, which means that a drip stop is achieved.

[0039] A further advantage of some embodiments of the packaging according to the invention is improved handling, which is reflected in the reduced and constant effort required to open it. In general, due to the sealing areas separated according to the invention, the contact surfaces for the fingers when opening are larger and more clearly defined. In some embodiments, the packaging also prevents a jerky tearing-open behaviour and thus splashing or an unwanted escape of material when tearing off.

BRIEF DESCRIPTION OF THE DRAWINGS

[0040] Additional advantages of the present invention are apparent from the detailed description and drawings.

[0041] Figure 1 is a plan view of a package known in the prior art;

[0042] Figures 2a to 2d show a first tear-off problem that arises with a packaging from the prior art, in a plan view, a sectional view and two perspective views spaced apart in time;

[0043] Figures 3 and 4 show a second tear-off problem that arises with packaging from the prior art, in an overall top view in the untorn state with an indicated tear line and in a detailed top view in the already torn state;

[0044] Figures 5 and 6 show a third tear-off problem that arises with packaging from the prior art, in an overall top view in the untorn state with an indicated tear line and in a detailed top view in the already torn state;

[0045] Figures 7a, 7b and 9 show exemplary packagings;

[0046] Figures 8 and 10 show exemplary embodiments of a packaging according to the invention;

DETAILED DESCRIPTION OF THE DRAWINGS

[0047] Figures 1 to 6 show a packaging, as is known from the prior art (see EP 2 432 330 A1, DE 10 2009 022 945 A1 and DE 21 2010 000 014 U1), and the problems that may arise when opening a such packaging.

[0048] Figure 1 shows a side view of the tubular bag 1. The packaging extends along a longitudinal axis. In the manufacturing process of tubular bags, a film is folded over twice parallel to the longitudinal axis (10 and 14) and sealed together on the back (11). This "flag" 11 extends along the longitudinal axis and is folded over in such a way that it nestles flush against the back of the tubular bag. Before or during this process, a product is let into the tube that forms during the sealing process. For final sealing, the underside and top are sealed at the front and rear end (surface 15 at the rear end and surface 12 at the front end), with a predetermined breaking point 13 (cut or perforation) additionally being incorporated into the final seal 12 at the front end, which is designed to make it easier to tear open the packaging. The sealing of the front and rear ends (12 and 15) then also attaches the above-mentioned "flag" (longitudinal seam) to the tubular bag at these points. The predetermined breaking point 13 is incorporated into the sealing area 12 from the edge so that it faces the flap 10. In addition, the seal is rounded at the front end in such a way that a kind of nozzle is formed when it is optimally torn open, with the product passing through the nozzle when it is pressed out of the packaging, which is said to have an advantageous effect, particularly with thixotropic products.

[0049] It is provided that a user holds the part 120 of the sealing area 12 shown on the left in Figure 1 "in front" of the predetermined breaking point 13 with one hand (e.g. with thumb and forefinger) and with the other hand (e.g. also with thumb and forefinger of the other hand) holds the part 121 of the sealing area 12 shown on the right in Figure 1 "behind" the predetermined breaking point 13, in both cases as close as possible to the predetermined breaking point 13, and that the two parts 120 and 121 tear open by laterally moving apart.

[0050] With such a design, as shown in Figures 2a to 2d, it can happen when the packaging is torn open that a discrepancy K has to be compensated for when the tearing-open process is completed, which can lead to the product escaping at least partially unintentionally and/or that a disadvantageous shaped opening Ö is created. This is particularly due to the fact that the tear line is initially still a single one in the sealed part 12, but then splits over the two surfaces 20 and 21 of the tube, as can be seen in the sectional view A in Figure 2b. In the detailed views B (Figures 2c and 2d) it is made clear that a gap K can result in these tear lines 22 and 23, which gap must be overcome at the tearing moment. Figure 2c thus represents the moment just before tearing off and Figure

2d the moment just after tearing off. A problem in particular is that the two tear lines 22 and 23 often do not move directly towards one another at this tearing moment, but rather go astray, which can lead to an unintentionally large area of the packaging being torn open (opening Ö). This can impair the precision and/or dosability when the product is then pressed out. The contents can also accidentally splatter when the bag is opened.

[0051] Not all, but certain embodiments of the invention solve the problem illustrated in connection with Figures 2a to 2d. In addition to achieving a lower required expenditure of force, the risk of an unclean tearing off or an uncoordinated tearing moment is reduced in some embodiments.

[0052] However, there are further disadvantages in the prior art, as shown in Figures 3 to 6. For example, if the user does not hold the packaging correctly at the gripping surfaces 120 and 121 and/or the predetermined breaking point 13 is not manufactured completely cleanly and there is therefore excessive resistance that has to be overcome, which leads to a jerky, uncontrolled tearing movement, the snippets can be torn off at an angle, as a result of which either too little or too much of the packaging is removed.

[0053] Figures 3 and 4 show an inadvertent removal of too little packaging material ("snippets") in an overall overview (Figure 3) and a detailed view (Figure 4) in the torn-off but unopened state. This forces the user to subsequently use a tool, such as scissors, for opening, which can also disadvantageously come into contact with the product.

[0054] Accidental drifting in the other direction, see Figures 5 and 6, results in an opening in the packaging that is too large, which can make it difficult to push out of the packaging. In particular, this weakens the tapering shape of the outlet, as a result of which a thixotropic product is not subjected to sufficient shear forces and is therefore more difficult to push out of the packaging. Such excessive tearing can also lead to the problem described with Figure 2 being intensified, i.e. the tear can continue along the longitudinal axis in an uncontrolled manner.

[0055] According to the invention, the problem presented with Figures 3 and 4 is solved, and in certain embodiments the problems presented with Figures 5 and 6 are also solved.

[0056] Figures 7a, 7b and 9 show exemplary packaging. Figures 8 and 10 show embodiments of a packaging according to the invention, which have in common that a "predetermined tearing point" referred to as a predetermined breaking point in the context of the explanation of the prior art, i.e. a perforation, a laser cut, is provided, which is incorporated into an additional sealing area. This additional sealing area is separated and spaced from the "end sealing areas" (referred to as sealing areas 12 and 15 in the context

of the explanation of the prior art) and has a tapering course, viewed from the first longitudinal edge towards the second longitudinal edge. In particular, this first additional sealing area is arranged between the first and the second end sealing area, viewed along a longitudinal axis of the packaging. This additional sealing area eliminates at least the risk of the packaging inadvertently remaining unopened after the snippet has been torn off, as has been described with reference to Figures 3 and 4.

[0057] According to the invention, the probability that an opening will be created that meets the requirements of the thixotropic contents of the packaging is therefore significantly increased with the first additional sealing area, i.e. an opening of defined diameter is created that enables a nozzle effect when the product is pressed out.

[0058] The packagings 7, 7' and 8 each have a first additional sealing area 75, 75' or 85, which is separated and spaced apart from the first end sealing area 74, 74' or 84 and from the second end sealing area 77, 77' or 87, into which the predetermined tearing point 72, 72' or 82 is incorporated. This separation prevents too much heat from being transferred to the packaging material during sealing, which would result in thermal distortion, for example, with the gripping surface being in front of the predetermined tearing point 72, 72' or 82 (on the left in the drawing), i.e. the area 74, 74' or 84 plus the channel 73', 73" or 83' between the sealing areas 74, 74' or 84 and 75, 75 or 85 is enlarged and the handling is thereby also improved.

[0059] If, for example, the predetermined tearing point 72 of the packaging 7 is accidentally torn open at an angle in the direction of the end sealing area 74 (as in the problem in Figure 3), an opening is nevertheless created, since the separate seal 75 forms the channel 73' in the packaging, through which an opening is created during such a tearing-open movement.

[0060] The packaging 8 from Figure 8 is further improved in that the separated sealing area 85 offers a larger holding surface and also directs the propagation of the tear in the direction of the end sealing area 84. This is additionally intensified if optionally (as shown here in Figure 8) the predetermined tearing point 82 is also aligned obliquely there. The probability is increased by the fact that the channel 83 or, if necessary, the channel 83' is created as an opening.

[0061] The packaging 7' from Figure 7b differs from the packaging 7 in that the longitudinal sealing area 71' is located on the same longitudinal edge as the additional sealing area 75'. Although this still causes the problems described with Figures 2a to 2d, at least the problem described with Figures 3 and 4 is solved.

[0062] An additional sealing area located on the side opposite the longitudinal sealing

area allows the packaging to be torn open from the side on which the flap is located and allows the tear to open up on the longitudinal sealing area (= longitudinal seam). Even if the tear lines first branch out onto the two side surfaces of the packaging 7, 8, 9 or 10, they meet again in the longitudinal seam. This causes a levelling of the course of the force that has to be applied to tear open. In addition, there is a clean tear without fringes or unwanted extensions, as shown in Figure 2d. The force curve when opening is even and low, which is particularly ideal for users with less manual strength.

[0063] The packaging 9 in Figure 9 is based on the packaging 7 in Figure 7a and has been supplemented by a second additional sealing area 96, which is intended to absorb accidental tearing too far, as explained with Figures 4 and 5. Viewed along a longitudinal axis of the packaging, the second additional sealing area is located between the second end sealing area and the first additional sealing area. Therefore, even if the user unintentionally tears the predetermined tearing point 92 obliquely in the direction of the second additional sealing area 96, so that the tear line reaches the second additional sealing area 96 and through it directly to the longitudinal sealing area 91, a defined opening 93" is still ensured, which enables the desired nozzle effect. Ideally, as previously described, the channel 93 is formed by a straight tear, and if the tear is too short, the channel 93'. In order to avert the risk of the tear running obliquely in such a way that it cuts through the tubular bag again after passing through the second additional sealing area 96, the packaging can be modified again, for example, as shown in Figure 10.

[0064] Figure 10 shows packaging 10 as an exemplary embodiment, which is based on packaging 8 in Figure 8 and is supplemented by a second additional sealing area 106. The second additional sealing area 106 is improved compared to the second additional sealing area 96 in Figure 9 in that it offers more leeway for an inadvertently oblique tear line and thus a high degree of certainty that – even in the worst case – only a single opening will be created after the snippet is torn off which is defined by the channel 103" between the first additional sealing area 105 and the second additional sealing area 106. As in the previous examples, the channel 103 is ideally formed and, if the tearing is too short, the channel 103'.

[0065] Likewise, the exemplary embodiments 7, 7', 8, 9 and 10 allow an opening to be created in the packaging by accidentally tearing off a snippet that is too small, which is defined through the respective end sealing area (74, 74', 84, 94, 104) and the respective first additional sealing area (75, 75', 85, 95, 105). In any case, the probability is significantly increased that when the packaging is torn open, there will be an opening that

offers the desired nozzle effect.

[0066] As an additional measure to prevent accidental lateral tearing, the longitudinal sealing areas 71, 71', 81, 91, 101 can be structured approximately directionally, so that this structure deflects or mitigates an errant tear propagation. The cross-hatching of the end sealing areas shown here means that the seal matrices used are equipped with a "waffle-shaped" profile. The lining of the longitudinal sealing area means that this area is continuously sealed with a longitudinal profile. However, other structures can also be achieved using appropriately different tools. As has been shown, longitudinally structured seals are not only an option, but can also achieve an effect that can be used deliberately. In particular, this means that the second additional sealing area or the longitudinal sealing area can have a deliberately directed longitudinal structure, which, viewed in a view as in the figures, runs from top right to bottom left in order to direct the tear line to the bottom left as far as possible. Also conceivable is longitudinal structuring in the first additional sealing area from top to bottom, i.e. from the first to the second longitudinal edge, in order to direct the tear as directly downwards as possible. Stiffness gradients achieved through the structuring can also have a favourable effect on the tearing behaviour.

[0067] Figures 7a, 7b and 8 to 10 each show a number of individual aspects which can also be combined with one another in any configuration, but due to the requirement of scarcity not all of them should be illustrated here. Purely by way of example, it should be mentioned that the longitudinal sealing area of exemplary embodiments 8, 9 or 10 can also be provided on the opposite longitudinal edge. The packaging is only mentioned or shown purely by way of example as a three-edge sealed bag or as a tubular bag. According to the invention, the packaging can also be another film bag and have no or two longitudinal seams. In the case of a "three-edge sealed bag", as the name suggests, the longitudinal seam forms an edge of the packaging. Although Figures 7a, 7b and 8 to 10 indicate that a three-edge sealed bag is shown, it can just as well be a tubular bag whose longitudinal seam is folded at the edge.

[0068] As can be seen in all the figures of the embodiments, the invention makes it easier or more likely to create an opening of a defined size. For example, note that channels 73, 73', 73", 73"', 83, 83', 93, 93', 93", 103, 103' and 103" are all at least substantially the same diameter. Such a relatively narrow outlet is required for the thixotropic product in the packaging, because when the product is squeezed out of the packaging, shearing forces are to arise that soften and/or mix the product.

[0069] While the invention has been described in terms of its preferred embodiment(s), many other modifications and variations can be made without departing from the scope of

the present invention. Therefore, it is intended that the appended claims cover modifications and variations as may be included within the true scope of the invention.

EMBALLAGE TIL ET TIXOTROPISK PRODUKT

PATENTKRAV

1. Emballage (8, 10) til et tixotropisk produkt, hvilken emballage omfatter:

- en første langsgående kant,
- en anden langsgående kant, der ligger over for den første langsgående kant,
- en første endesvejseflade (74, 74', 84, 94, 104) ved en første ende af emballagen,
- en anden endesvejseflade (77, 77', 87, 97, 107) ved en anden ende af emballagen, der ligger over for den første ende,
- et forudbestemt rivepunkt (72, 72', 82, 92, 102), der er indarbejdet i en sådan position og orientering, at der i forbindelse med en oprivning, der begynder ved det forudbestemte rivepunkt, kan frembringes en åbning i emballagen, der er mindre end et tværsnit af emballagen,

hvor emballagen har en første ekstrasvejseflade (75, 75', 85, 95, 105), der er adskilt fra og har en afstand til den første og den anden endesvejseflade, og fra den første langsgående kant rager ind i emballagen, og hvor det forudbestemte rivepunkt (72, 72', 82, 92, 102) er indarbejdet i den første ekstrasvejseflade (75, 85, 95, 105),

kendetegnet ved, at den første ekstrasvejseflade (85), set fra den første langsgående kant til den anden langsgående kant, har et tilspidset forløb.

2. Emballage ifølge krav 1, hvor

- emballagen har en langsgående svejseflade (71, 71', 81, 91, 101),
- den langsgående svejseflade (71, 81, 91, 101) er placeret ved den anden langsgående kant, og
- åbningen kan frembringes i form af en første kanal (73, 83, 93, 103), der er afgrænset af den første ekstrasvejseflade (75, 85, 95, 105) og den langsgående svejseflade (71, 81, 91, 101).

3. Emballage ifølge krav 1 eller 2, hvor åbningen kan frembringes i form af en anden kanal (73', 73'", 83', 93', 103'), der er afgrænset af den første ekstrasvejseflade (75, 75', 85, 95, 105) og den første endesvejseflade (74, 74', 84, 94, 104).

4. Emballage ifølge krav 1, hvor

- emballagen har en langsgående svejseflade (71') og et omslag (70, 70', 80, 90,

100),

- den langsgående svejseflade er placeret ved den første langsgående kant,
- omslaget er placeret ved den anden langsgående kant, og
- åbningen kan frembringes i form af en tredje kanal (73"), der er afgrænset af den første ekstrasvejseflade (75') og omslaget (70').

5. Emballage ifølge et af de foregående krav, hvor

- emballagen har en langsgående svejseflade (71') og et omslag (70, 70', 80, 90, 100),
- den langsgående svejseflade (71, 71', 81, 91, 101) danner den første og den anden langsgående kant af emballagen, og emballagen dermed er udformet som en forseglet pose med tre kanter, hvor omslaget (70, 70', 80, 90, 100) danner den respektive anden langsgående kant.

6. Emballage ifølge et af de foregående krav, hvor det forudbestemte rivepunkt (72, 72', 82, 92, 102) omfatter en perforation og/eller et lasersnit.

7. Emballage ifølge krav 6, hvor perforationen eller lasersnittet, set fra den første langsgående kant til den anden langsgående kant, er indarbejdet i den første ekstrasvejseflade (75, 85, 95, 105), hvor en tænkt forlængelseslinje for perforationen eller lasersnittet forløber gennem en kanal (73, 73", 83, 93, 103), der enten er afgrænset af den første ekstrasvejseflade (75') og et omslag (70') eller af den første ekstrasvejseflade (75, 85, 95, 105) og en langsgående svejseflade (71, 81, 91, 101).

8. Emballage ifølge et af de foregående krav, hvor

- emballagen har en anden ekstrasvejseflade (96, 106), der er adskilt fra og har en afstand til den første ekstrasvejseflade (95, 105) samt den første og den anden endesvejseflade (94/97, 104/107) og fra den anden langsgående kant rager ind i emballagen, og
- åbningen kan frembringes i form af en fjerde kanal (73, 73', 83, 83', 93, 93', 93", 103, 103', 103"), der er afgrænset af den første ekstrasvejseflade og den anden ekstrasvejseflade.

9. Emballage ifølge krav 8, hvor den anden ekstrasvejseflade (106), set fra den anden langsgående kant i retning af den første langsgående kant, har et tilspidset forløb.

10. Emballage ifølge et af de foregående krav, hvor det forudbestemte rivepunkt omfatter en fordybning eller et indsnit, der er indarbejdet ved den første langsgående kant.

11. Emballage ifølge et af de foregående krav, hvor et forhold mellem en længde af den første eller den anden langsgående kant og en længde af den første eller den anden ende udgør mellem 2 og 4, særligt 3.

12. Emballage ifølge et af de foregående krav, hvor emballagen er fremstillet af en folie, særligt hvor folien er en plastfolie, der er belagt på sin inderside og/eller sin yderside.

13. Tixotropisk fødevare, særligt dyrefoder, der er emballeret ved hjælp af en emballage ifølge et af de foregående krav.

14. Fremgangsmåde til emballering af en tixotropisk fødevare i en emballage ifølge et af kravene 1 til 12, hvilken fremgangsmåde omfatter følgende trin:

- kontinuerlig tilførsel af en folie og
- under tilførslen:
  - oplægning af folien, således at omslaget (70, 70', 80, 90, 100) opstår ved den første langsgående kant eller ved den anden langsgående kant,
  - fremstilling af en langsgående svejseflade (71, 71', 81, 91, 101) ved den langsgående kant, der ligger over for omslaget,
  - fremstilling af den anden endesvejseflade (77, 77', 87, 97, 107),
  - påfyldning af emballagen med den tixotropiske fødevare,
  - fremstilling af den første endesvejseflade (74, 74', 84, 94, 104),
  - fremstilling af den første ekstrasvejseflade (75, 75', 85, 95, 105) adskilt fra og i en afstand til den første og den anden endesvejseflade,
  - fremstilling af det forudbestemte rivepunkt (72, 72', 82, 92, 102) i den første ekstrasvejseflade (75, 75', 85, 95, 105) og
  - adskillelse af emballagen ved siden af den første og den anden endesvejseflade.

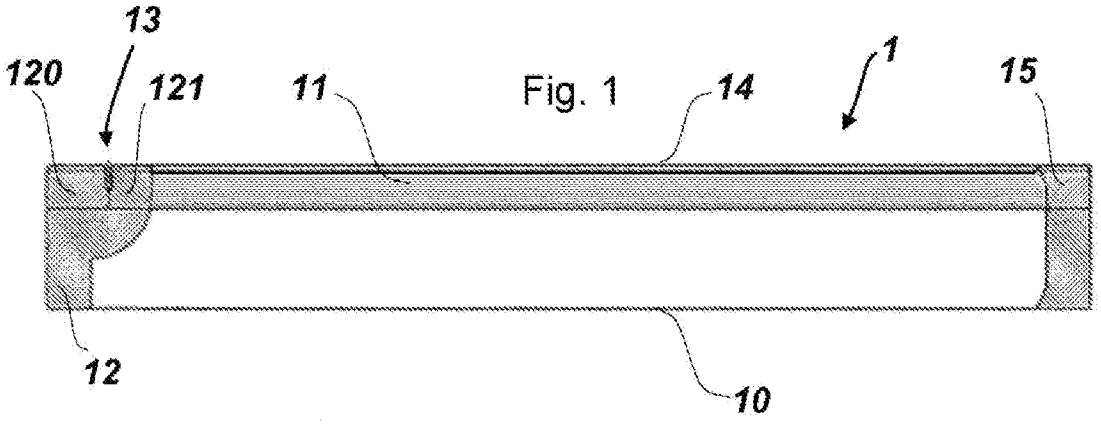


Fig. 1

PRIOR ART

Fig. 2a

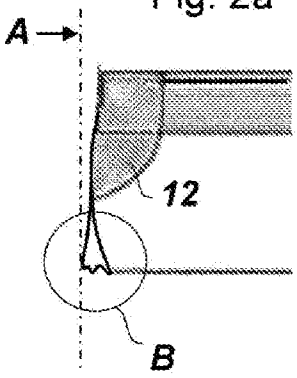


Fig. 2b

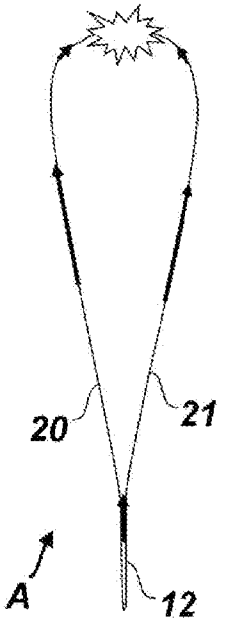


Fig. 2c

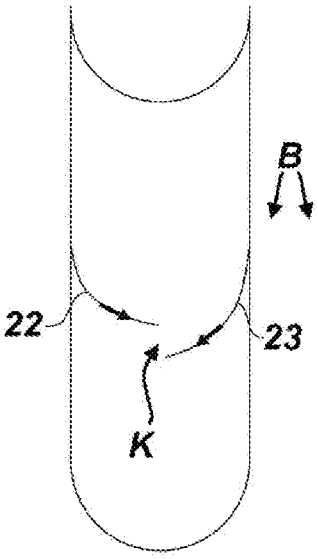
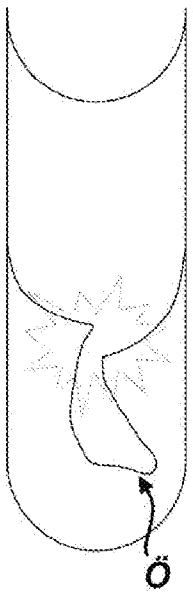


Fig. 2d



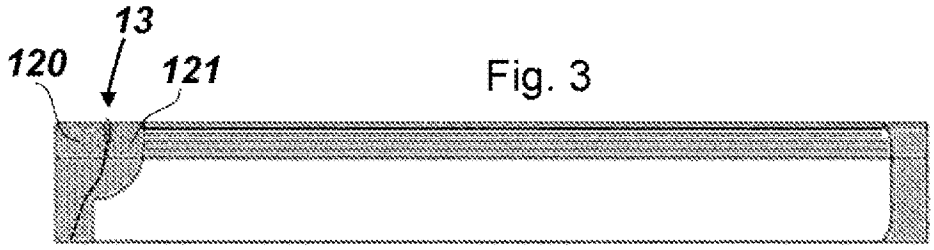


Fig. 3

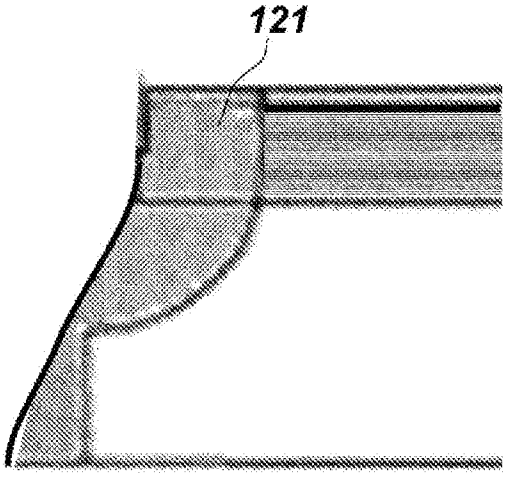


Fig. 4

PRIOR ART

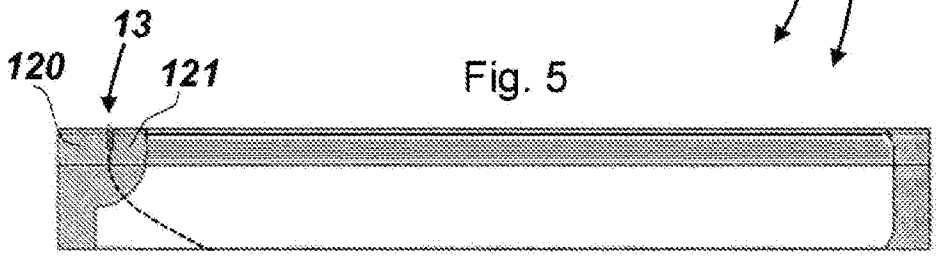


Fig. 5

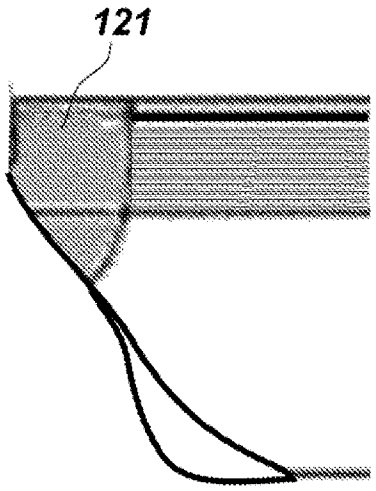


Fig. 6

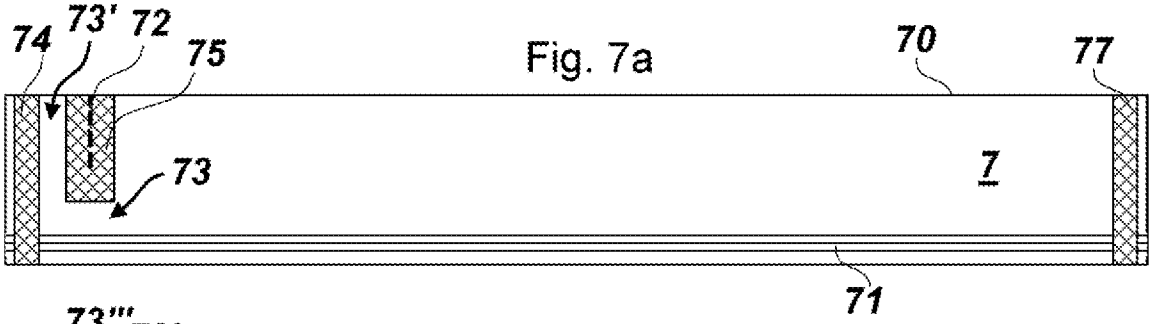


Fig. 7a

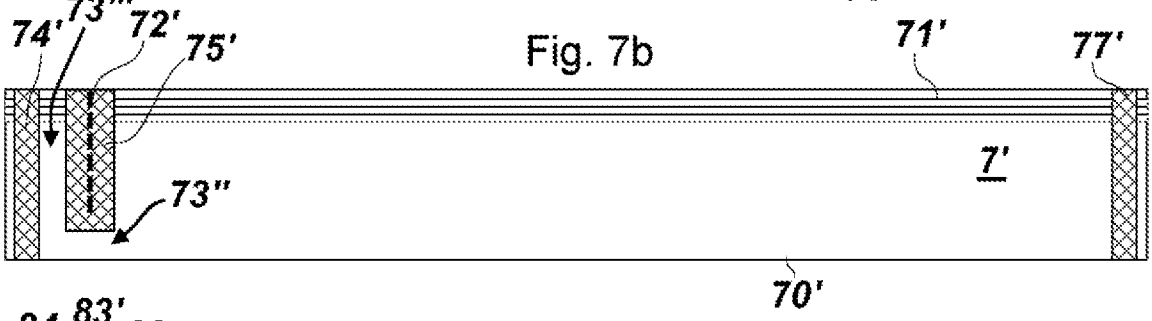


Fig. 7b

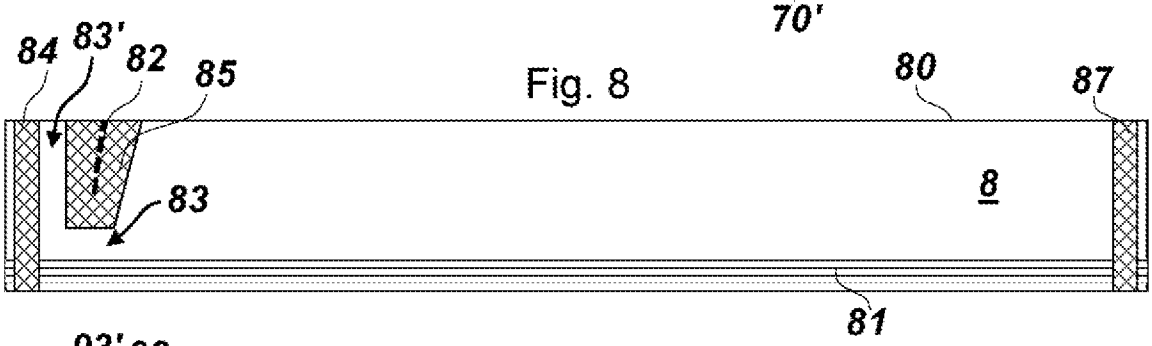


Fig. 8

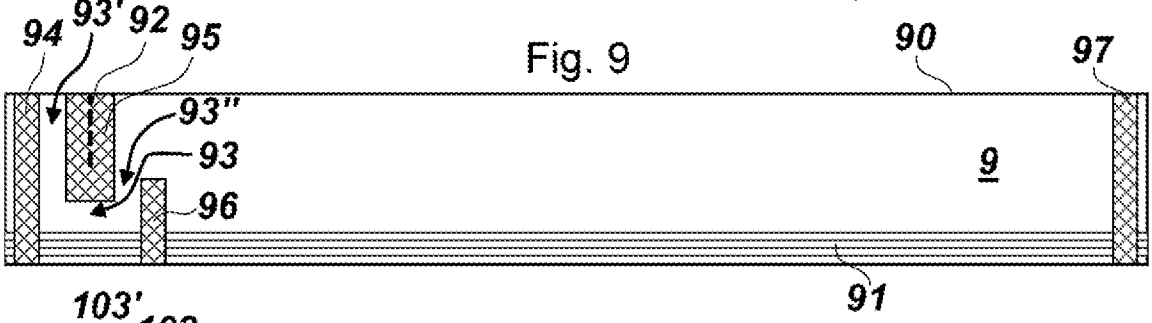


Fig. 9

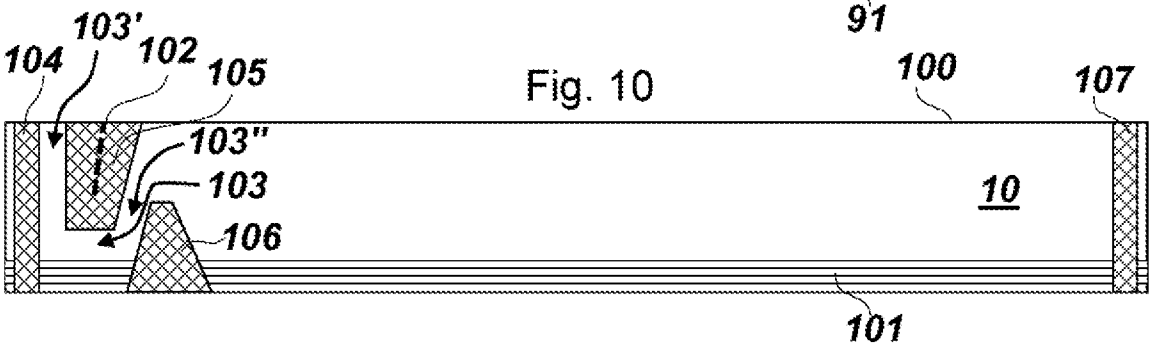


Fig. 10