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(71) Applicant: **A&R Carton GmbH**
65830 Kriftel (DE)

(72) Inventor: **SPÄHLINGER, Carolin**
65795 Hattersheim am Main (DE)

(74) Representative: **Berggren Oy, Helsinki & Oulu**
P.O. Box 16
Eteläinen Rautatiekatu 10A
00101 Helsinki (FI)

(54) **A PACKAGE**

(57) A package (1), which comprises an outer sleeve (2) and a tray (3) accommodated slidably within the outer sleeve and capable of motion between a closed position and an open position, and the package comprises a locking mechanism for preventing immediate opening of the package from the closed position to the open position.

The package further comprises a locking tab (7) arranged at the bottom part of the tray (3), which locking tab (7) is arranged to be against a folded flap (25a) inside the open-ended first end of the outer sleeve when the package is opened for preventing to draw the tray fully out from the outer sleeve.

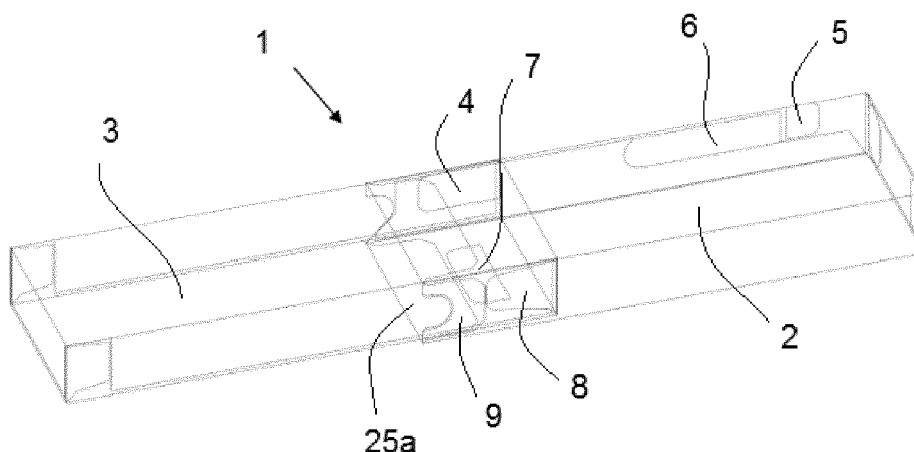


Fig. 1

Description

Technical field of the invention

[0001] The present invention relates to a package according to the preamble of the independent claim presented below.

Background of the invention

[0002] When the package contains items that should not be easily accessible for children, for instance medicine, it is known to use packages with a child resistant locking mechanism. However, there is a need for a package made of a paper board, which also comprises a child resistant lock. The requirements for the carton package are that it is difficult for a child to open and at the same time has a simple construction.

Objects of the invention

[0003] An object of the present invention is to provide a carton package that is considered to meet the requirements for a package to be child resistant.

[0004] The object of the present invention is further to provide an improved child resistant carton package comprising an outer sleeve and a tray accommodated slidably within the outer sleeve, in which construction the tray cannot be drawn fully out from the outer sleeve.

[0005] Further, the object of the invention is to provide an improved package with a simple construction, which is made of paper board.

[0006] In order to achieve among others the objects presented above, the invention is characterized by what is presented in the characterizing parts of the enclosed independent claims.

[0007] Some preferred embodiments of the invention will be described in the other claims.

Description of the invention

[0008] A typical package of the present invention comprises an outer sleeve and a tray accommodated slidably within the outer sleeve and capable of motion between a closed position and an open position, and the package comprises a locking mechanism for preventing immediate opening of the package from the closed position to the open position, the outer sleeve is open-ended from a first end of the outer sleeve. In a typical package of the present invention, said locking mechanism comprises

- a locking part arranged inside the outer sleeve,
- a first flap arranged to a first end of the tray, and which first flap has bound outside the side wall of the tray, wherein an end of the first flap is arranged against the locking part of the outer sleeve, when the package is in closed position, and
- an opening flap arranged to the outer sleeve, which

opening flap is arranged at least partly overlapping with the first flap of the tray when the package is in closed position,

5 and the package further comprises a locking tab arranged at the bottom surface of the tray, which locking tab is arranged to be against a folded flap inside the open-ended first end of the outer sleeve when the package is opened for preventing to draw the tray fully out from the outer sleeve.

10 **[0009]** A package according to the invention is preferably a carton package. The present invention is based on a structure of the package comprising two parts: an outer sleeve and a tray. The outer sleeve is around the tray when the package is in closed position. A combination of the structural elements arranged to the outer sleeve and the tray provides child proof locking mechanism for preventing immediate opening of the package from the closed position to the open position. Further, 15 the package according to the present invention comprises an additional auto-stop function for preventing to draw the tray fully out from the outer sleeve. The auto-stop function comprises a locking tab arranged at the bottom surface of the tray, which locking tab is arranged to be pushed against a folded flap inside the open-ended end of the outer sleeve when the tray is drawn out from the outer sleeve. This improves the functionality of the package and guarantees that the locking mechanism of the package may be used several times and a function as a child resistant package is ensured.

20 **[0010]** A package according to the invention comprises two large planar surfaces, namely a front surface and a back surface. Further, it comprises a first and a second sidewall, and a first and a second end wall, which are essentially perpendicular to the front surface and to the back surface. The package of the invention is formed from two parts: an outer sleeve and a tray accommodated slidably within the outer sleeve. The outer sleeve forms a front surface, a back surface, a first and a second side walls and one of the end walls of the package, when the package is closed. The end wall formed by the outer sleeve is a bottom part of the package. Another end wall of the package is formed by an end of the tray, and it makes possible to open package by drawing the tray out from the outer sleeve, wherein the outer sleeve is open-ended from a first end of the outer sleeve. The tray is inside the outer sleeve when the package is closed.

25 **[0011]** A first end of the tray is the end, which is inside the outer sleeve, i.e. the end which is the first when tray is slid inside the outer sleeve. A second end of the tray is the end, which is visible when the package is in closed position. In addition to the first and the second ends, the tray comprises side walls and a bottom surface. According to the present invention, an upper surface of the tray is at least partly open. In one preferred embodiment, the upper surface of the tray is open. In an embodiment of the invention, the upper surface of the tray may comprise an openable cover, e.g. a slip cover. The item(s) or prod-

uct(s) to be packed are arranged on the tray inside the outer sleeve.

[0012] The structural elements relating to the locking mechanism of the package are constructed both to an outer sleeve and to a tray of the package. The locking mechanism of the package prevents immediate opening of the package from the closed position to the open position. The locking mechanism comprises a locking part arranged to the outer sleeve and positioned inside the outer sleeve, a first flap arranged to a first end of the tray and an opening flap arranged to the outer sleeve. The first flap of the tray has bound outside the side wall of the tray, wherein an end of the first flap has been arranged against an end of the locking part of the outer sleeve, when the package is in closed position, and thus preventing the opening of the package. The opening flap and the first flap have been arranged at least partly overlapping when the package is in closed position for providing releasing of the locking mechanisms by pushing the opening flap inside. According to one preferred embodiment of the invention, the opening flap and the first flap of the tray are substantially fully over-lapped when the package is in closed position.

[0013] In addition to the locking mechanism, the package comprises a locking tab providing auto-stop function and preventing that the tray is not completely drawn out from the outer sleeve. A locking tab has formed to the bottom surface of the tray and it has a hinged structure. In an embodiment of the invention, a locking tab has been formed by cutting a tab out from the bottom surface of the tray, wherein a locking tab is in connection with the bottom surface at least by one side. In a preferred embodiment a locking tab protrudes slightly outwards from the plane of the bottom surface of the tray. When the locking tab protrudes slightly toward the outer sleeve from the plane of the bottom surface of the tray, the auto-stop function acts better.

[0014] According to an embodiment of the invention, the first end of the tray comprises the first flap and also a second flap, which both have bound outside of the side walls of the tray. A first and a second flap are arranged to opposite sides of the tray. In an embodiment of the invention, the first flap and the second flap of the tray are at least partly attached to the side walls. In an embodiment of the invention, the first flap and the second flap of the tray are attached, e.g. glued, to the side walls of tray by substantially whole length of the flaps. One of the flaps is a part of the locking mechanism as disclosed above. The locking mechanism of the package according to the invention may be formed in such a manner that it acts correctly irrespective of is the first flap or the second flap of the tray arranged against the locking part of the outer sleeve. In one preferred embodiment, the first and/or second flap of the tray comprises embossing toward the side wall, wherein the embossing covers a part of the flap and the flap is glued to the side wall of the tray from an area of the embossing and the rest of the flap is not attached to the side walls. The embossing decreases

a gluing area for the flap and e.g. allowing a more reliable function of the locking mechanism as the first flap is pushed more to the sleeve. In an embodiment of the invention the first flap and the second flap have a slightly different shape. In an embodiment of the invention, a length of the first flap of the tray is arranged to be greater than the length of the second flap of the tray, wherein the first flap is preferably meant to be a part of the locking mechanism. The length of the first flap is dependent on the position of the opening flap in the outer sleeve. In an embodiment of the invention, the first flap of the tray is dimensioned so that it elongates to a folded line of the opening flap arranged to the outer sleeve when the package is in closed position.

[0015] In an embodiment of the invention, a second flap of the tray arranged in the first end of the tray is a part of the auto-stop function of the package. The second flap is arranged to be connection with a flap of the outer sleeve arranged at the side wall of the open end of the outer sleeve, when the package is opened for preventing to draw the tray fully out from the outer sleeve. A combination of the locking tab and the second flap of the tray guarantees that the tray is always right assembled to the outer sleeve and the tray cannot be easily removed wholly inside the outer sleeve. In a typical embodiment of the invention, an end of the second flap and the cut end of the locking tab are arranged in a same line, when the package is in closed position.

[0016] According to an embodiment of the invention, a tray of the package may further comprise a projecting part arranged to a second end of the tray for preventing pull out the products from the package when the package is closed. When the package is in closed position the projecting part is inside the outer sleeve. In other words, the projecting part is folded inside the outer sleeve. The projecting part is bound substantially to same plane as the upper surface of the outer sleeve and thus it forms obstacle to take the products from the tray, when the upper surface of the tray is open. According to an embodiment of the invention, the projecting part has cut out from a flap of the second end of the tray, which flap is folded inside the second end of the tray. This enables a simple blank structure.

[0017] In an embodiment of the invention, the side walls of the tray are two folded by providing strong side walls and therefore more strongly built tray. The first end of the tray may be made of a single wall since it is inside the outer sleeve, also in open position. It also makes a blank for the tray simpler and save material required.

[0018] The package according to the invention is formed from two blanks, a first blank for the outer sleeve and the second blank for the tray. Manufacturing of the package from two blanks makes possible it that the package also comprises a mechanism for preventing to draw the tray fully out from the outer sleeve.

[0019] In production, the package according to the present invention may formed from a pre-glued sleeve, or a sleeve may be delivered as a blank and then wrapped

around the filled tray in the filling line.

[0020] The outer sleeve of the package according to the invention comprises an opening flap. An opening flap may have a hinged structure. At least one side of the opening flap comprises contacting points, the opening flap is connected to the outer sleeve with connecting points before the package is opened first time. Thus, it is possible to find out whether or not a package has been previously opened. This only works once but for certain applications it is useful for security reasons to have this function.

[0021] Typically, the blank for the package according to the present invention is made from paper board with a weight between 100 g/m² and 600 g/m². In an embodiment of the invention, the paper board is covered at least on one side with a coating having a thickness between 5 µm and 150 µm, more preferably between 25 µm and 75 µm. In an embodiment the paper board is covered on both sides.

Brief description of the Drawings

[0022] The invention will be described in more detail with reference to appended drawings, in which

- Fig. 1 illustrates a package according to an embodiment of the invention when the package comprising a tray and an outer sleeve is in open position,
- Fig. 2 shows a tray according to one embodiment of the invention in a folded state,
- Fig. 3 shows a blank for a tray according to one embodiment of the invention in an unfolded state,
- Fig. 4 shows a blank for an outer sleeve according to one embodiment of the invention in an unfolded state, and
- Fig. 5 shows an outer sleeve according to one embodiment of the invention in a folded state.

Detailed description of the Drawings

[0023] Same reference numbers have been used in the Figures for parts corresponding to each other.

[0024] Figure 1 shows a package 1 according to one embodiment of the invention, when the package 1 is in open position. The package 1 comprises an outer sleeve 2 and a tray 3 arranged within the outer sleeve. The outer sleeve 2 forms the outer casing of the package according to the present invention, but one end of the outer sleeve 2 is open in order that the tray 3 can be push inside the outer sleeve 2. When package is opened, the tray 3 can be drawn out from the outer sleeve and the tray will stop to the point when the locking tab 7 arranges against an edge of a folded flap 25a inside the open-end of the outer sleeve. The locking tab 7 provides an auto-stop function for the package according to the present invention.

[0025] When the package is in closed position, it comprises two large planar surfaces, namely a front surface

14 and a back surface 13 formed by the outer sleeve. Further, it comprises a first and a second sidewall and a first and a second end wall, which are essentially perpendicular to the upper surface and to the back surface. When package is in closed position, one end of the tray has visible. Another end of the package is closed by folding the flaps of the blank of the outer sleeve. An opening flap 5 has arranged to a side wall 15 of the outer sleeve 2. The end(s) of the side wall(s) of the outer sleeve may be shaped (a curved line 26 in Fig. 5) so that the tray 3 is easier to pull out from the outer sleeve 2 wherein a part of the side wall 18 of the tray will be visible at the side walls of the package.

[0026] Figure 2 shows a tray according to one embodiment of the invention in a folded state. Figure 3 shows a blank for a tray 3 according to one embodiment of the invention in an unfolded state. The tray 3 comprises the side walls 18, 19, the bottom surface 12 and the ends 10, 11. An upper surface of the tray is open. The side walls 18, 19 of the tray are two folded by folding the flaps 20, 21 inside the tray and attaching, e.g. gluing them to the side walls. A first end of the tray comprises a first flap 4 and a second flap 8, which are bound outside the side walls 18, 19. A second end of the tray is formed by folding the flaps 23, 22a, 22b inside the tray. The bottom surface 12 of the tray comprises a locking tab 7. In a typical embodiment, the locking tab 7 has cut out from the bottom surface so that it is connected to the bottom surface only by one side which is the back edge of the locking tab in the opening direction of the package. In a preferred embodiment according to the invention, the cut end of the locking tab 7 is in substantially same line with the end of the first flap 4 arranged at the side wall of the tray. As illustrated in Fig. 1, the locking tab 7 arranges against an edge of a folded flap 25a inside the open-end of the outer sleeve and a second flap 8 arranges against a flap 9 of the outer sleeve arranged at the side wall of the open end of the outer sleeve, when the package is opened by drawing the tray out from the outer sleeve. A combination of the locking tab 7 and the second flap 8 prevents to draw the tray 3 fully out from the outer sleeve 2.

[0027] Figure 4 shows a blank for an outer sleeve 2 according to one embodiment of the invention in an unfolded state. Figure 5 shows an outer sleeve 2 in folded state. The outer sleeve comprises a front surface 14, a back surface 13, a first sidewall 15 and a second sidewall 16. A bottom end of the package will be formed by folding the flaps 24a, 24b, 28a and 28b of the blank. An open end of the outer sleeve is formed by folding flaps 9, 25a, 25b inside the outer sleeve, wherein they are arranged against the corresponding front surface 14, back surface 13 and side wall 15. A flap 17 is folded inside the outer sleeve and it is attached, e.g. glued to side wall 15 for forming the outer sleeve. A locking part 6 is folded inside the outer sleeve. It may also be attached, e.g. glued to the flap 17. A side wall 15 of the outer sleeve further comprises an opening flap 5. An opening flap 5 may have a hinged structure, wherein it comprises a folded line 27

and at least one side of the opening flap comprises contacting points by which the opening flap is connected to the outer sleeve before the package is opened first time.

Claims

1. A package (1), which comprises an outer sleeve (2) and a tray (3) accommodated slidably within the outer sleeve and capable of motion between a closed position and an open position, and the package comprises a locking mechanism for preventing immediate opening of the package from the closed position to the open position, the outer sleeve (2) is open-ended from a first end of the outer sleeve, and said locking mechanism comprises

- a locking part (6) arranged inside the outer sleeve (2),
- a first flap (4) arranged to a first end of the tray, and which first flap (4) has bound outside the side wall of the tray, wherein an end of the first flap (4) is arranged against the locking part (6) of the outer sleeve, when the package is in closed position, and
- an opening flap (5) arranged to the outer sleeve (2), which opening flap (5) is arranged at least partly overlapping with the first flap (4) of the tray when the package is in closed position,

characterized in that the package further comprises a locking tab (7) arranged at the bottom surface of the tray (3), which locking tab (7) is arranged to be against a folded flap (25a) inside the open-ended first end of the outer sleeve when the package is opened for preventing to draw the tray fully out from the outer sleeve.

2. The package according to claim 1, **characterized in that** the locking tab (7) has formed by cutting from the bottom surface of the tray and it protrudes slightly outwards from the plane of the bottom surface of the tray (3).
3. The package according to claim 1 or 2, **characterized in that** the first end of the tray further comprises a second flap (8), which is bound outside of the side wall of the tray.
4. The package according to any of the preceding claims, **characterized in that** the side walls (18, 19) of the tray are two folded.
5. The package according to any of the preceding claims, **characterized in that** the first flap (4) of the tray comprises embossing towards the side wall (18) of the tray.

6. The package according to any of the preceding claims, **characterized in that** the first flap (4) and the second flap (8) of the tray (3) are at least partly attached to the side walls (18, 19) of the tray.

7. The package according to any of the preceding claims, **characterized in that** an upper surface of the tray (3) is at least partly open.

8. The package according to any of the preceding claims, **characterized in that** the upper surface of the tray (3) comprises an openable cover.

9. The package according to any of the preceding claims, **characterized in that** the tray (3) comprises a projecting part at a second end of the tray, which projecting part is folded inside the outer sleeve when package is in closed position.

10. The package according to any of the preceding claims, **characterized in that** the package (1) is formed from two blanks, a first blank for the outer sleeve (2) and the second blank for the tray (3).

11. The package according to any of the preceding claims, **characterized in that** at least one side of the opening flap (5) of the outer sleeve comprises contacting points.

12. The package according to any of the preceding claims, **characterized in that** the first flap (4) of the tray has dimensioned so that it elongates to a folded line (27) of the opening flap (5) arranged to the outer sleeve, when the package is in closed position

13. The package according to any of the preceding claims, **characterized in that** the package is made from paper board with a weight between 100 g/m² and 600 g/m².

14. The package according to claim 13, **characterized in that** the paper board is covered at least on one side with polymer having a thickness between 5 μm and 150 μm.

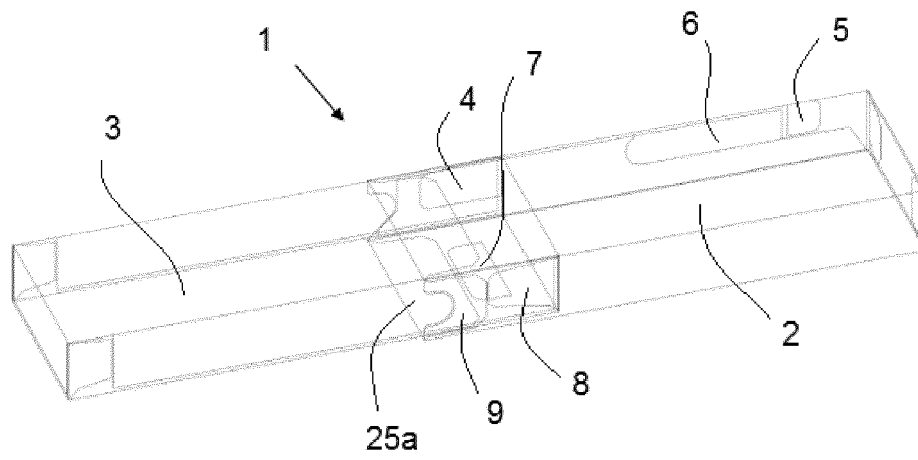


Fig. 1

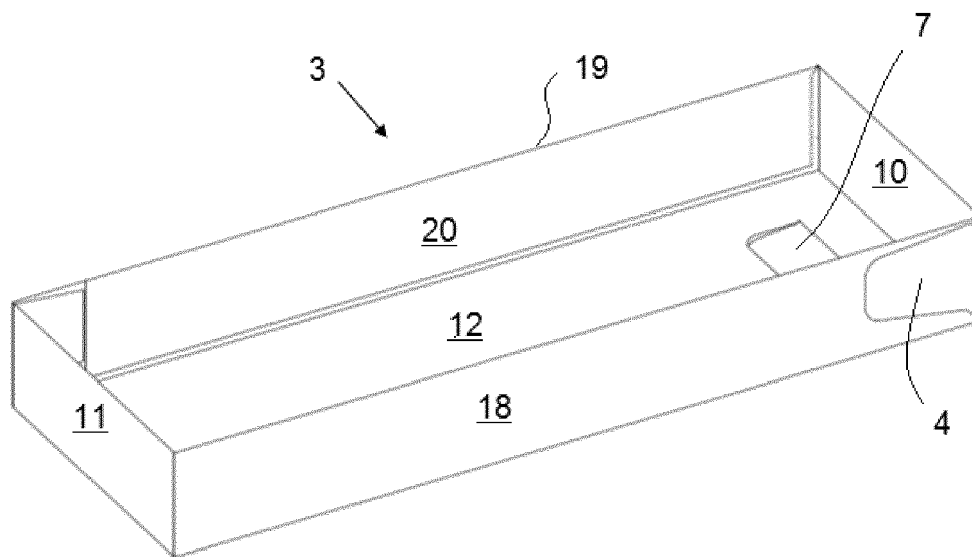


Fig. 2

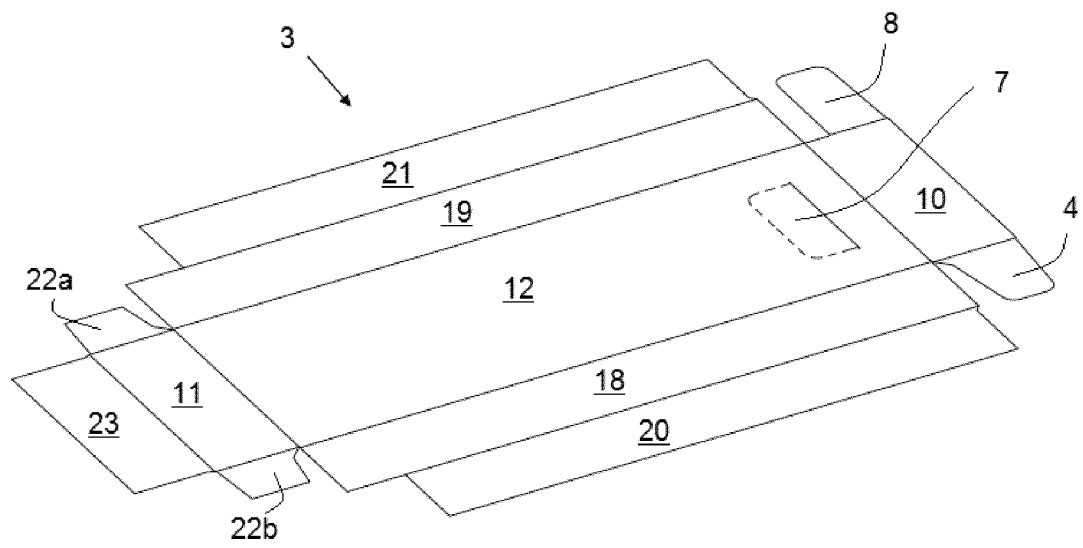


Fig. 3

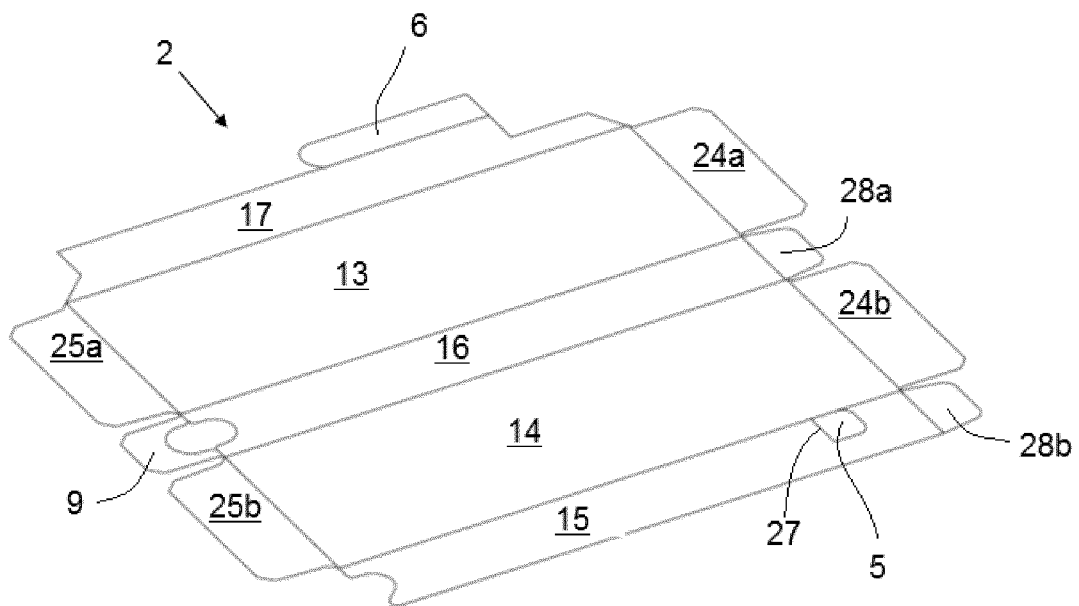


Fig. 4

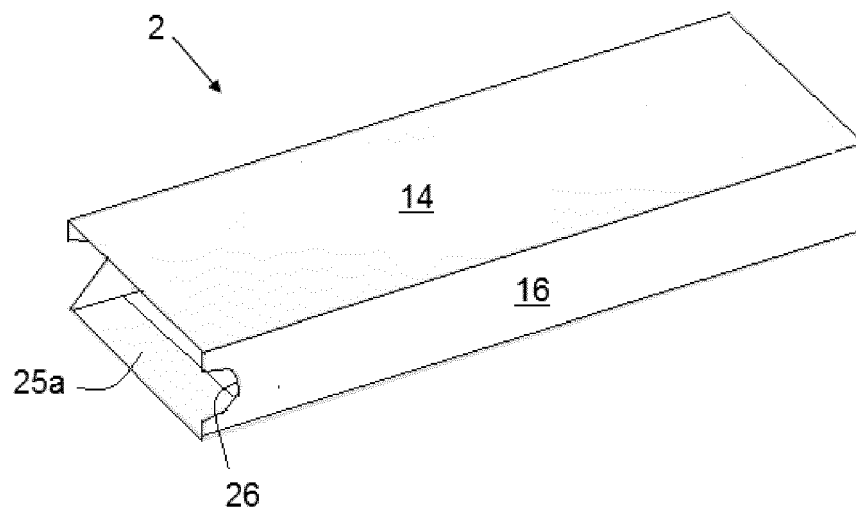


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 18 19 4170

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Y	* paragraph [0093] - paragraph [0124]; figures 1-24 *	2,5,8,11-14	
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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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**ANNEX TO THE EUROPEAN SEARCH REPORT
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5 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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