

(19)



(11)

EP 2 817 232 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

09.12.2015 Bulletin 2015/50

(51) Int Cl.:

B65D 77/02 *(2006.01)* **B65D 85/10** *(2006.01)*

(86) International application number:

PCT/IB2013/051389

(21) Application number: **13720020.0**

(22) Date of filing: **20.02.2013**

(87) International publication number:

WO 2013/124801 (29.08.2013 Gazette 2013/35)

(54) **RIGID PACKET OF CIGARETTES**

STEIFE ZIGARETTENVERPACKUNG

PAQUET RIGIDE DE CIGARETTES

(84) Designated Contracting States:

**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **20.02.2012 IT BO20120076**

(43) Date of publication of application:

31.12.2014 Bulletin 2015/01

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Description

TECHNICAL FIELD

[0001] The present invention relates to a rigid packet of cigarettes.

[0002] In the following description, reference is made for the sake of simplicity to a rigid, hinged-lid packet of cigarettes, purely by way of a non-limiting example.

BACKGROUND ART

[0003] A rigid, hinged-lid packet of cigarettes (or cigars, cigarillos or similar) comprises a cup-shaped outer container; and a lid hinged to the outer container and movable between an open and a closed position. The outer container defines a compartment for housing an inner package comprising a foil-wrapped group of cigarettes. The outer container is sized according to the size of the inner package (i.e. the group of cigarettes) so as to grip the group of cigarettes firmly between the walls of the outer container and prevent the group of cigarettes from moving with respect to the outer container, or even prevent adjacent cigarettes from moving with respect to one another, as the packets of cigarettes are transported and handled repeatedly between the production plant and the end user. The cigarettes in the group must be maintained in a given position inside the outer container, in that even only partial movement of the cigarettes inside the outer container may result in tobacco spillage from the 'tips' (i.e. the ends opposite the filters) or in bending or tearing of the cigarettes.

[0004] On the other hand, packets of cigarettes of the above type must also permit easy withdrawal of the cigarettes, especially when the packet is full (i.e. when the packet is first opened). The need for a packet in which the group of cigarettes is housed loosely inside the outer container obviously conflicts with the need to hold the group of cigarettes firmly in a given position, as stated above.

[0005] In fact, known rigid, hinged-lid packets of cigarettes represent a trade-off between the above two demands, i.e. the need to grip the group of cigarettes firmly inside the outer container to prevent the cigarettes from moving during transport and handling, and the need to allow a certain amount of slack between the cigarettes in the group, so the first few cigarettes can be withdrawn without too much difficulty.

[0006] Patent Application DE202010002096U1, regarded as the closest prior art, describes a rigid, hinged-lid packet of cigarettes with a trapezoidal cross section which is constant (i.e. always the same) along its whole length. Even this packet of cigarettes, however, represents a trade-off between the above two demands, i.e. the need to grip the group of cigarettes firmly inside the outer container to prevent the cigarettes from moving during transport and handling, and the need to allow a certain amount of slack between the cigarettes in the group, so

the first few cigarettes can be withdrawn without too much difficulty.

[0007] To solve the problem, Patent EP0930245B1 proposes a rigid, hinged-lid packet of cigarettes, in which the outer container has three main axes perpendicular to one another, and is bounded by a number of main walls, each parallel to two of the three main axes, and by at least one connecting wall, which is located between at least two main walls and forms a given angle of other than zero with each of the three main axes, so the cross section of the packet varies along each of the main axes. The packet of cigarettes described in Patent EP0930245B1, however, is fairly complicated to produce on a standard (commercial) packing machine, and so calls for a specially designed machine that is much more expensive than an equivalent standard packing machine.

DESCRIPTION OF THE INVENTION

[0008] It is an object of the present invention to provide a rigid packet of cigarettes designed to eliminate the above drawbacks, and which at the same time is cheap and easy to produce.

[0009] According to the present invention, there is provided a rigid packet of cigarettes as claimed in the accompanying Claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]

Figure 1 shows a front view in perspective of a rigid, hinged-lid packet of cigarettes in accordance with the present invention and in a closed configuration; Figure 2 shows a rear view in perspective of the Figure 1 packet of cigarettes in a closed configuration; Figure 3 shows a front view in perspective of the Figure 1 packet of cigarettes in an open configuration;

Figure 4 shows a cross section of the Figure 1 packet of cigarettes;

Figure 5 shows a spread-out view of a blank which is folded about an inner package to form the Figure 1 packet of cigarettes;

Figure 6 shows a spread-out view of a collar of the Figure 1 packet of cigarettes.

PREFERRED EMBODIMENTS OF THE INVENTION

[0011] Number 1 in Figures 1, 2 and 3 indicates as a whole a rigid packet of cigarettes. Packet 1 of cigarettes comprises a cardboard outer container 2; and an inner wrapper 3, which is housed inside outer container 2, encloses a group of cigarettes (shown in cross section in Figure 4), and has a top and front extraction opening by which to extract cigarettes 23. Cigarettes 23 in the group may be arranged in three rows of 6-7-7 cigarettes, making a total of 20 cigarettes.

[0012] Outer container 2 has an open top end 4; and a cup-shaped lid 5 hinged to outer container 2 along a hinge 6 to rotate, with respect to outer container 2, between an open position (Figure 3) and a closed position (Figures 1 and 2) opening and closing open top end 4 respectively.

[0013] When lid 5 is in the closed position, outer container 2 is in the form of a polyhedron with six faces in three opposite pairs. More specifically, outer container 2 has two end walls comprising a top wall 7 and a bottom wall 8 opposite and parallel to each other; and four lateral walls 9, 10, 11, which are perpendicular to top and bottom walls 7 and 8, and extend longitudinally to connect the edges of top wall 7 to the corresponding edges of bottom wall 8. The four lateral walls 9, 10, 11 comprise two opposite, parallel major (i.e. larger) lateral walls 9 and 10; and two opposite, non-parallel minor (i.e. smaller) lateral walls 11. More specifically, major lateral wall 9 defines a front wall 9 of outer container 2; and major lateral wall 10 defines a rear wall 10 of outer container 2. Four longitudinal edges 12 are defined between the two minor lateral walls 11 and front and rear walls 9, 10; and eight transverse edges 13 are defined between top and bottom walls 7, 8 and front, rear and minor lateral walls 9, 10, 11.

[0014] As shown in Figures 3 and 6, packet 1 also comprises a U-shaped, rigid (i.e. rigid cardboard) collar 14 inserted inside outer container 2 and glued to outer container 2 to project partly outwards of open top end 4 and engage a corresponding inner surface of lid 5 when lid 5 is closed. Collar 14 comprises a front wall 15 positioned contacting front wall 9 of outer container 2; and two lateral walls 16 located on opposite sides of front wall 15 and positioned contacting minor lateral walls 11 of outer container 2. In a preferred embodiment, collar 14 has two projections 17, which project laterally from front wall 15 to interferentially engage the lateral walls of lid 5 to hold lid 5 in the closed position.

[0015] As shown in Figures 1 and 2, top wall 7 is trapezoidal, and more specifically in the form of an isosceles trapezium (in geometry, an isosceles trapezium is defined as a quadrilateral, with two parallel sides known respectively as 'major' and 'minor' bases; with two oblique, congruent sides; and in which the two adjacent angles of each base are equal and congruent). Bottom wall 8 is rectangular, with the same perimeter as the trapezium of top wall 7 (in geometry, a rectangle is defined as a quadrilateral with equal opposite sides, and with adjacent sides perpendicular; a square is a particular form of rectangle with four equal sides). In the embodiment of packet 1 of cigarettes shown in the drawings, the bases of the trapezium of top wall 7 are parallel to the corresponding major sides of the rectangle of bottom wall 8.

[0016] A cross section of outer container 2, parallel to top and bottom walls 7 and 8, varies continuously in a longitudinal direction (i.e. lengthwise of the polyhedron of packet 1 of cigarettes) to connect the trapezium of top wall 7 to the rectangle of bottom wall 8, so each longitu-

dinal edge 12 is of constant shape and size along its whole length. Generally speaking, any cross section of outer container 2 is always in the form of a convex quadrilateral.

[0017] Figure 4 shows a cross section of packet 1 of cigarettes, parallel to top and bottom walls 7 and 8 and close to bottom wall 8, and in which 7a indicates the projection of top wall 7 in the cross section plane, and 8a indicates the projection of bottom wall 8 in the same cross section plane. The cross section close to bottom wall 8 (i.e. adjacent to the base of packet 1 of cigarettes) is still substantially rectangular, and so provides for keeping cigarettes 23 in the group of cigarettes in inner wrapping 3 compact, i.e. held firmly in the correct position.

[0018] In a preferred embodiment of packet 1 of cigarettes, the cross section of the undeformed group of cigarettes (i.e. subjected to no deformation) is the same shape and size as the cross section of outer container 2 adjacent to bottom wall 8. At bottom wall 8, the group of cigarettes therefore undergoes no deformation of any sort, whereas, in all the other parallel cross sections, the group of cigarettes is deformed slightly (i.e. cigarettes 23 in inner wrapping 3 are shifted slightly with respect to the initial undeformed condition), but this has no negative effect on cigarettes 23. In other words, the outer container 2 of an equivalent standard (i.e. rectangular-parallelepiped-shaped) rigid packet of cigarettes would have the same cross section as outer container 2 at bottom wall 8.

[0019] In the preferred embodiment of packet 1 of cigarettes, cigarettes 23 undergo no compression, regardless of the cross section of packet 1 of cigarettes considered. This is due to the group of cigarettes being arranged in three rows of 6-7-7 cigarettes 23 (making a total of 20 cigarettes), and to the row comprising 6 cigarettes 23 being positioned facing the minor base of the trapezium of top wall 7 (Figure 4).

[0020] The group of cigarettes may also be arranged in three rows of 6-7-8 cigarettes 23 (making a total of 21 cigarettes - a format used in cigarette vending machines); in two rows of 9-11 cigarettes 23 (making a total of 20 cigarettes - a format particularly suitable for small-diameter 'slim' cigarettes); or in four rows of 4-5-5-6 cigarettes 23 (making a total of 20 cigarettes - a suitable format for 'superslim' cigarettes that can be packed in square-section packets).

[0021] An alternative specular embodiment of outer container 2 - in which the trapezoidal top wall 7 has the major base at front wall 9 and the minor base at rear wall 10 - is perfectly equivalent to the preferred embodiment of outer container 2.

[0022] In the embodiment shown in the drawings, each minor lateral wall 11 has a twist, i.e. has a curved, partly spiral shape.

[0023] As shown in the attached drawings, any cross section of outer container 2, parallel to top and bottom walls 7 and 8, has the same perimeter (i.e. the perimeter of the cross section of outer container 2 is constant, by virtue of the lateral surface, in plan view, of outer con-

tainer 2 being a rectangle). This is an important characteristic, by allowing outer container 2 to be wrapped easily in a rectangular plastic (e.g. cellophane or polypropylene) overwrap with excellent results in terms of appearance (i.e. with no unsightly 'creases' in the plastic overwrap).

[0024] As shown in Figure 5, outer container 2 is formed from a flat, substantially elongated rectangular blank 18. Blank 18 has two longitudinal fold lines 19, and a number of transverse fold lines 20 defining, between longitudinal fold lines 19, a panel 9' forming part of front wall 9 of outer container 2 (in particular, the part of front wall 9 forming part of lid 5); a panel 7' forming top wall 7 of outer container 2; a panel 10' forming rear wall 10 of outer container 2; a panel 8' forming bottom wall 8 of outer container 2; and a panel 9'' forming the rest of front wall 9 of outer container 2. Panel 9' is connected along a transverse fold line 20 to a flap 21, which is folded 180° and glued to an inner surface of panel 9' to locally reinforce lid 5.

[0025] Panel 10' has two wings 11', which are located on opposite sides of panel 10', are separated from panel 10' by longitudinal fold lines 19, and form respective inner portions of the two minor lateral walls 11 of outer container 2. Panel 9'' has two wings 11'', which are located on opposite sides of panel 9'', are separated from panel 9'' by longitudinal fold lines 19, and form respective outer portions of the two minor lateral walls 11 of outer container 2. Panel 9' has two wings 11''', which are located on opposite sides of panel 9', are separated from panel 9' by longitudinal fold lines 19, and form further respective outer portions of the two minor lateral walls 11 of outer container 2.

[0026] Each wing 11' has two tabs 22, which are located at opposite ends of wing 11', are separated from wing 11' by two transverse fold lines 20, and are folded 90° so as to contact an inner surface of panel 7' and an inner surface of panel 8' respectively.

[0027] In the Figure 1-3 embodiment, edges 12 and 13 are all 'sharp'; in alternative embodiments, some edges 12 and 13 may be bevelled or rounded.

[0028] In an alternative embodiment not shown, packet 1 of cigarettes slides open transversely, and comprises a rigid inner container inserted inside and partly separable from outer container 2. In other words, packet 1 of cigarettes comprises a rigid inner container housing the group of cigarettes and itself housed inside outer container 2 to slide, with respect to outer container 2, between a closed position, in which the inner container is inserted inside outer container 2, and an open position, in which the inner container is partly extracted from outer container 2. In this embodiment, outer container 2 has no lid 5, and one minor lateral wall 11 is replaced with an opening through which the inner container slides. The inner container may slide with respect to outer container 2 by translating with respect to it, or by rotating with respect to it about a hinge connecting the two containers. The inner container is normally the same shape as outer container 2 (obviously, slightly smaller so as to fit inside

outer container 2), but may even be a different shape from outer container 2.

[0029] Packet 1 of cigarettes described has numerous advantages.

[0030] Firstly, inside outer container 2 of packet 1 of cigarettes described, the group of cigarettes is gripped firmly enough at the base to prevent any appreciable movement (and therefore damage) of cigarettes 23 as packet 1 of cigarettes is transported and handled.

[0031] At the same time, cigarettes 23 in the group are allowed a certain amount of slack at open top end 4, so they can be withdrawn easily from outer container 2 of packet 1 of cigarettes, especially when packet 1 of cigarettes is full (i.e. is first opened) and the first cigarette 23 is withdrawn from open top end 4 of outer container 2.

[0032] This excellent compromise between three conflicting requirements (gripping the group of cigarettes firmly inside outer container 2, to prevent cigarettes 23 from moving during transport and handling; enabling easy axial withdrawal of the first cigarettes 23 from the group; and preventing transverse compression of cigarettes 23) is achieved by virtue of the particular and innovative shape of outer container 2, in which the cross section parallel to top and bottom walls 7 and 8 varies continuously in a longitudinal direction, but always with the same perimeter, to connect a rectangle to an isosceles trapezium.

[0033] Moreover, packet 1 of cigarettes described is cheap and easy to produce, by being producible easily even on a standard (commercial) packing machine, by virtue of the blank of outer container 2 being more or less the same shape as a conventional blank.

Claims

1. A rigid packet (1) of cigarettes or similar, comprising:

a group of cigarettes wrapped in an inner wrapper (3); and

an outer container (2) housing the group of cigarettes and in the form of a polyhedron with six faces: a trapezoidal top wall (7) and a bottom wall (8) opposite and parallel to each other; and four lateral walls (9, 10, 11) perpendicular to the top and bottom wall (7, 8), and which extend longitudinally to connect the edges of the top wall (7) to corresponding edges of the bottom wall (8);

the packet (1) of cigarettes being **characterized in that:**

the bottom wall (8) is rectangular; and
a cross section of the outer container (2), parallel to the top and bottom wall (7, 8), varies continuously in a longitudinal direction to connect the trapezium of the top wall (7) to the rectangle of the bottom wall (8).

2. A packet (1) of cigarettes according to Claim 1, wherein the cross section of the outer container (2), parallel to the top and bottom wall (7, 8), has the same perimeter in any position. 5
3. A packet (1) of cigarettes according to Claim 1 or 2, wherein four longitudinal edges (12), each of constant shape and size along its whole length, are defined between the four lateral walls (9, 10, 11). 10
4. A packet (1) of cigarettes according to Claim 3, wherein the outer container (2) has a front wall (9) and a rear wall (10), of which one connects a major base of the trapezoidal top wall (7) to a major side of the rectangular bottom wall (8), and the other connects a minor base of the trapezoidal top wall (7) to the other major side of the rectangular bottom wall (8). 15
5. A packet (1) of cigarettes according to Claim 3 or 4, wherein the outer container (2) has two minor lateral walls (11), each of which connects an oblique side of the trapezoidal top wall (7) to a minor side of the rectangular bottom wall (8). 20
6. A packet (1) of cigarettes according to any one of Claims 1 to 5, wherein the bases of the trapezium of the top wall (7) are parallel to the major sides of the rectangle of the bottom wall (8). 25
7. A packet (1) of cigarettes according to any one of Claims 1 to 6, wherein the trapezium of the top wall (7) is an isosceles trapezium. 30
8. A packet (1) of cigarettes according to any one of Claims 1 to 7, wherein the rectangle of the bottom wall (8) is substantially a square. 35
9. A packet (1) of cigarettes according to any one of the preceding Claims, wherein the cross section of the group of cigarettes wrapped in an inner wrapping (3) is the same shape and size as the cross section of the outer container (2) adjacent to the bottom wall (8). 40

Patentansprüche

1. Starre Zigarettenpackung (1) oder dergleichen, die Folgendes umfasst: 50

eine Gruppe von Zigaretten, die in eine innere Umwicklung (3) gewickelt sind; und

einen äußeren Behälter (2), der die Gruppe von Zigaretten aufnimmt und in der Form eines Polyeders mit sechs Flächen vorliegt: eine trapezförmige obere Wand (7) und eine untere Wand (8), die einander gegenüberliegen und parallel

zueinander sind; und vier seitliche Wände (9, 10, 11) senkrecht zu der oberen und der unteren Wand (7, 8), die sich in Längsrichtung erstrecken, um die Kanten der oberen Wand (7) mit entsprechenden Kanten der unteren Wand (8) zu verbinden;

wobei die Zigarettenpackung (1) **dadurch gekennzeichnet ist, dass:**

die untere Wand (8) rechteckig ist; und

ein Querschnitt des äußeren Behälters (2) sich parallel zu der oberen und der unteren Wand (7, 8) in einer Längsrichtung kontinuierlich so ändert, dass das Trapez der oberen Wand (7) mit dem Rechteck der unteren Wand (8) verbunden wird.

2. Zigarettenpackung (1) nach Anspruch 1, wobei der Querschnitt des äußeren Behälters (2) parallel zu der oberen und der unteren Wand (7, 8) in jeder Position den gleichen Umfang aufweist.
3. Zigarettenpackung (1) nach Anspruch 1 oder 2, wobei vier Längskanten (12), von denen jede längs ihrer gesamten Länge die gleiche Form und Größe aufweist, zwischen den vier seitlichen Wänden (9, 10, 11) definiert sind.
4. Zigarettenpackung (1) nach Anspruch 3, wobei der äußere Behälter (2) eine vordere Wand (9) und eine hintere Wand (10) aufweist, von denen die eine eine größere Basis der trapezförmigen oberen Wand (7) mit einer größeren Seite der rechteckigen unteren Wand (8) verbindet, und die andere eine kleinere Basis der trapezförmigen oberen Wand (7) mit der anderen größeren Seite der rechteckigen unteren Wand (8) verbindet.
5. Zigarettenpackung (1) nach Anspruch 3 oder 4, wobei der äußere Behälter (2) zwei kleinere seitliche Wände (11) aufweist, von denen jede eine geneigte Seite der trapezförmigen oberen Wand (7) mit einer kleineren Seite der rechteckigen unteren Wand (8) verbindet.
6. Zigarettenpackung (1) nach einem der Ansprüche 1 bis 5, wobei die Basen des Trapezes der oberen Wand (7) parallel zu den größeren Seiten des Rechtecks der unteren Wand (8) verlaufen.
7. Zigarettenpackung (1) nach einem der Ansprüche 1 bis 6, wobei das Trapez der oberen Wand (7) ein gleichschenkliges Trapez ist.
8. Zigarettenpackung (1) nach einem der Ansprüche 1 bis 7, wobei das Rechteck der unteren Wand (8) im Wesentlichen ein Quadrat ist.

9. Zigarettenpackung (1) nach einem der vorhergehenden Ansprüche, wobei der Querschnitt der Gruppe von Zigaretten, die in eine innere Umwicklung (3) gewickelt sind, die gleiche Form und Größe wie der Querschnitt des äußeren Behälters (2) angrenzend an die untere Wand (8) aufweist.

Revendications

1. Paquet rigide (1) de cigarettes, ou similaires, comprenant :

un groupe de cigarettes enveloppé dans une enveloppe interne (3) ; et
un contenant externe (2) logeant le groupe de cigarettes et ayant la forme d'un polyèdre à six faces :

une paroi supérieure trapézoïdale (7) et une paroi inférieure (8), opposées et parallèles ; et quatre parois latérales (9, 10, 11) perpendiculaires aux parois supérieure et inférieure (7, 8), et qui s'étendent longitudinalement pour relier les bords de la paroi supérieure (7) à des bords correspondants de la paroi inférieure (8) ; ;

le paquet (1) de cigarettes étant **caractérisé en ce que** :

la paroi inférieure (8) est rectangulaire ; et

une section transversale du contenant externe (2), parallèle aux parois supérieure et inférieure (7, 8), varie en continu dans une direction longitudinale pour relier le trapèze de la paroi supérieure (7) au rectangle de la paroi inférieure (8).

2. Paquet (1) de cigarettes selon la revendication 1, dans lequel la section transversale du contenant externe (2), parallèle aux parois supérieure et inférieure (7, 8), a le même périmètre dans n'importe quelle position.

3. Paquet (1) de cigarettes selon la revendication 1 ou 2, dans lequel quatre bords longitudinaux (12), chacun ayant une forme et une dimension constantes sur toute sa longueur, sont définis entre les quatre parois latérales (9, 10, 11).

4. Paquet (1) de cigarettes selon la revendication 3, dans lequel le contenant externe (2) comporte une paroi avant (9) et une paroi arrière (10), l'une reliant une grande base de la paroi supérieure trapézoïdale (7) à un grand côté de la paroi inférieure rectangulaire (8), et l'autre reliant une petite base de la paroi

supérieure trapézoïdale (7) à l'autre grand côté de la paroi inférieure rectangulaire (8).

5. Paquet (1) de cigarettes selon la revendication 3 ou 4, dans lequel le contenant externe (2) comporte deux petites parois latérales (11), chacune reliant un côté oblique de la paroi supérieure trapézoïdale (7) à un petit côté de la paroi inférieure rectangulaire (8).

6. Paquet (1) de cigarettes selon l'une quelconque des revendications 1 à 5, dans lequel les bases du trapèze de la paroi supérieure (7) sont parallèles aux grands côtés du rectangle de la paroi inférieure (8).

7. Paquet (1) de cigarettes selon l'une quelconque des revendications 1 à 6, dans lequel le trapèze de la paroi supérieure (7) est un trapèze isocèle.

8. Paquet (1) de cigarettes selon l'une quelconque des revendications 1 à 7, dans lequel le rectangle de la paroi inférieure (8) est sensiblement un carré.

9. Paquet (1) de cigarettes selon l'une quelconque des revendications précédentes, dans lequel la section transversale du groupe de cigarettes enveloppé dans une enveloppe interne (3) a la même forme et la même dimension que la section transversale du contenant externe (2) adjacent à la paroi inférieure (8).

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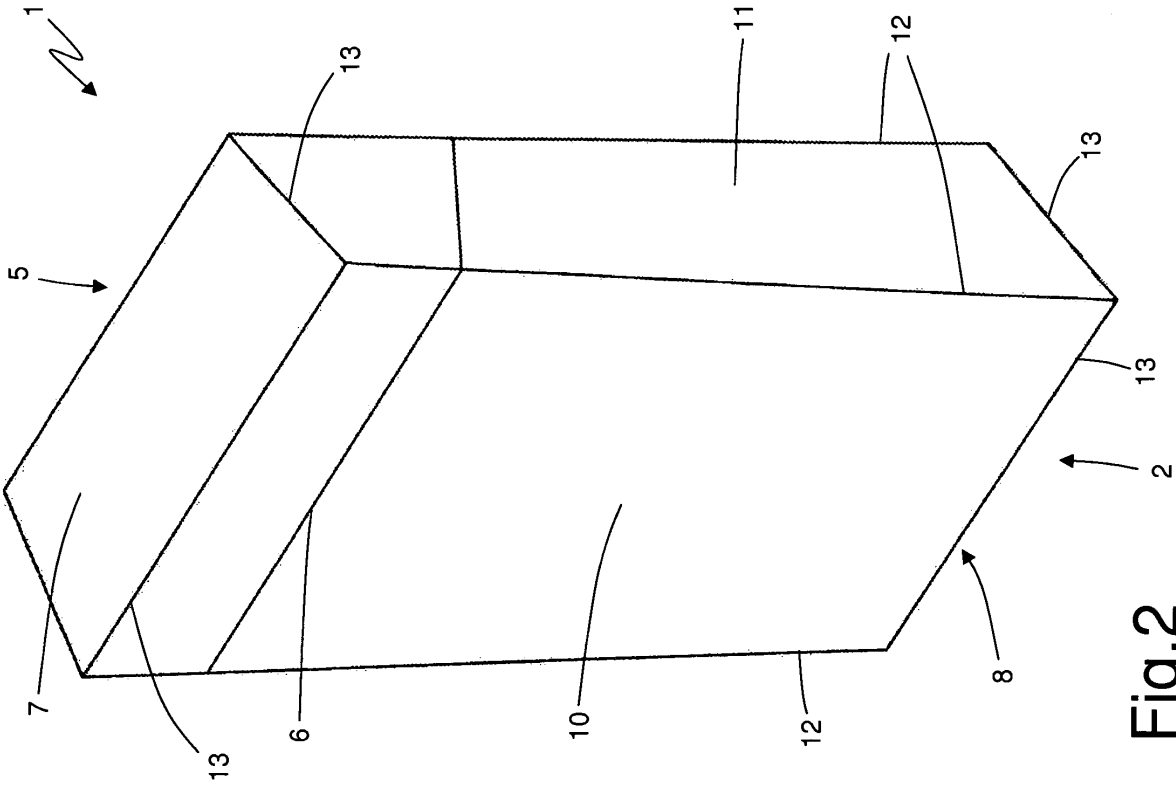


Fig. 2

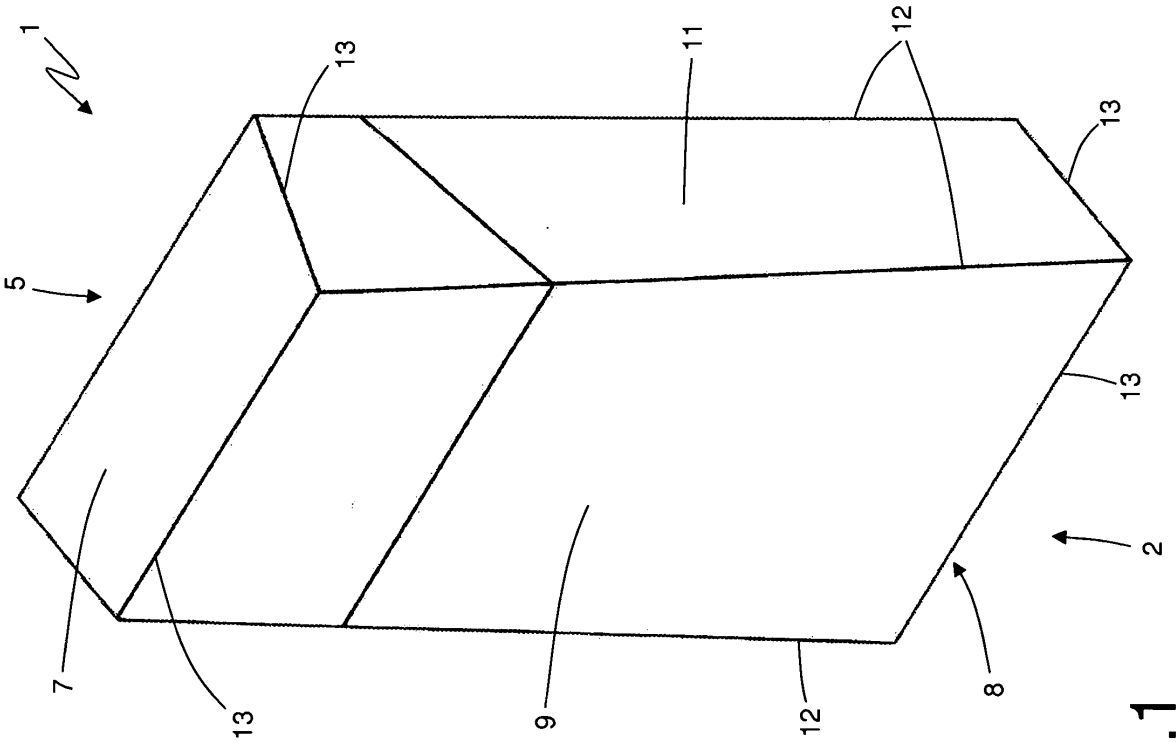
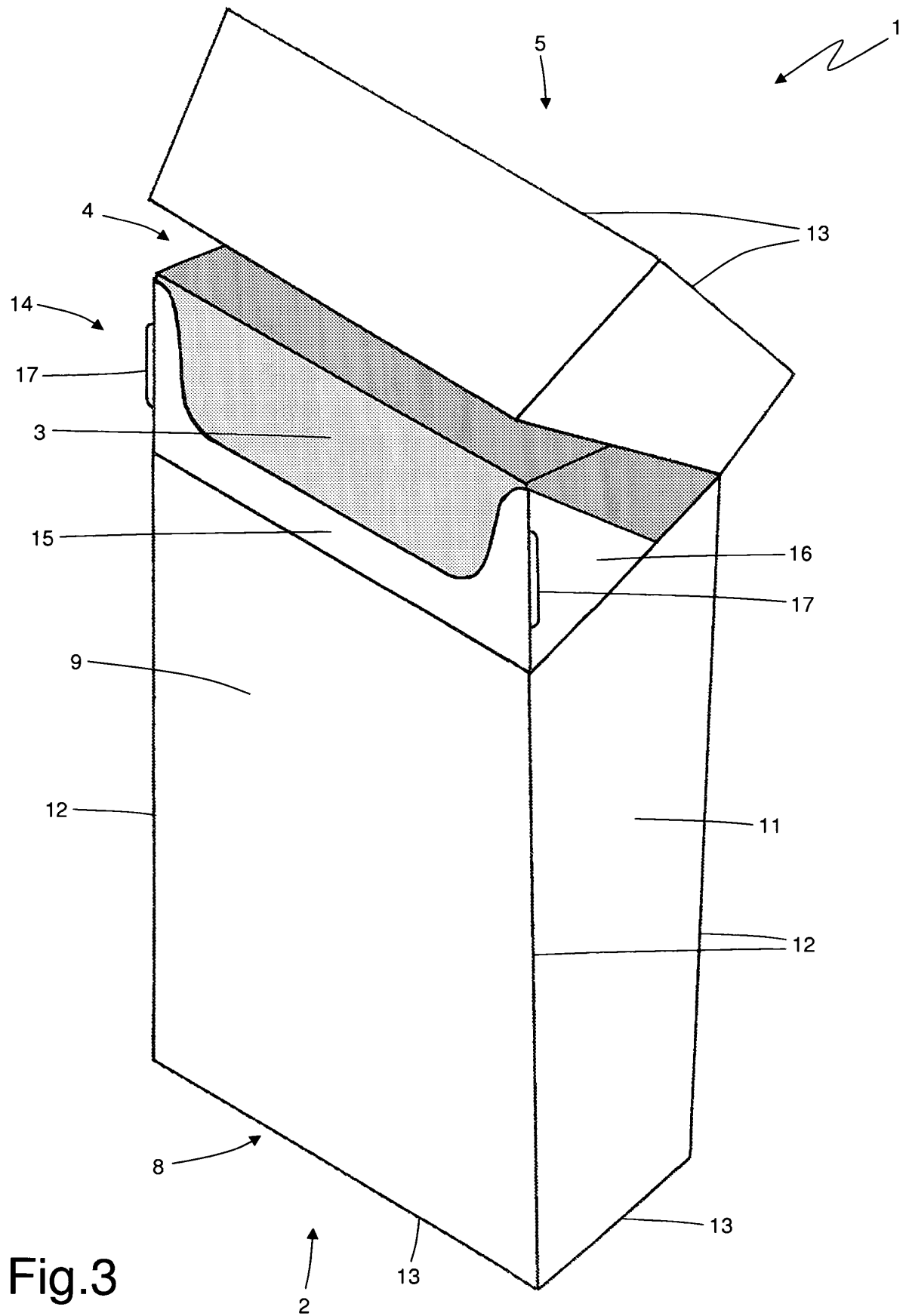


Fig. 1



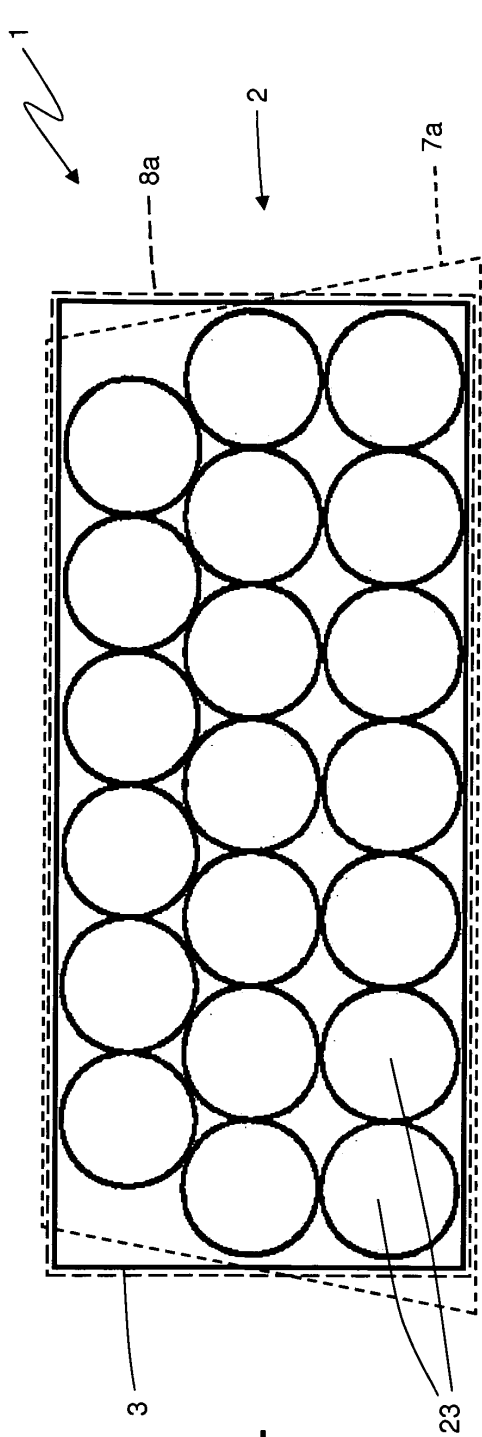


Fig. 4

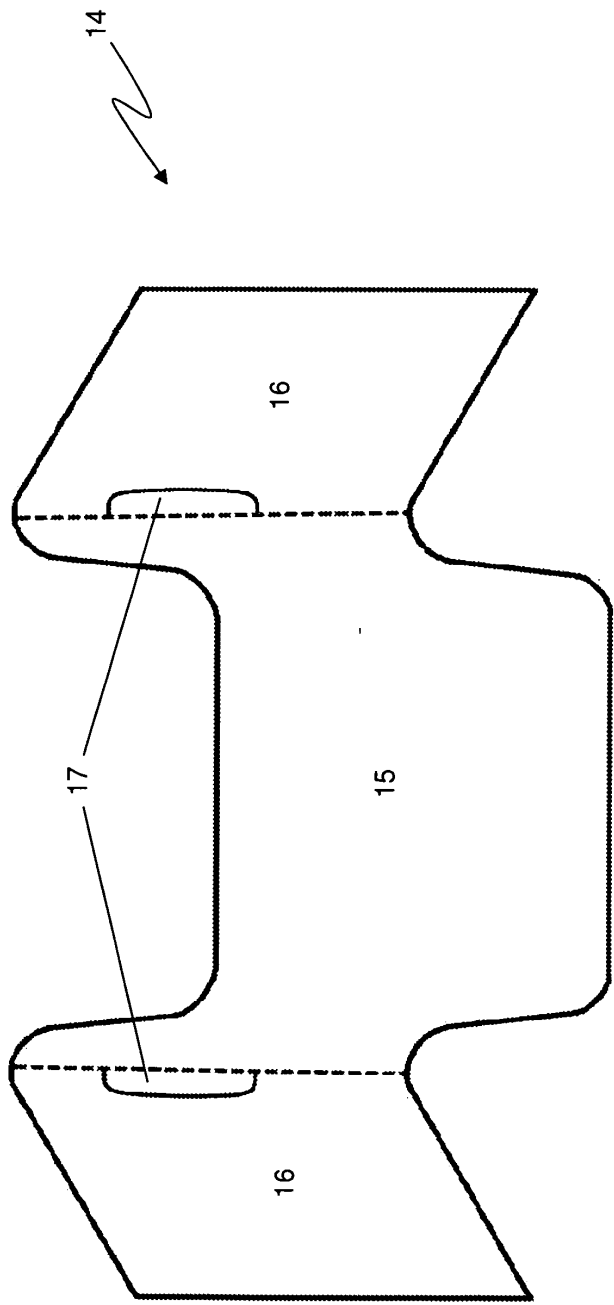


Fig. 6

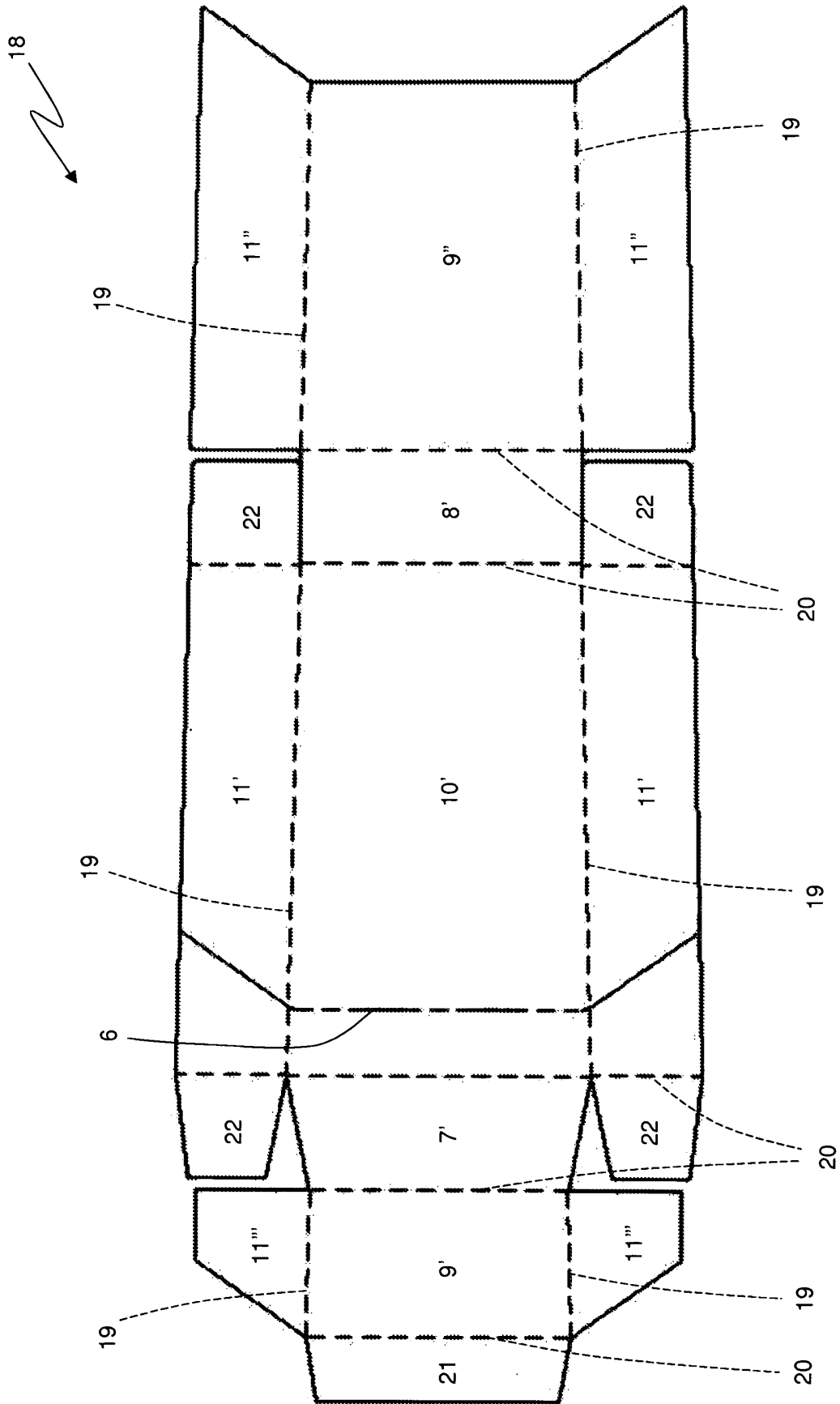


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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- EP 0930245 B1 [0007]