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(54) **Carton box with articulated closure**

Kartonschachtel mit einem schwenkbaren Deckel

Boîte en carton ayant un couvercle articulé

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Description

[0001] The present invention refers to a carton box with snap-closing articulated closure, box-shaped and apt to contain a product dispensable via an access side formed on a face thereof, said closure resting thereat.

[0002] Usually, this type of carton boxes has a tang on an edge of the access side, tang which is covered by the closure and in particular pressed down by the inside face of a closure wall onto which a step is formed.

[0003] With the closure in a completely closed configuration, the projecting end of the tang snaps above the step, preventing the return thereof and emitting a characteristic click indicative of the occurred closing. In order to open said closure it suffices to lightly force the latter, causing the elastic deformation of the tang that, due to its dimensions and consistence, remains unbent.

[0004] The known carton boxes of the abovespecified type, widely employed in packaging, are formed in their three-dimensional shape starting from a monoblock plane blank comprising panels, edges and flaps preset for folding and gluing steps, preferably made of a semi flexible paper material, like triplex carton and the like. The side of the closure whereat it joins the carton box body, i.e. a folding serving as hinge, is formed frontally to the rim of the access side comprising said tang.

[0005] In this case, the closure is obtained by folding and gluing an extension of the wall opposed to said tang, to form the closure sides and the inside step.

[0006] This positioning, see for example US-5,911,239-A, complicates the complex assembling steps, due to the various manoeuvres concerning the carton box being formed. Moreover, said closure lacks a fixed closing having anti-tamper evidence, so that usually these carton boxes are in turn packaged in a wrapping, e.g. of cellophane, provided with a tear-off line.

[0007] In particular, the carton box of the present invention, it also formed in its three-dimensional shape starting from a monoblock flat blank comprising panels, strips and flaps preset for folding and gluing steps, is intended to replace the above described carton box typology.

[0008] The advantages entailed in the carton box of the present invention with respect to the carton boxes abovementioned with reference to the known art are essentially of a practical nature, as the former facilitate the assembling and the gluing of the initial monoblock plane blank that has a remarkable structural simplicity. Moreover, according to a preferred embodiment, the carton box of the present invention has a closure with means for a first tear-off opening, with anti-tamper evidence.

[0009] The carton box as hereto-specified, in its three-dimensional shape, is substantially one-piece-formed and it is characterised in that it has:

* a parallelepiped box-shaped structure, with four side walls and two end walls, one of the latter being partially opened to form an access side which in turn

has, on a respective snap edge, a projecting tang, such structure being obtained from a monoblock blank comprising four panels, all rectangular and of equal length, arranged in sequence respectively parallel to each other, intended to form said side walls, said projecting tang extending from one end of one of said four panels; and

* a closure, formed by an extension of the monoblock blank connected to one end of one of said four panels, and extending with a closing edge perpendicularly to the common development of said four rectangular panels, said closing edge having two trapezoidal flaps to be folded under the closing edge for forming a step apt to serve as stop for said tang, said extension being arranged so as to be collapsed and folded after the formation of said side walls, around an axis which is perpendicular to the common development of said four rectangular panels, to be joined to the opposite panel with respect to the connection thereof.

[0010] The carton box according to the present invention provides a closure of particularly easy assembling, characterised by a remarkable ease of use and by a high structural simplicity.

[0011] Moreover, the anchoring of the extension forming the closure from one box side to the other is exploitable to insert a tear-off line in order to block the closure until the first opening up thereof, thereby providing it with an anti-tamper device.

[0012] The present invention will hereinafter be better illustrated by the description of a preferred embodiment thereof, given by way of a non-limiting example, with reference to the annexed drawings, wherein:

* Fig. 1 is a plan view of a monoblock flat blank for obtaining a carton box according to an embodiment of the present invention;

* Figs. 2 to 9 are perspective views showing some steps of assembling a carton box obtained from the blank of Fig. 1; and

* Fig. 10 is a perspective view of the carton box, obtained from the blank of Fig. 1.

[0013] The carton box model according to the present invention is obtainable assembling a monoblock flat blank, e.g. of the type made of semi flexible paper material, e.g. of carton.

[0014] With reference to Fig. 1, a blank 100 comprises a first panel 102, a second panel 103, a third panel 104 and a fourth panel 105. These panels 102, 103, 104, 105, all rectangular and of equal length, are arranged in the sequence first, third, second and fourth and are connected at a first, a second and a third side creasing 106, 107, 108, respectively that are all parallel thereamong and of equal extension.

[0015] Moreover, the fourth panel 105 has a fourth side creasing 109, parallel and analogous to the preceding

ones, whereat the fourth panel 105 is connected to a first fastening strip 110, apt to be glued, upon assembling the carton box 1, to the first panel 102 at a free edge 111 thereof, that is parallel and corresponding to the preceding side creasing 106, 107, 108 and 109.

[0016] The first panel 102 is connected, at a first end creasing 112, to a first closing strip 113 and, at a second end creasing 114 opposed and parallel to the preceding one, to a second closing strip 115 substantially rectangular and apt to make a bottom wall of the carton box, as it will be apparent hereinafter.

[0017] Likewise, the second panel 103 is connected, at a third end creasing 116, to a third closing strip 117 substantially rectangular and apt to be covered by the corresponding first closing edge 113 and, at a fourth end creasing 118 opposed and parallel to the preceding one, to a fourth closing strip 119 substantially rectangular and apt to be covered by the corresponding second closing strip 115.

[0018] The third panel 104 is connected, at respective fifth and sixth end creasing 120, 121 parallel and opposed therebetween, to a first and to a second closing flap 122, 123, apt to be respectively covered by the corresponding closing strips 113, 115, 117, 119.

[0019] Likewise, the fourth panel 105 is connected, at a seventh end creasing 124, to a third closing flap 125, apt to be covered by the respective second and fourth closing strip 115, 119.

[0020] An eighth end creasing 126 joins said fourth panel 105 to a trapezoid-shaped tang 2.

[0021] The first fastening edge 110 is substantially L-shaped, having a thin section 127, adjacent to the third flap 125, and a widened section 128, adjacent to the tang 2.

[0022] At the first closing strip 113 the blank 100 comprises an extension, generally indicated with 3, that, by folding and assembling steps, provides a closure to the carton box according to the present invention.

[0023] Said extension 3 comprises a base section 129 of said first closing strip 113 adjacent to the free edge 111. This base section 129 extends, in the direction of the free edge 111, in a closure closing edge 130 and, as an extension of the first panel 102, in a substantially trapezoid-shaped first closure side closing strip 131. Said members are joined to the base section 129 by a first closure creasing 132 and by a second closure creasing 133. The first closure creasing 132 forms the extension of the free edge 111.

[0024] Onto the first panel 102 there is made a tear-off line 134, consisting of a sequence of passing indentations, delimiting a second closure side closing edge 135, mirroring the first one. From the side closing edges 131, 135 there extend, in agreement with the closure closing edge 130, respective first and second closure flaps 136, 137, joined to the extension 3 by respective third and fourth closure creasing 138, 139.

[0025] The closure flaps 136 e 137 are trapezoid-shaped, so as to form, folded under the closing edge 130,

a V-shaped step.

[0026] With reference to Figs. 2 to 9 the assembling process of the monoblock blank of Fig. 1 will be described.

5 **[0027]** This process requires a glue deposition onto the first fastening edge 110 at the widened section 128, that is advantageously coated with a varnish layer 140 limiting the absorption of glue by the blank material. Then, the fastening edge 110 is adhered to the inside face of the first panel 102, with the fourth side creasing 109 overlapped to the free edge 111 (Fig. 4).

10 **[0028]** This joining forms respective and pair-opposed first and second side wall and third and fourth side wall 4, 5, 6, 7. Then, the second, fourth closing strip 115, 119, with the first and third closing flap 123 and 125 are collapsed inwards of the carton box being formed, obtaining a bottom wall 8 and allowing the filling of the container thus obtained.

15 **[0029]** The filling could be operated with any material or product apt to be packaged with this box, in form of powder or of discrete members (pills, pearls, etc.).

20 **[0030]** Apparently, optional glue onto the layer 140 will join the second closure side strip 135 to the fastening strip 110.

25 **[0031]** Subsequently, the first closing flap 122 is collapsed inwards of the carton box being formed, and with the same unidirectional motion also the tang 2 is collapsed outwards (Fig. 5). Then, the extension 3 is collapsed, so as to anchor it onto the opposite side of the second side wall 5, together with the first closing strip 113 and to the first closure side strip 131, which will adhere to the second side wall 6 (Fig. 6).

30 **[0032]** A glue point 141 is located onto the first closing strip 113 and thereon the third closing strip 117 is folded, determining a top wall 9, whereas the base section 129 will cover the void portion of said wall, i.e. an access side of the carton box being formed.

35 **[0033]** Onto the closure first closing strip 130, optionally raised in order to make this position, there is placed a second glue point 142, whereas the closure flaps 136, 137 are adhered to the respective third side wall 6 (Fig. 7).

40 **[0034]** The collapsing of the closure closing strip 130 forms the closure front wall 10, onto the third side wall 6, and the respective closure side walls 11, 12 onto the first and second side wall 4, 5.

45 **[0035]** The closure walls 10, 11, 12 form a closure 13 of a carton box 1 (Fig. 10), covering an access side 14. The tang 2 will be apt to stop by virtue of the step 15 determined by the folding of the closure flaps 136, 137, forming a snap mechanism.

50 **[0036]** The first opening up of the closure 13 could take place by tearing the tear-off line 134 by virtue of the mere forced lifting of the closure 13.

55 **[0037]** Hence, overall the carton box 1 will comprise a parallelepiped box structure, with four side walls 4, 5, 6, 7 and two end walls: bottom 8 and top 9, the latter being partially opened to form an access side 14 which in turn has a respective snap edge, represented by the eighth

end creasing 126, a projecting tang 2.

[0038] The closure 13 is formed by said extension 3 of the monoblock blank 100 at a first edge 16 of the access side 14, edge 16 onto which there is rested said first end creasing 112 in the section separating the first panel 102 from the base section 129.

[0039] The closure is rotatably connected to the top wall 9 by a hinge which is represented by a ninth end creasing 143 separating the base section 129 from the top wall 9.

[0040] The extension 3 is anchored at the second edge 17 of the access side 14, opposed to the first edge 16, so that onto the inside surface of the closure there be a projecting ledge 15 apt to serve as stop for said tang 2.

[0041] Apparently, due to the different dimensions of the side panels of the blank, the carton box 1 is characteristically brick-shaped, with two narrow faces and two wide faces.

[0042] Moreover, said extension 3 is connected to the edge of a wide panel, so that the closure hinge 9 be parallel to a short-side corner instead of parallel, or better corresponding, to a long-side corner.

[0043] In the assembling of the abovedescribed blank 100 it has to be pointed out that:

* upon filling, the carton box 1 is formed by motion along a line onto which flow deflectors and other strips and flap folding and pressing members operate;

* to close up the entire carton box 1 and to form the closure four applications of glue or of other adhesive suffice: onto the fastening ship 110, at the bottom wall 8, at the top wall 9 and at the closure front wall 10;

* the presence of the limited absorption layer 140 prevents the closure 13 from tearing the carton box 1 during the first opening up thereof, even in case of a glue interposition between the respective closure side wall 11 and the fastening edge 110;

* the snap closure is formed on a narrow portion of an end wall of the carton box 1, allowing a more controlled dispensing of the contained product; and

* the overall extension of the monoblock blank is particularly reasonable, besides it being formed at a wide side wall panel, as a different arrangement would not have allowed the closing of the closure onto the short side of the carton box.

[0044] The carton box 1 further comprises anti-tamper means, consisting of the tear-off line 134 whose irreversible tearing is required to open up the closure 13. Otherwise, in order to open up the carton box 1 a likewise irreversible forcing of one of the glue points would be required.

[0045] Besides the abovementioned advantages, the abovedescribed carton boxes enable a controlled dispensing, non-random and yet easily carried out.

[0046] Moreover, while comprising no structural complications, such carton boxes have effective anti-tamper

systems.

[0047] The present invention is not limited to the disclosed embodiment, encompassing any variant embodiment thereof.

Claims

1. A carton box (1) with snap-closing articulated closure (13), box-shaped and apt to contain a product dispensable via an access side (14) formed on one face thereof, said closure (13) resting thereat, being substantially one-piece-formed, wherein, in its three-dimensional shape, it comprises:

* a parallelepiped box-shaped structure, with four side walls (4, 5, 6, 7) and two end walls (8, 9), one of the latter being partially opened to form an access side (14) which in turn has, on a respective snap edge (126), a projecting tang (2), such structure being obtained from a monoblock blank (100) comprising four panels (102, 103, 104, 105), all rectangular and of equal length, arranged in sequence respectively parallel to each other, intended to form said side walls (4, 5, 6, 7), **characterised in that** said projecting tang (2) extends from one end of one of said four panels (102, 103, 104, 105); and further **in that** it comprises:

* a closure (13), formed by an extension (3) of the monoblock blank (100) connected to one end of one of said four panels (102, 103, 104, 105), and extending with a closing edge (130) perpendicularly to the common development of said four rectangular panels (102, 103, 104, 105), said closing edge (130) having two trapezoidal flaps (136, 137) to be folded under the closing edge for forming a step apt to serve as stop for said tang (2), said extension (3) being arranged so as to be collapsed and folded after the formation of said side walls (4, 5, 6, 7), around an axis which is perpendicular to the common development of said four rectangular panels (102, 103, 104, 105), to be joined to the opposite panel with respect to the connection thereof.

2. The carton box (1) according to claim 1, wherein said extension (3) is connected to one end of one of said four panels (102, 103, 104, 105) at a corner of said monoblock blank (100).

3. The carton box (1) according to claim 1 or 2, wherein said extension (3) comprises a base section (129) of a closing strip (113), extending in a closure closing strip (130) and in a first closure side closing strip (131), on a wall panel (102) there being made a tear-off line (134) delimiting a second closure side closing

strip (135), mirroring the first one, from the side closing strips (131, 135) there extending respective first and second closure flaps (136, 137) trapezoid-shaped so as to form, folded under the closure closing strip (130), a V-shaped step.

4. The carton box (1) according to claim 1, 2 or 3, comprising anti-tamper means, consisting of a tear-off line (134) whose irreversible tearing is required to open up the closure (13).
5. The carton box (1) according to claim 1 or 2, wherein said extension (3) is formed at a wide side wall panel (102), so that the closure (13) may close onto the short side of the carton box (1).

Patentansprüche

1. Faltschachtel (1) mit einem gelenkigen Schnappverschluss (13), die kastenförmig ausgebildet und in der Lage ist, ein Produkt aufzunehmen, das über eine Zugangsseite (14) abgegeben werden kann, welche in einer Fläche derselben gebildet ist, auf der der Verschluss (13) ruht, und die im Wesentlichen einstückig ausgebildet ist, wobei sie in ihrer dreidimensionalen Form aufweist:

* einen quader- und kastenförmigen Aufbau mit vier Seitenwänden (4, 5, 6, 7) und zwei Endwänden (8, 9), wobei von den letzteren eine teilweise geöffnet ist, um eine Zugangsseite (14) zu bilden, die ihrerseits an einem Schnapprand (126) eine vorstehende Lasche (2) hat, wobei dieser Aufbau aus einem einstückigen Zuschnitt (100) gebildet ist, der vier Felder (102, 103, 104, 105) aufweist, die alle rechteckig sind und die gleiche Länge haben, nacheinander und parallel zueinander angeordnet sind und dazu dienen, die Seitenwände (4, 5, 6, 7) zu bilden, **dadurch gekennzeichnet, dass** sich die vorstehende Lasche (2) von einem Ende von einem der vier Felder (102, 103, 104, 105) aus erstreckt; und dass sie weiter aufweist:

* einen Verschluss (13), der durch einen Fortsatz (3) des einstückigen Zuschnittes (100) gebildet ist, mit einem Ende von einem der vier Felder (102, 103, 104, 105) verbunden ist und sich mit einem Schließrand (130) rechtwinkelig zu der gemeinsamen Abwicklung der vier rechteckigen Felder (102, 103, 104, 105) erstreckt, wobei der Schließrand (130) zwei trapezförmige Klappen (136, 137) hat, die unter den Schließrand klappbar sind, um eine Stufe zu bilden, welche in der Lage ist, als ein Anschlag für die Lasche (2) zu dienen, wobei der Fortsatz (3) so angeordnet ist, dass er nach der Bildung der Seitenwände (4, 5, 6, 7) zusammengelegt und

um eine Achse gefaltet werden kann, die zu der gemeinsamen Abwicklung der vier rechteckigen Felder (102, 103, 104, 105) rechtwinkelig ist, um mit dem entgegengesetzten Feld in Bezug auf die Verbindung desselben verbunden zu werden.

2. Faltschachtel (1) nach Anspruch 1, wobei der Fortsatz (3) mit einem Ende von einem der vier Felder (102, 103, 104, 105) an einer Ecke des einstückigen Zuschnittes (100) verbunden ist.
3. Faltschachtel (1) nach Anspruch 1 oder 2, wobei der Fortsatz (3) einen Basisabschnitt (129) eines Schließstreifens (113) aufweist, der sich in einem Verschlussstreifen (130) fortsetzt und in einem ersten Verschlussstreifen (131), wobei auf einem Wandfeld (102) eine Abreißlinie (134) gebildet ist, die einen zweiten Verschlussstreifen (135) begrenzt, der zu dem ersten spiegelbildlich ausgebildet ist, wobei sich von den Seitenschließstreifen (131, 135) aus eine erste bzw. zweite Verschlussklappe (136, 137) erstreckt, die trapezförmig sind, und wenn sie unter den Verschlussstreifen (130) gefaltet sind, eine V-förmige Stufe bilden.
4. Faltschachtel (1) nach Anspruch 1, 2 oder 3, mit einer Sicherungseinrichtung, die aus einer Abreißlinie (134) besteht, deren irreversibles Abreißen erforderlich ist, um den Verschluss (13) zu öffnen.
5. Faltschachtel (1) nach Anspruch 1 oder 2, wobei der Fortsatz (3) an einem breiten Seitenwandfeld (102) gebildet ist, so dass der Verschluss (13) auf der kurzen Seite der Faltschachtel (1) schließen kann.

Revendications

1. Boîte en carton (1) munie d'une fermeture articulée (13) se fermant par emboîtement, en forme de boîte, et apte à contenir un produit pouvant être distribué via un côté d'accès (14) formé sur une face de celle-ci, ladite fermeture (13) reposant dessus, étant sensiblement formée en une seule pièce, boîte en carton qui, dans sa forme tridimensionnelle, comporte :

- une structure parallélépipédique en forme de boîte, ayant quatre parois latérales (4, 5, 6, 7) et deux parois d'extrémité (8, 9), l'une de ces dernières étant partiellement ouverte pour former un côté d'accès (14), qui a à son tour, sur un bord d'emboîtement respectif (126), une languette faisant saillie (2), une telle structure étant obtenue à partir d'une ébauche monobloc (100) comportant quatre panneaux (102, 103, 104, 105), tous rectangulaires et de même longueur,

- agencés en série respectivement parallèles les uns aux autres, de manière à former lesdites parois latérales (4, 5, 6, 7), **caractérisée en ce que** ladite languette faisant saillie (2) s'étend à partir d'une extrémité constituée de l'un desdits quatre panneaux (102, 103, 104, 105), et en outre **en ce qu'**elle comporte :
- une fermeture (13), formée par un prolongement (3) de l'ébauche monobloc (100) relié à une extrémité de l'un desdits quatre panneaux (102, 103, 104, 105), et s'étendant avec un bord de fermeture (130) perpendiculairement au développement commun desdits quatre panneaux rectangulaires (102, 103, 104, 105), ledit bord de fermeture (130) ayant deux volets trapézoïdaux (136, 137) devant être pliés sous le bord de fermeture pour former un gradin apte à servir de butoir pour ladite languette (2), ledit prolongement (3) étant agencé de sorte qu'il est aplati et plié après la formation desdites parois latérales (4, 5, 6, 7), autour d'un axe qui est perpendiculaire au développement commun desdits quatre panneaux rectangulaires (102, 103, 104, 105), pour être joint au panneau opposé par rapport à la connexion de celui-ci.
2. Boîte en carton (1) selon la revendication 1, dans laquelle ledit prolongement (3) est relié à une extrémité de l'un desdits quatre panneaux (102, 103, 104, 105) à un coin de ladite ébauche monobloc (100).
 3. Boîte en carton (1) selon la revendication 1 ou 2, dans laquelle ledit prolongement (3) comporte un tronçon de base (129) d'une bande de fermeture (113), s'étendant dans une bande de fermeture de fermeture (130) et dans une première bande de fermeture latérale de fermeture (131), sur un panneau de paroi (102) étant réalisée une ligne de déchirement (134), délimitant une seconde bande de fermeture latérale de fermeture (135), en image miroir de la première, à partir des bandes de fermeture latérales (131, 135) s'étendant des premier et second volets de fermeture respectifs (136, 137) de forme trapézoïdale de façon à former, pliés sous la bande de fermeture de fermeture (130), un gradin en forme de V.
 4. Boîte en carton (1) selon la revendication 1, 2 ou 3, comportant des moyens antieffraction, consistant en une ligne de déchirement (134) dont le déchirement irréversible est nécessaire pour ouvrir la fermeture (13).
 5. Boîte en carton (1) selon la revendication 1 ou 2, dans laquelle ledit prolongement (3) est formé au niveau d'un large panneau de paroi latérale (102), de sorte que la fermeture (13) peut se fermer sur le côté court de la boîte en carton (1).

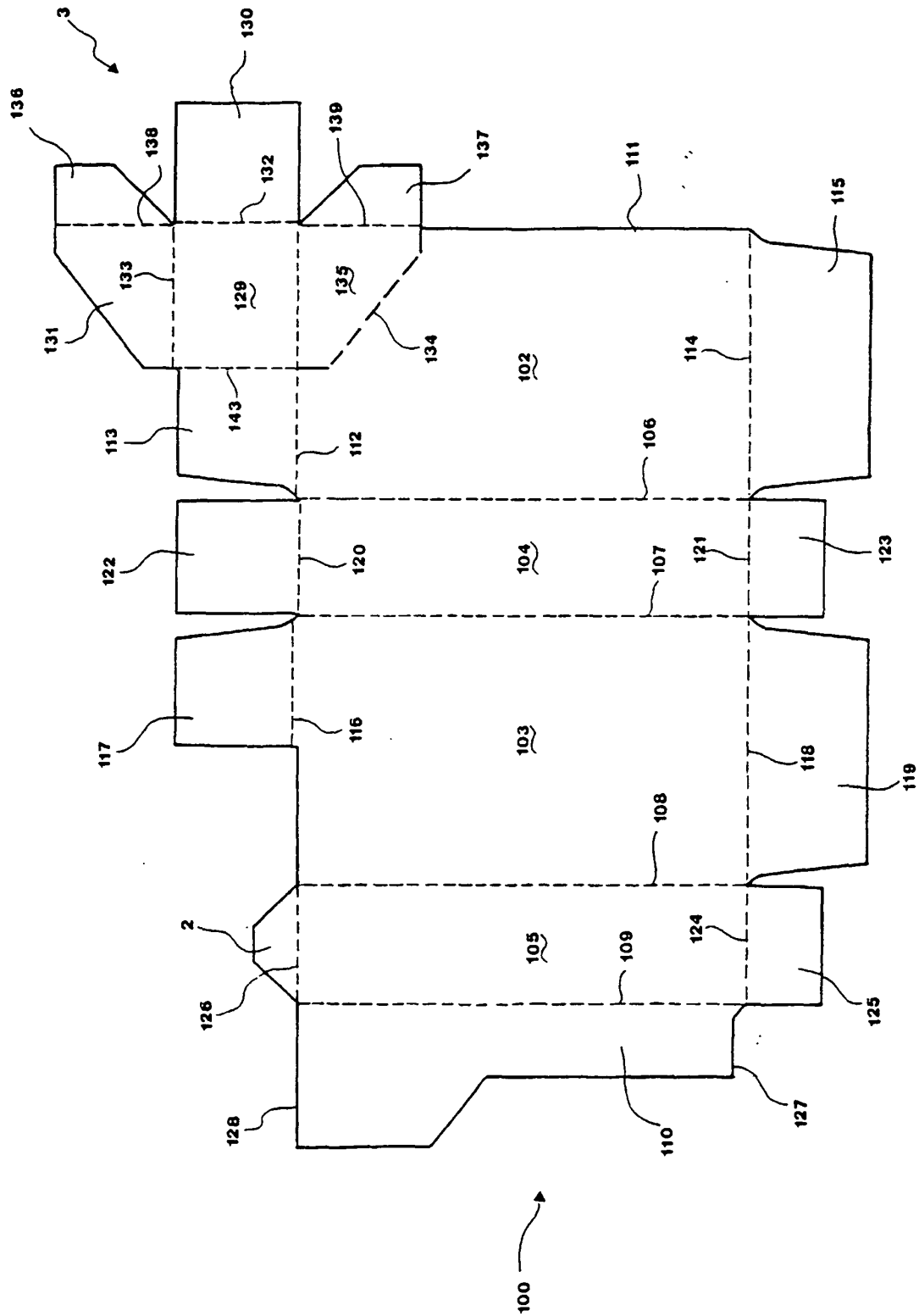


FIG. 1

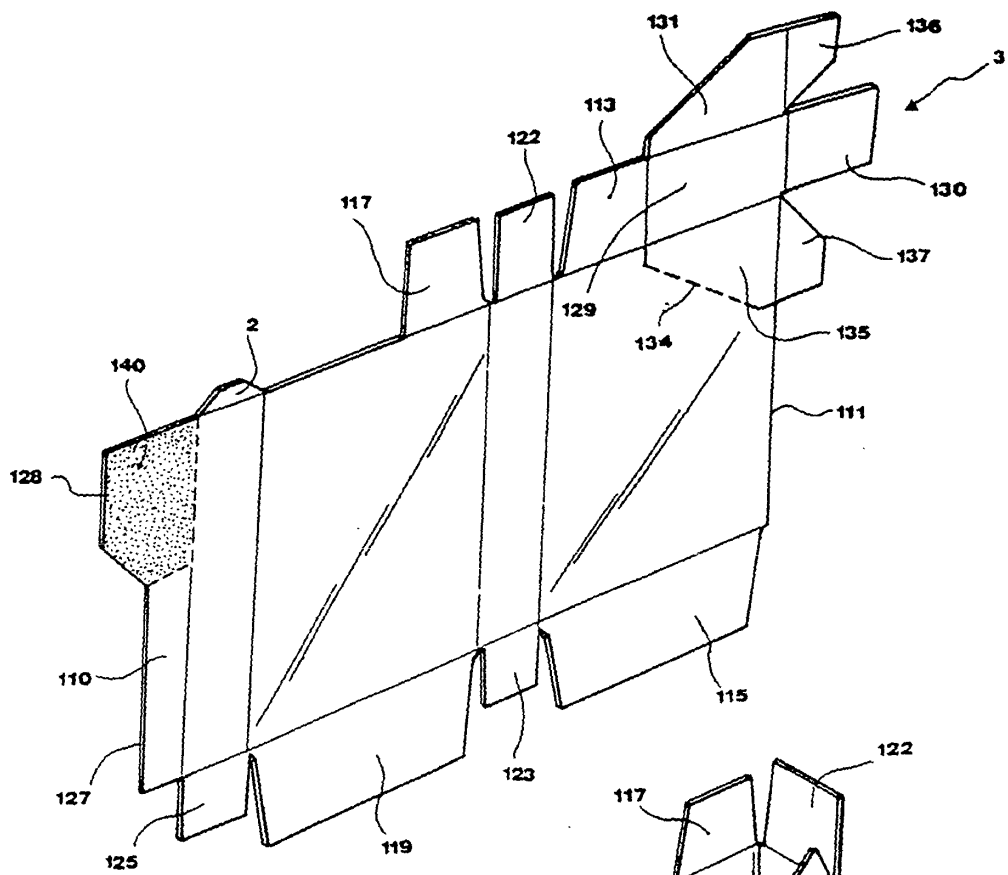


FIG. 2

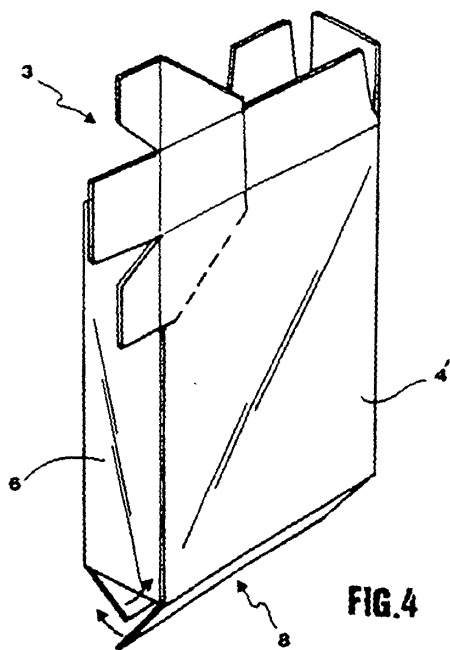


FIG. 4

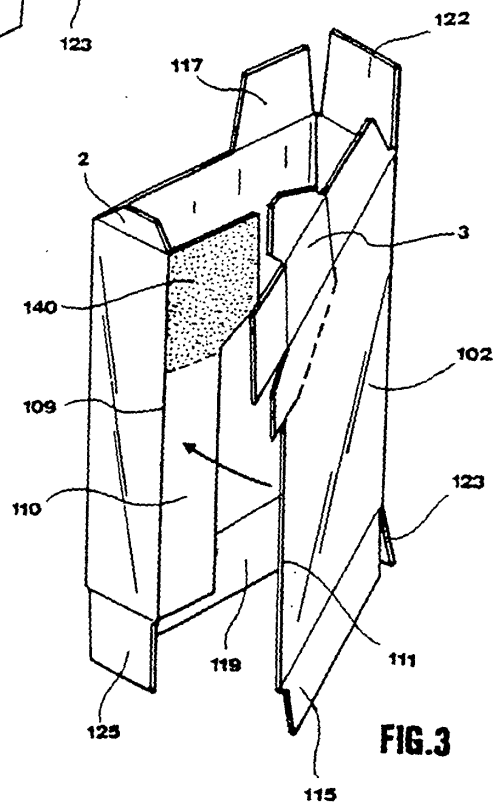


FIG. 3

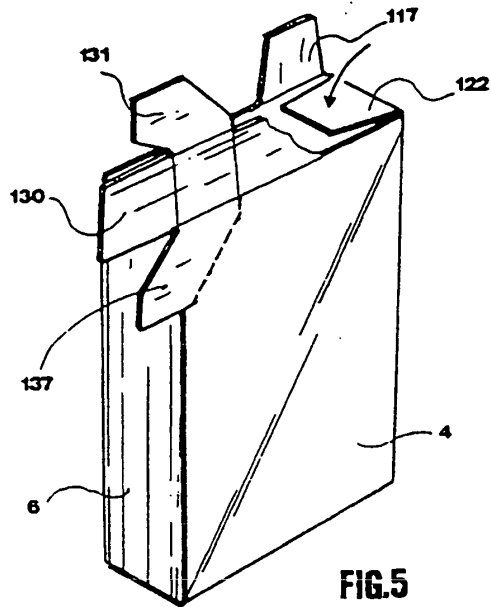


FIG. 5

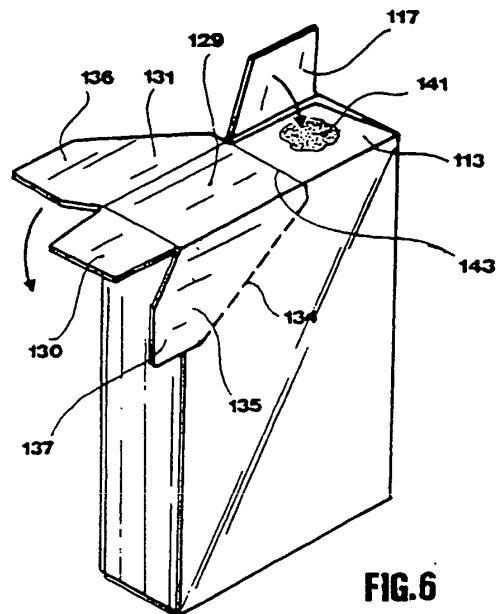


FIG. 6

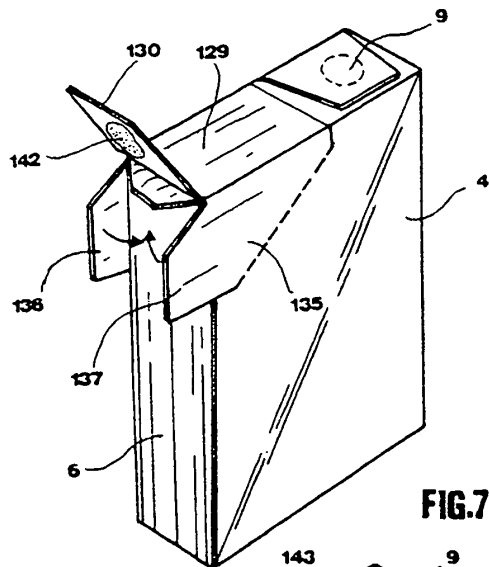


FIG. 7

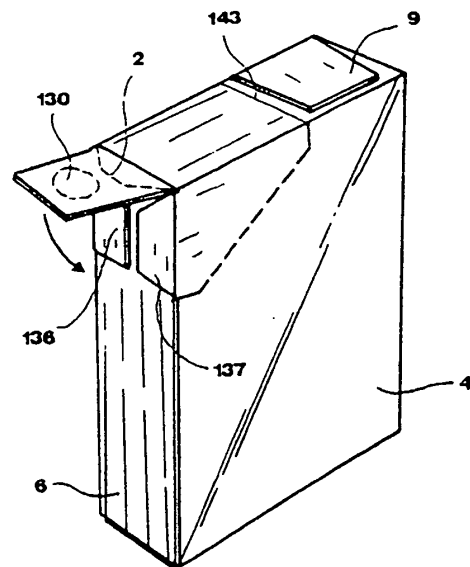


FIG. 8

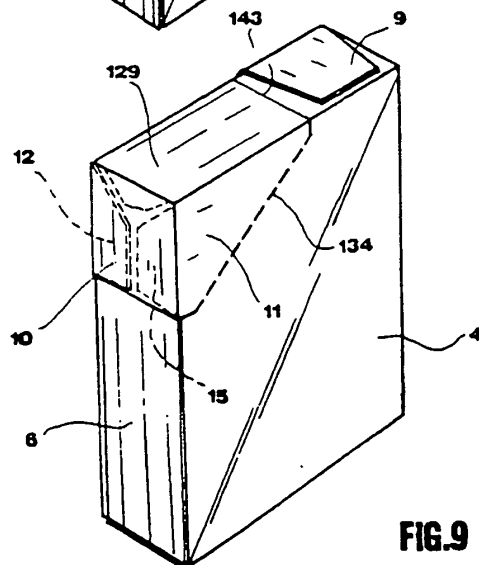


FIG. 9

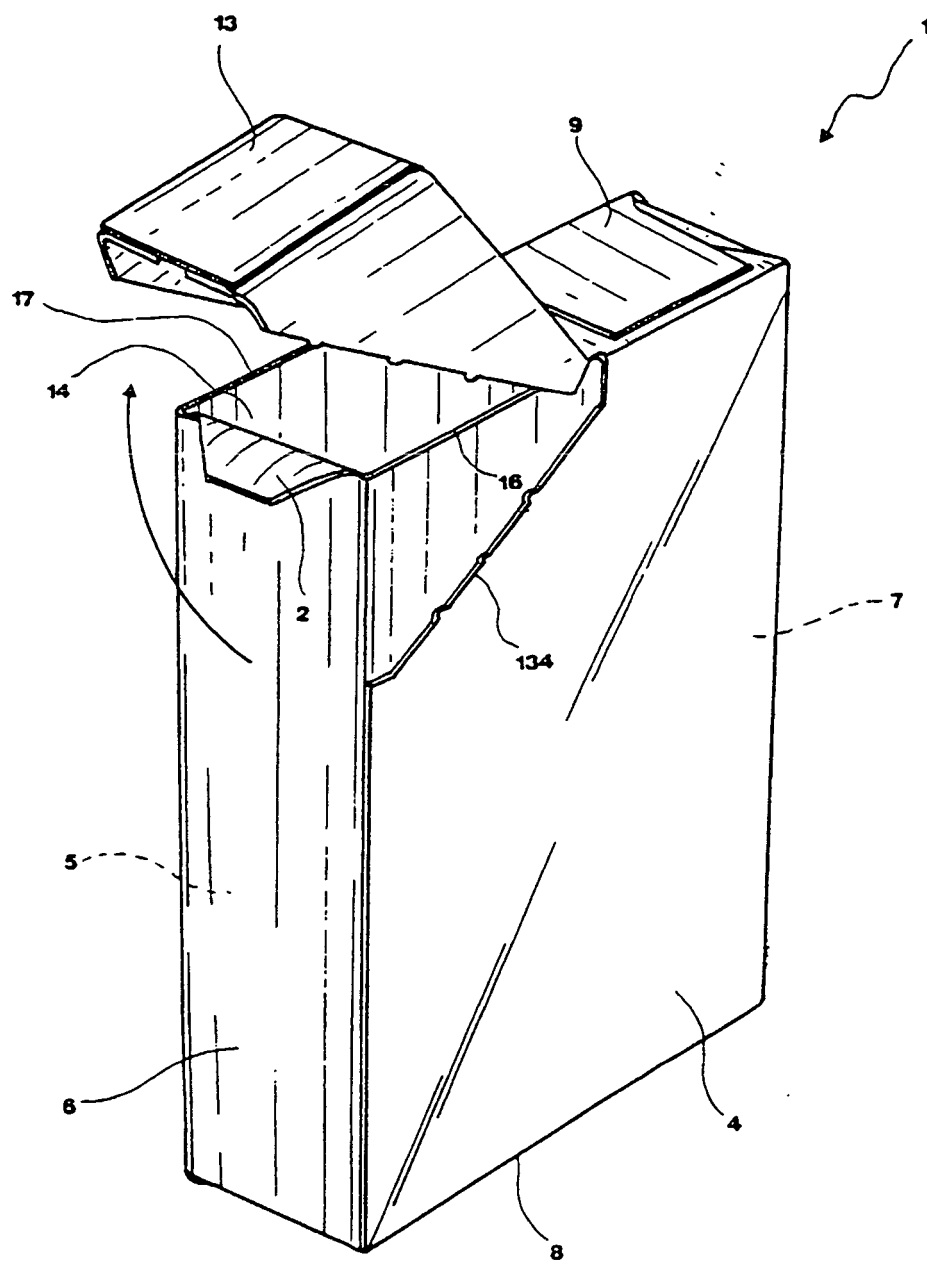


FIG.10