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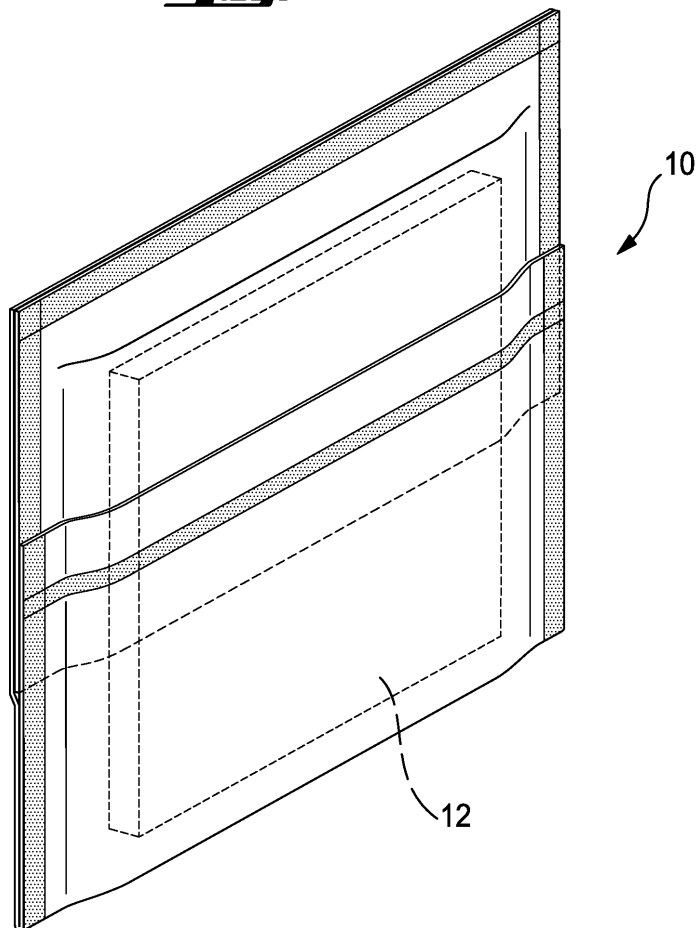
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(54) **Process for making film sachets**

(57) The present invention relates to a process for making film sachets (10). By the process disclosed herein material losses due to cut-offs during the process are

prevented. The sachets (10) made according to the process herein are useful for containing cleaning articles (12), for example, moistened cleaning wipes.

Fig. 13



Description

FIELD OF THE INVENTION

[0001] The present invention relates to a process for making film sachets. By the process disclosed herein material losses due to cut-offs during the process are prevented. The sachets made according to the process herein are useful for containing cleaning articles, for example, moistened cleaning wipes.

BACKGROUND OF THE INVENTION

[0002] It is well-known in the art to sachet absorbent and cleaning articles in sachets made of a film materials. A large variety of such sachets is known in the art. Articles of substantially planar configuration, such as cleaning wipes, are often packaged in sachets, which basically consist of two panels of film, between which the wipe is sandwiched. The two film panels are sealed around the wipe for completely enclosing said wipe. Complete enclosure of the wipe contained in the sachet is important for hygienic reasons. However, in case of packaging moistened cleaning articles, which are provided with lotions for instance, the need for tight packaging is even more important for preventing loss of the moisture.

[0003] In co-pending European patent application serial number 04012225.1, an individually-packaged wipe has been disclosed. The sachet of this wipe provides improved packaging in terms of enclosure of the article packaged therein together with an improved opening functionality. In an embodiment disclosed in this application the opening functionality is provided by a graspable flap of package material, by which the user can peel open the sachet for dispensing the wipe. By the peeling a heat seal is broken, which is due to the specific layering of the sachet material used "weaker" than the side seals of the sachet.

[0004] This type of sachet can be conventionally produced by processes comprising the steps of folding a strip of film material along two parallel folding axes, such that the ends of the strip are folded inwardly and positioned onto each other with some overlap. Thereafter, the folded strip is sealed along its periphery outside the fold lines. One further sealing line is provided in the area of overlap of the ends of the strip. The thus formed sachet is completely closed but still empty. For placing articles in its interior, the closed sachet has to be opened again. This is done by cutting off a piece of material parallel to one of the fold lines. Thereafter, the article is placed into the interior of the opened sachet, which is then closed again by a sealing line along the open edge. A process of this kind is disclosed in EP 696 991.

[0005] Cutting off material, which needs to be scrapped is inconvenient and also costly. Firstly, a separate process step is required therefore, adding to the overall complexity of the process, and secondly such sachet materials can be costly, especially in case of lami-

nates, such as metallised films or laminates as the one disclosed in EP 696 991, having a structure with a polyethylene/oriented polypropylene (hereinafter PE/OPP) bilayer with the PE side oriented outwardly on one surface and a PE layer on the opposite surface.

[0006] Therefore, there exists a need for a simplification of the process for making sachets of the kind disclosed in European patent application serial number 04012225.1, as well as others that are generally similar in construction. Further, there exists a need for reducing the cost of producing such sachets.

SUMMARY OF THE INVENTION

[0007] It has now been found that the above objectives are met by a process including the steps of:

- a) supplying a film material in a machine direction, the film material having an upper and a lower surface;
- b) cutting the film material in the machine direction, thereby generating two sections of the film material;
- c) displacing the two sections onto each other such that the lower surface of one of the sections overlaps the upper surface of the other section;
- d) joining the two sections to each other in the area of overlap along a line of jointure, thereby generating a joined section;
- e) folding the joined section over itself along a line of folding, which is typically parallel to the machine direction;
- f) creating side seals by intermittently sealing the folded joined sheet in a cross direction, thereby forming a sachet with an opening located substantially opposite the line of folding;
- g) inserting an article into the sachet; and
- h) sealing the opening.

[0008] There are variations in sequence of the individual steps possible but typically the steps are carried out in the sequence as listed herein above.

[0009] The process of the present invention further comprises step i) cutting in machine direction in the area of the side seals, wherein step i) is carried out at any stage of the process after step f).

[0010] The process disclosed hereinafter is suitable for providing sachets for a wide variety of articles. The sachets produced by the process herein have proven especially useful for packaging personal care articles, such as cleaning articles like wipes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011]

Figure 1 illustrates a film material being provided in machine direction.

Figure 2 illustrates the film materials being cut in machine direction.

Figure 3 illustrates the two sections of the film material being displaced onto each other.

Figures 4 and 5 illustrate the joining of the two sections of film material in the area of overlap.

Figures 6 and 7 illustrate folding the joined section.

Figures 8 and 9 illustrate intermittently sealing the folded section in cross direction.

Figures 10 and 11 illustrate inserting an article into the sachet.

Figure 12 illustrates sealing of the opening of the sachet.

Figure 13 illustrates one embodiment of a sachet made according to the process of the present invention.

696 991 it is possible to form heat seals of variable strength. When interfacing two PE surfaces a stronger seal is formed and when interfacing a PE and a PE/OPP surface a weaker seal is formed. The film material used herein may have moisture barrier properties. This can be provided by incorporating moisture barrier layers into the film material, like layers of metals, like aluminium, or layers of EVOH (ethylene vinyl alcohol) or by other known means.

10 **[0016]** "Sealing" or "joining" as used herein refers to suitable measures for attaching one piece material to another. Exemplary sealing and joining methods are heat sealing, pressure sealing, gluing, crimping, ultrasonic bonding, mechanical entangling and/or other known sealing means and or methods.

15 **[0017]** The process of the present invention can be structured into the following steps:

In **step a)** (Fig. 1) a film material (1) having an upper (2) and a lower surface (3) is supplied in a machine direction (MD).

In **step b)** (Fig. 2) the film material (1) is cut in machine direction. Thereby two sections (1a and 1b) of film material are generated.

In **step c)** (Fig. 3), the two segments (1a and 1b) of film material are displaced onto each other, such that the upper surface of one section overlaps the lower surface of the other section.

In **step d)** (Fig. 4 and 5) the two sections are joined in the area of overlap (5) along a line of jointure (6) for forming a joined section (8). The line of jointure (6) typically, but not necessarily, extends substantially parallel to the machine direction. The line of jointure (6) may be arranged in the area of overlap such that the sachet provides a graspable flap of film material for opening the sachet. One way of implementing this is that the line of jointure (6) does not cover the whole area of overlap and is spaced inwardly with respect to the extremities of the area of overlap, which are formed by the edges of the cut separating the two sections of the film material. A typical execution is illustrated in Figure 5. The line of jointure (6) can have numerous shapes, such as linear, waved, zigzag, curved and the like.

In **step e)** (Fig. 6 and 7) the joined section (8) is folded along a line of folding (7). Typically, the line of folding (7) extends substantially parallel to the machine direction. In a typical execution of the process the line of folding (6) bisects the joined section (8) into two parts of substantially equal size and shape, which are folded onto each other in a congruent manner, as illustrated in Figure 7. In a specific embodiment both the line of jointure (6) and the line of folding (7) are substantially parallel to the machine direction.

DETAILED DESCRIPTION OF THE INVENTION

[0012] "Personal care articles" as used herein encompasses a wide variety of articles, such as absorbent articles like diapers, sanitary napkins, panty liners or tampons. Other personal care articles are cleaning articles like cleaning wipes, including cleaning wipes that are moistened and may additionally include lotion.

[0013] "Machine direction" as used herein refers to the direction into which the film material is moved through the machinery upon producing the sachet of the present invention.

[0014] "Cross-direction" as used herein refers to a direction extending generally perpendicularly to the machine direction in the plane of the film material.

[0015] "Film material" as used herein refers to a flat layer of material suitable for forming hygienically satisfying sachets for personal care articles. Exemplary film materials include polymeric film materials comprising PE, PP, PVC and the like. Further suitable film materials include metallised polymeric films or laminates of polymeric materials. An especially useful film materials of the latter kind is the multilayer laminate material disclosed in EP 696 991. This material has an outer layer made of a PE/OPP coextruded layer on one surface, with the PE side oriented outwardly, and a PE layer on the opposite surface. By using materials like those disclosed in EP

In **step f)** (Fig. 8 and 9) the folded joined section is sealed intermittently in cross direction (CD) for forming side seals (9) extending laterally the line of folding (7), thereby a sachet (10) with an opening (11) along the side substantially opposite the line of folding (7) is formed. In a typical embodiment these side seals (9) extend across the whole width of the folded joined section, as illustrated in Figure 9.

In **step g)** (Fig. 10 and 11) at least one article (12) is inserted into the sachet (10) through the opening (11).

In **step h)** (Fig. 12) the opening (11) is sealed.

[0018] There are variations in sequence of the individual steps possible but typically the steps are carried out in the sequence as listed herein above.

[0019] In addition to the steps described before the process comprises step i) of separating the sachets by cutting in cross direction in the area of the side seals (9). Step i) can be carried out at any stage of the process after step f). The separation can be carried out by any suitable cutting means, including cutting knives, cutting rollers, heat cutters, ultrasonic cutters, laser cutters and combinations thereof.

[0020] Figure 13 illustrates a typical sachet produced by the process of the present invention. The sachet encloses a personal care article (12).

[0021] The present inventors have found that by steps b)-d), i.e. cutting the film material, displacing it onto each other, and sealing it in the area of overlap the process can be significantly simplified. By these measures the structure, which later forms the peelable flap for opening the sachet, is generated at an early stage of the process. Therefore the need to cut the sachet open for inserting a personal care article into the sachet followed by a reclosing step does not exist anymore. Thus, sachet material can be saved.

[0022] All documents cited in the Detailed Description of the Invention are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as an admission that it is prior art with respect to the present invention. To the extent that any meaning or definition of a term in this written document conflicts with any meaning or definition of the term in a document incorporated by reference, the meaning or definition assigned to the term in this written document shall govern.

[0023] While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

Claims

1. A process for making film sachets, the process comprising the steps of:

- a) supplying a film material (1) in a machine direction (MD), the film material (1) having an upper (2) and a lower surface (3);
- b) cutting the film material (1) in machine direction (MD), thereby forming two sections (1a and 1b) of the film material;
- c) displacing the two segments (1a and 1b) of the film material (1) onto each other such that the upper surface of one section overlaps the lower surface of the other section;
- d) joining the two sections (1a and 1b) of the film material (1) in the area of overlap (5) along a line of jointure (6) for forming a joined section (8);
- e) folding the joined section (8) over itself along a line of folding (7);
- f) forming side seals (9) by sealing the folded joined section (8) intermittently in cross direction (CD), thereby generating a sachet (10);
- g) inserting at least one article (12) into the sachet (10) through the opening (11); and
- h) sealing the opening (11);

wherein the process further comprises step i) separating the sachets (10) by cutting in cross direction (CD) in the area of the side seals (9), wherein step i) is carried out at any stage of the process after step f).

2. The process of claim 1, wherein the sealing is made by any of the sealing means selected from the group of heat sealing, pressure sealing, gluing, crimping, ultrasonic bonding and/or mechanical entangling.
3. The process of any of the previous claims, wherein the article (12) is a personal care article, such as a cleaning wipe, a moistened cleaning wipe, or a lotioned cleaning wipe.
4. The process of any of the previous claims, wherein the film material (1) is a laminate comprising a co-extruded layer of oriented polypropylene/polyethylene on the upper surface (2) with the oriented polypropylene oriented outwardly.
5. The process of claim 4, wherein the film material (1) comprises a layer of polyethylene on said lower surface (3).
6. The process of any of claims 4-5, wherein in the step d) the upper surface of one section of the film material is joined to the lower surface of the other section of the film material by heat sealing and wherein in the step e) the joined sheet is folded such that the lower

surface of the joined section (8) is folded onto itself.

7. The process of any of the previous claims, wherein the separating is facilitated by any of the separating means selected from the group of cutting knives, cutting rollers, heat cutters, ultrasonic cutters, laser cutters and combinations thereof 5
8. The process of any of the previous claims, wherein the line of jointure (6) is arranged in the area of overlap (5) such that the sachet provides a graspable flap of film material for opening. 10

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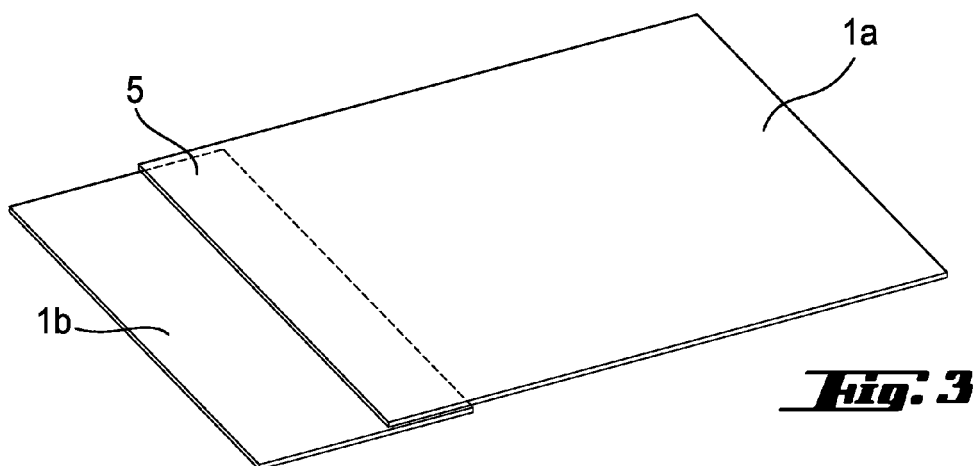
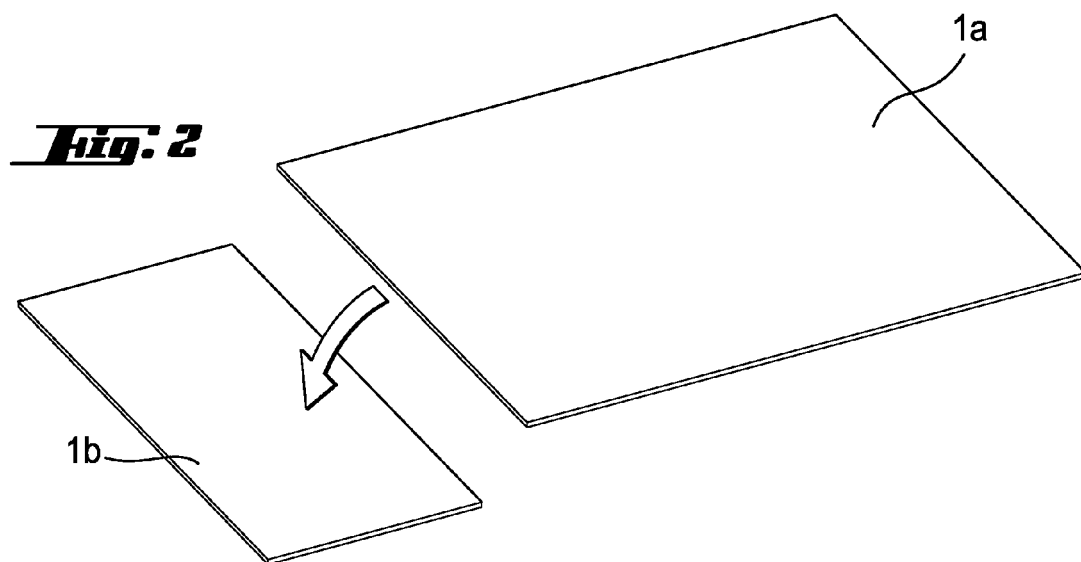
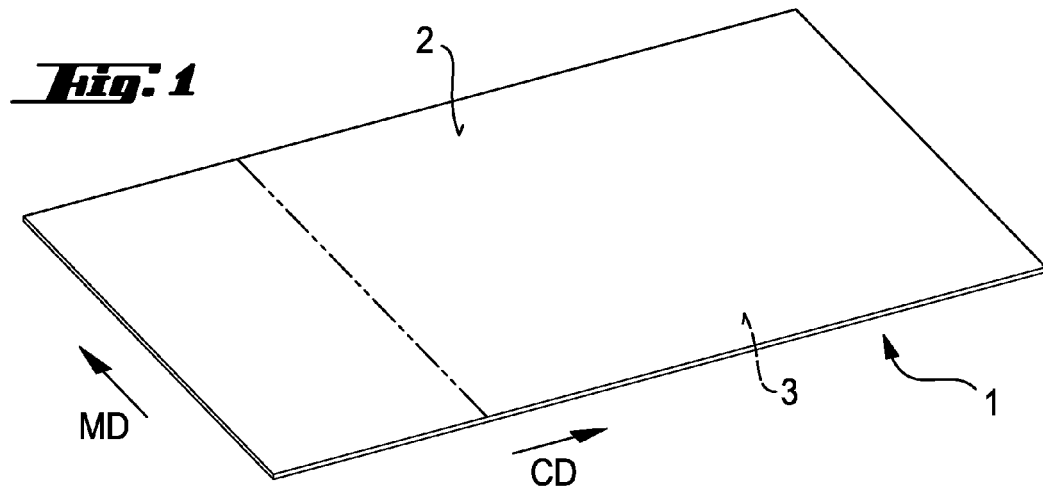


Fig. 4

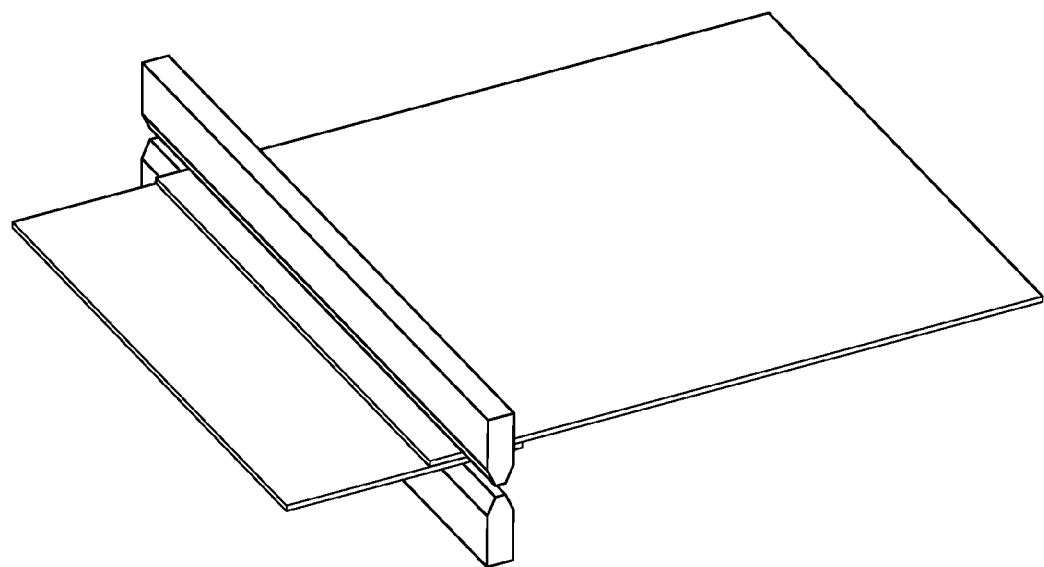
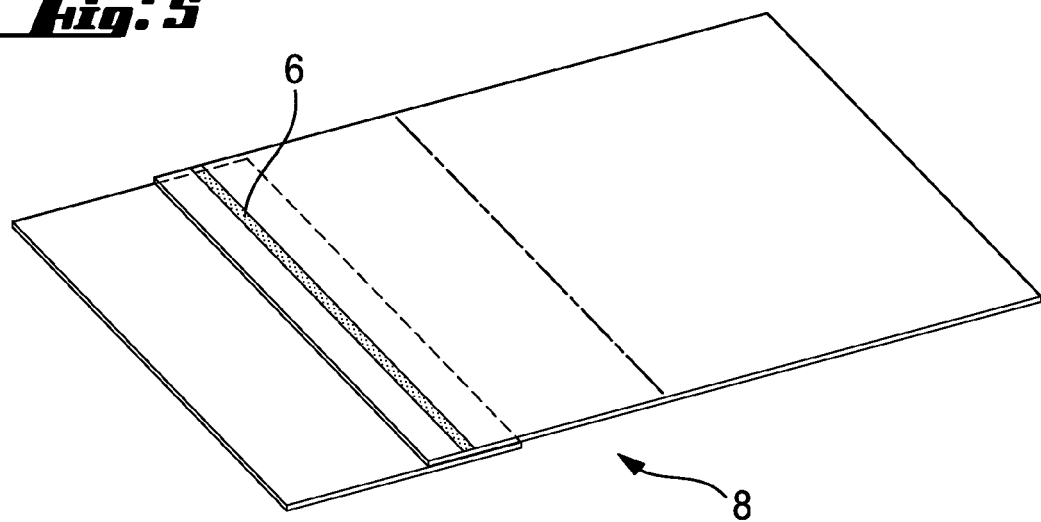


Fig. 5



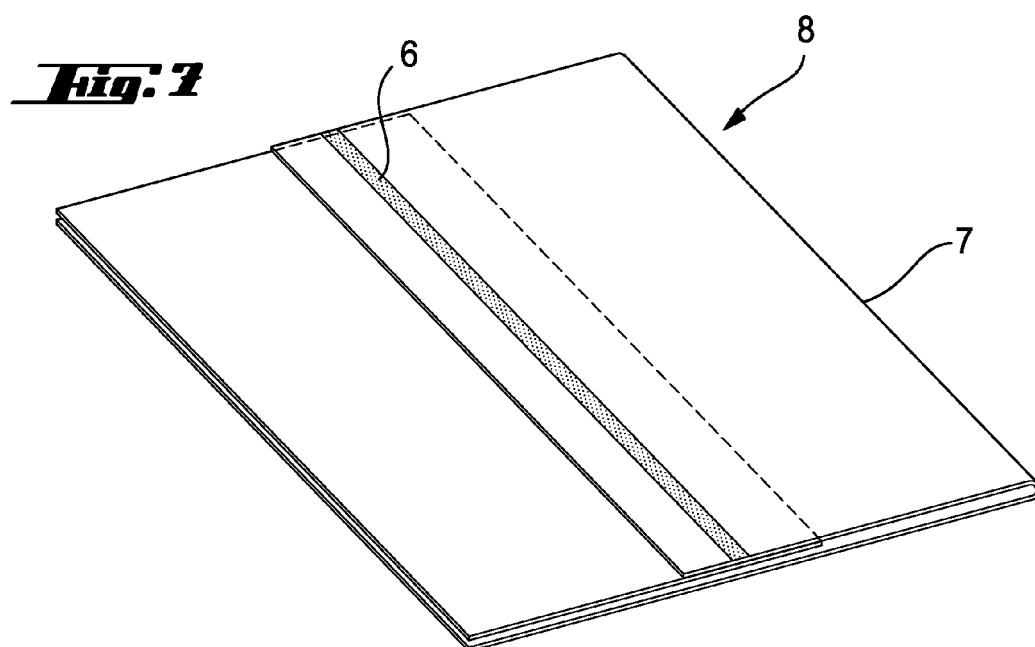
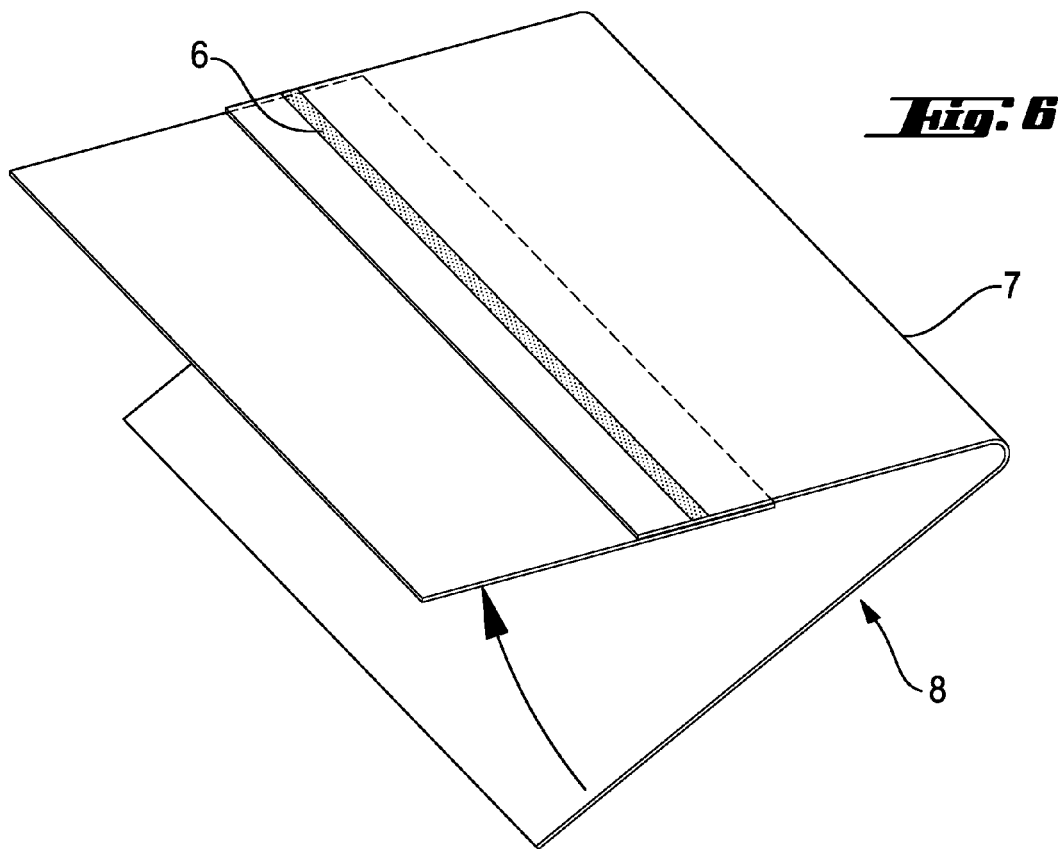


Fig. 8

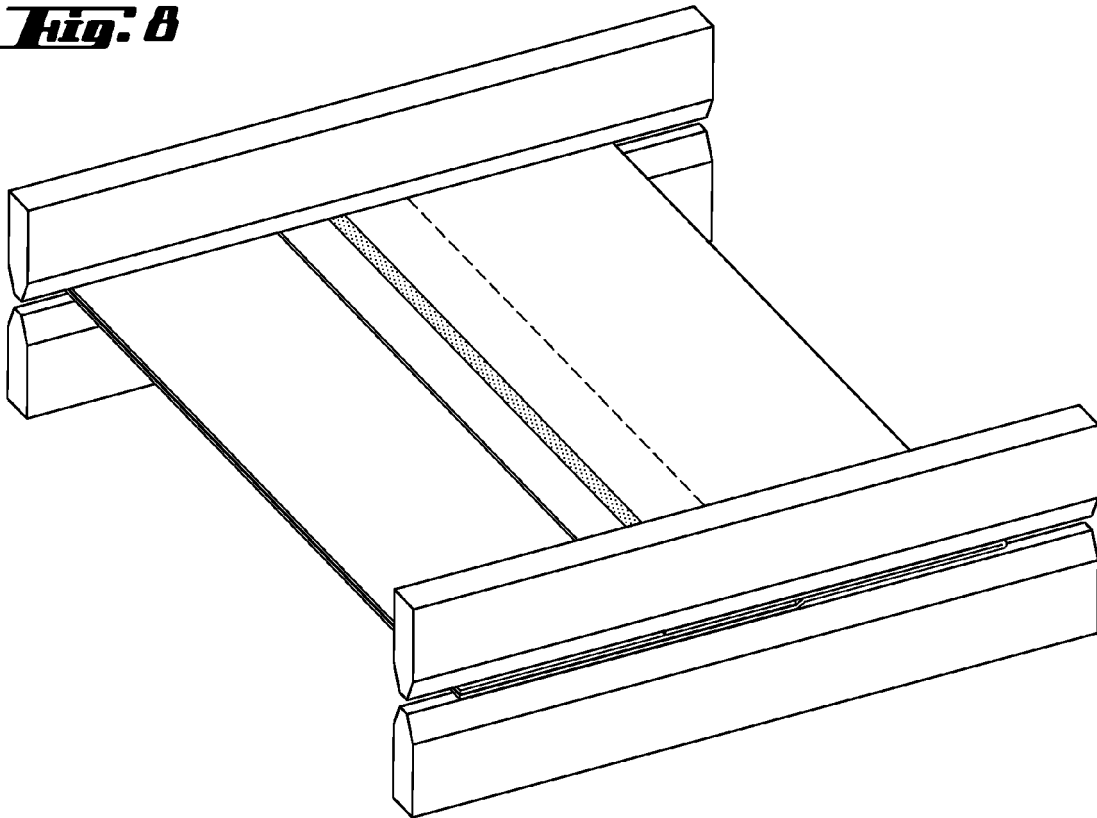


Fig. 9

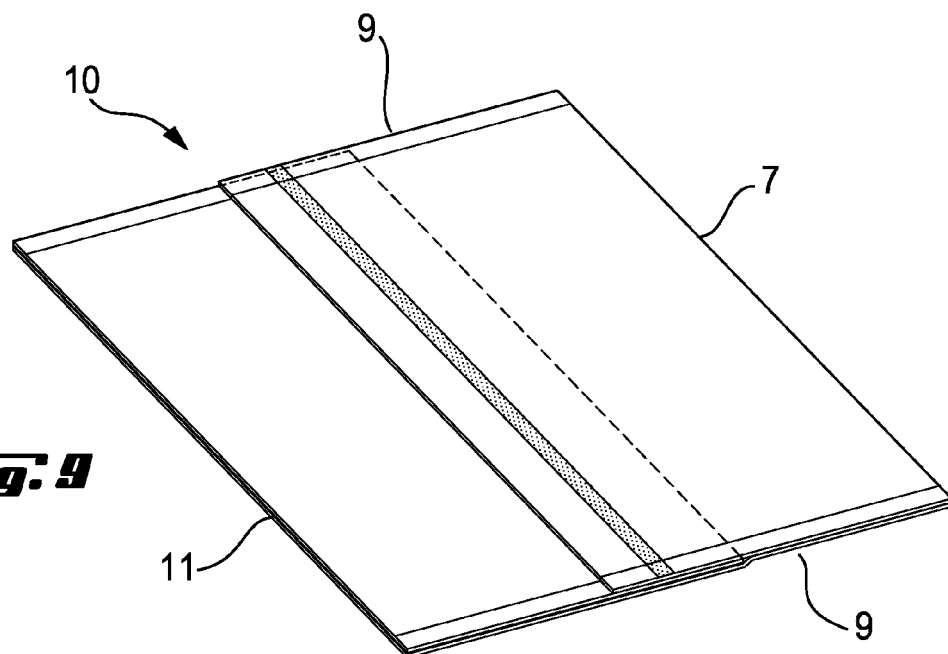


Fig. 10

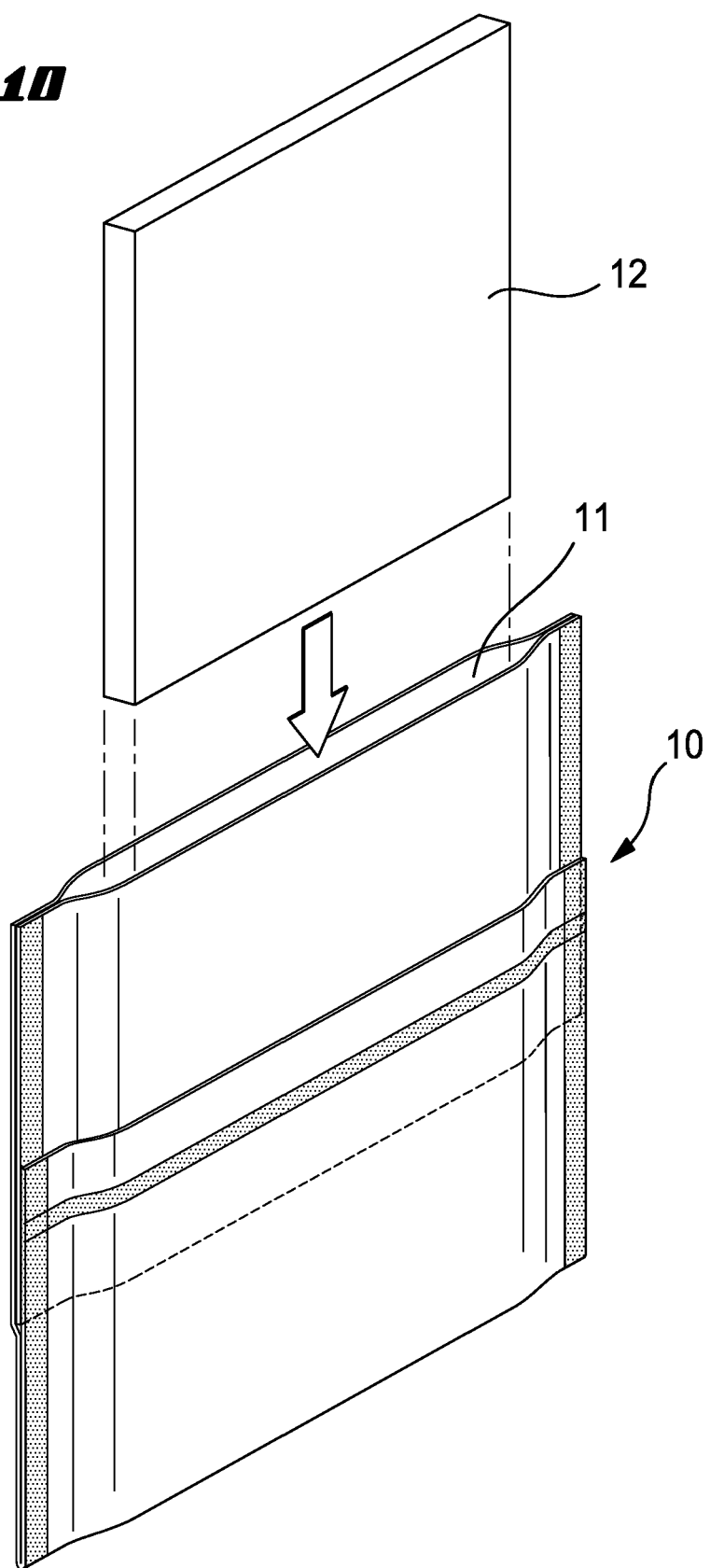


Fig. 11

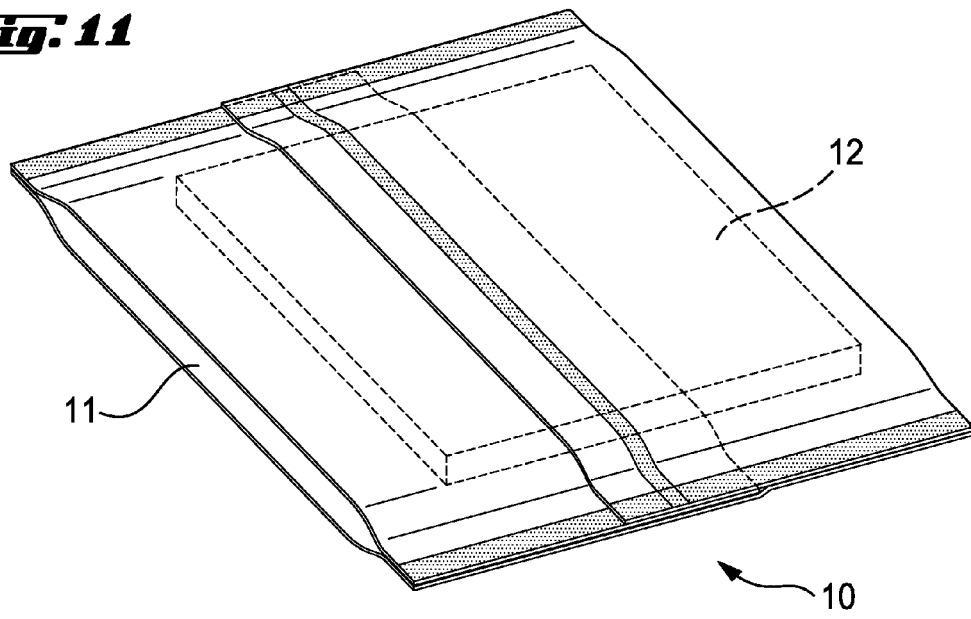


Fig. 12

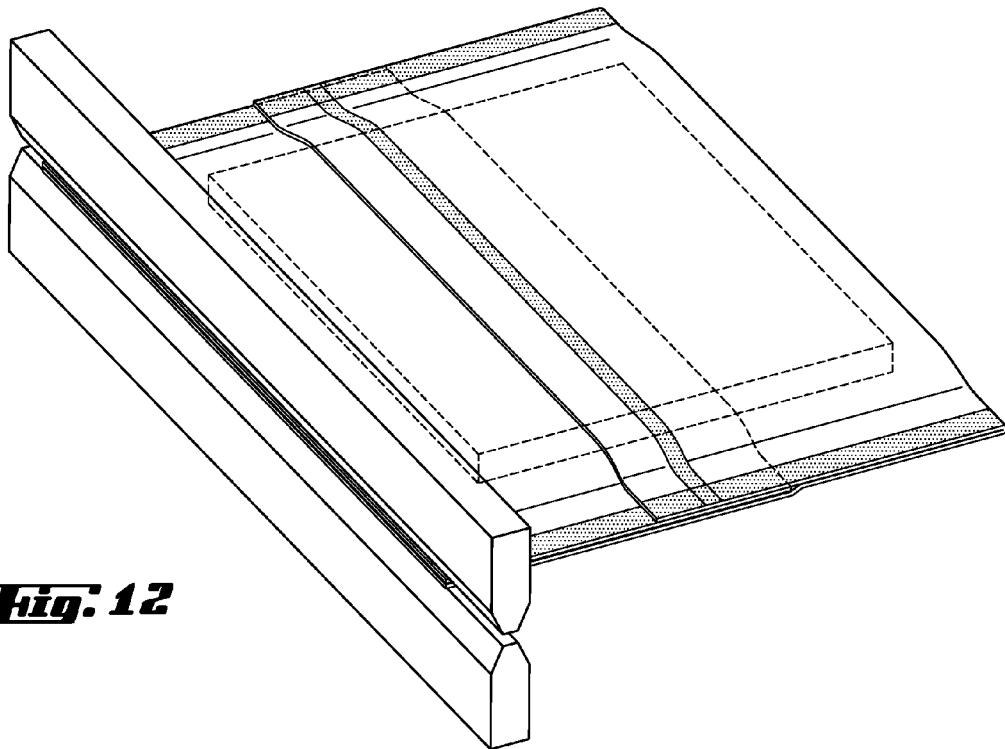
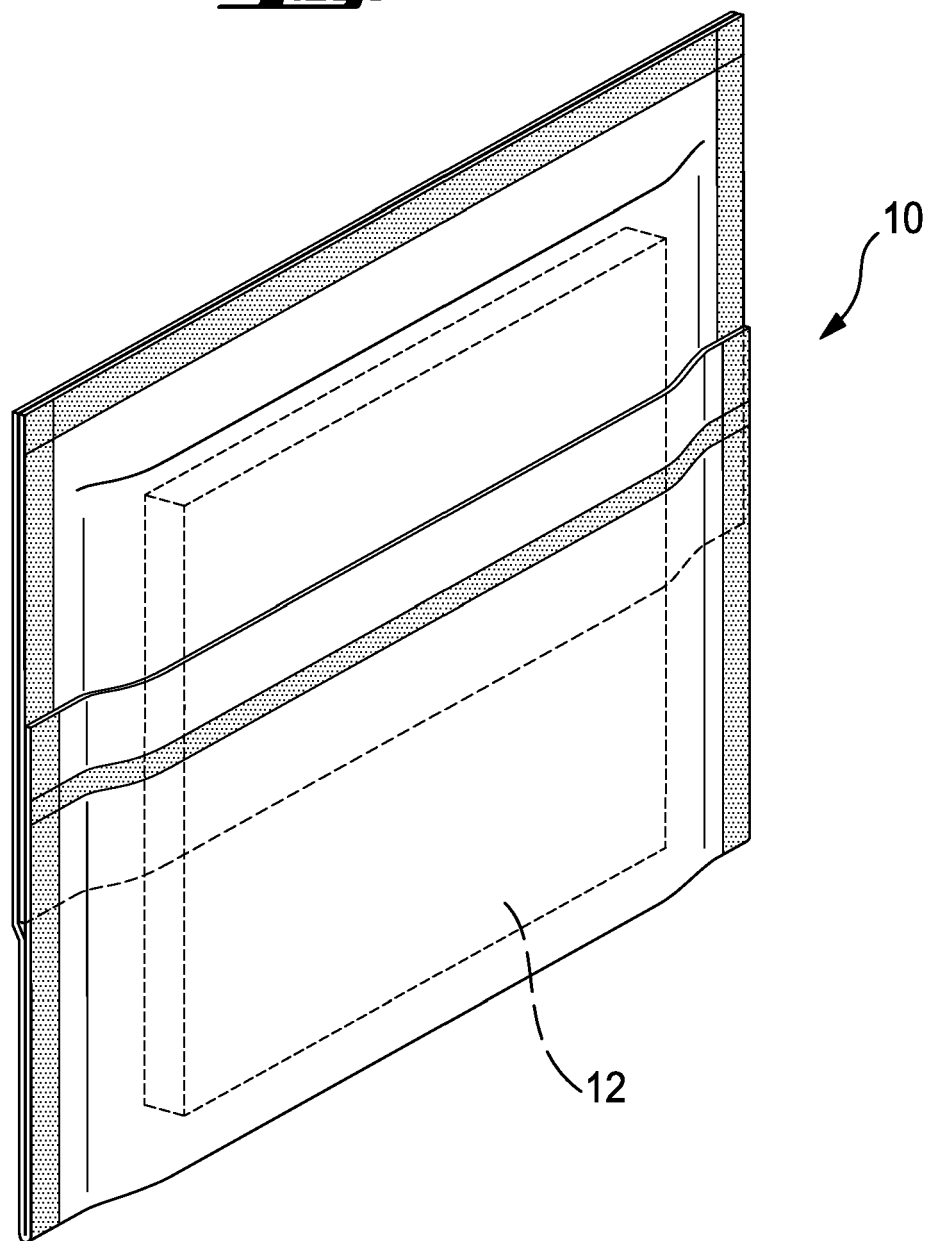


Fig. 13





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 11 0225

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 August 2006	Examiner Johne, O
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 11 0225

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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10-08-2006

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