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(74) **Agents:** BIANCIARDI, Ezio et al.; Bugnion S.p.A., Via Goito, 18, I-40126 Bologna (IT).

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(71) **Applicant (for all designated States except US): G.D. S.P.A. [IT/ITL] Via Battindamo 91 40133 Bologna (IT)**

(72) **Inventors; and**  
(73) **Inventors/Applicants (for U.S. only): MINARELLI**

(75) Inventors/Applicants (for US only): MINARELLI, Alessandro [IT/IT]; Via del Bucco, 27 I-40053 Bazzano

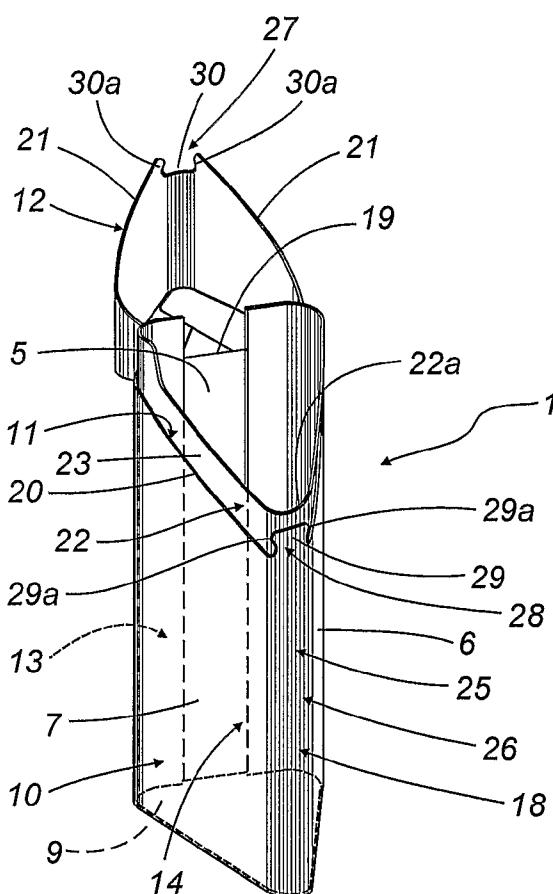
**ALESSANDRI** [ITA/IT]; Via del Bacco, 27, I-40033 Bolognina (IT). **BERTUZZI, Ivano** [IT/IT]; Via Sandro Pertini, 2, I-40033 Casalecchio di Reno (IT). **POLLONI, Roberto** [IT/IT]; Via Silvestro Lega, 91, I-47015 Modigliana (IT). **BIONDI, Andrea** [IT/IT]; Via Piave, 6, I-40133 Bologna (IT).

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**(54) Title: A RIGID PACKET WITH A HINGED LID**



**(57) Abstract:** A rigid hinge-lid packet (1) of prismatic shape, appearing substantially- triangular in section, comprises a container (10) surmounted by a lid (12), attached to the container (10) by way of a hinge (19) and pivotable between a position in which the packet is open and a position in which the packet is closed. The lid (12) of the packet (1) is retained in the closed position by locking elements (27) fashioned as a tongue (29), associated with one of the container (10) or lid(12), and a notch (30) formed in the other one of the container (10) or lid (12), insertable positively one into the other.



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DescriptionA rigid packet with a hinged lidTechnical Field

The present invention relates to a rigid packet with a hinged lid.

In particular, the present invention finds application to notable advantage in the manufacture of cigarette packets, the field to which reference is made explicitly in the following specification, albeit with no limitation implied.

Background Art

5 In general, rigid packets of hinge-lid type are parallelepiped in appearance, comprising a container such as will hold a group of cigarettes enveloped in a respective inner wrapper, surmounted by a lid. The lid is hinged to an open top end of the container, pivotable thus between a position in which the container is open, and a position in which the container is closed.

10 The container is furnished with an internal stiffening frame that functions as a connecting element between the selfsame container and the lid.

15 The prior art also embraces cigarette packets of prismatic geometry appearing substantially triangular in section, with sharp or rounded corner edges, of which the hinge that allows the pivoting movement of the lid is located on the side of the packet opposite to a front corner edge. Both the container and the lid of such triangular packets present a front and a back, and respective end faces constituting the bottom and the top of the packet.

20 Such packets of triangular section are furnished likewise with an internal stiffening frame, associated with and projecting partially from the container, which serves to retain the lid more readily in the closed position when the packet is not in use.

One drawback encountered with packets of this type, that is to say prismatic and of triangular section, is that after being opened a relatively limited number

of times in order to take out the cigarettes, the lid tends not to reassume its correct closed position in contact with the edges of the container, notwithstanding the presence of the stiffening frame.

5 The resulting partly-open condition of the packet impacts negatively on the preservation of the cigarettes thereafter, for example in terms of aroma and correct moisture content of the tobacco.

Moreover, the failure of the lid to close securely on the container results in a distinct structural fragility of the packet overall. When the lid remains open, in effect, the front corner edge will deform easily if pressure is placed on the top 10 extremity of the corner edge, where this same edge meets the frame.

The object of the present invention is to provide a packet that will be unaffected by the drawbacks described above.

#### Disclosure of the Invention

15 The stated object is realized according to the present invention in a rigid packet with a hinged lid, of which the characteristics are as recited in one or more of the appended claims.

The invention will now be described in detail, by way of example, with the aid of the accompanying drawings, in which:

- figures 1, 2, 3 and 4 illustrate four possible of a packet in accordance with the present invention, viewed schematically in perspective and shown in an open 20 configuration;
- figures 1a and 2a are front elevation views of the packets in figures 1 and 2, respectively, shown in a closed configuration;
- figures 3a and 4a are front elevation views of the packets in figures 3 and 4, respectively, shown in a closed configuration and with certain parts cut away 25 better to reveal others;
- figure 5 shows the packet of figure 3, viewed in a side elevation and with certain parts cut away better to reveal others;
- figures 6, 6a, 7, 8, 8a and 9 are plan views of diecut blanks from which to

manufacture the packets of figures 1 to 4.

With reference to figures 1 to 4, numeral 1 denotes a rigid packet with a hinged lid, in its entirety, containing a group 2 of cigarettes 3 enveloped in a respective inner wrapper 4 (figure 5) fashioned generally from metal foil paper.

5 The packet 1 appears as a prism of substantially triangular section, aligned on a longitudinal axis A, of which the substantially rectangular side faces are denoted 5, 6 and 7, and the end faces, denoted 8 and 9, coincide respectively with the top and bottom of the packet 1.

The packet 1 comprises a container 10 with an open top end, denoted 11, 10 also a lid 12, attached pivotably to the container 10 along a relative hinge 19 extending transversely to the longitudinal axis A and rotatable thus between a closed position, and an open position in which the top end 11 is exposed.

A first face 5 of the prism coincides with a rear wall 13 of the container 10 and a rear wall 15 of the lid 12, combining to provide the back of the packet 1, 15 which is denoted 17. The two rear walls 13 and 15 are divided one from the other by the hinge 19.

Similarly, the remaining side faces 6 and 7 of the prism coincide with a front wall 14 of the container 10 and with a front wall 16 of the lid 12, respectively, which combine to provide the front of the packet 1, denoted 18.

20 The aforementioned open top end 11 of the container 10 is delimited by a top edge 20 disposed obliquely to the axis A of the prism and presenting an outline substantially of Vee shape, which engages in contact with a corresponding edge 21 of the lid 12 when the selfsame lid 12 is in the closed position.

25 The packet 1 further comprises a stiffening frame 22 projecting in part beyond the edge 20 of the open top end 11 afforded by the container 10, of which two faces 23 occupy substantially the same planes as the front faces 6 and 7 of the packet 1 and function as the breast piece 24 of the frame 22.

The frame 22 is secured to the inside surface of the front wall 14 of the 30 container 10, so as to function as a connecting element between the container

10 and the lid 12 when in the closed position.

The three side faces 5, 6 and 7 are joined one to another along respective corner edges 25 which in the example of the drawings appear rounded, but which might equally well be sharp or bevelled, as will be explained more fully in due course.

5 Numeral 26 denotes the rounded front corner edge on the side opposite from the back 17 and the hinge 19, along which the side faces 6 and 7 making up the front 18 of the packet 1 are joined.

The packet 1 further comprises means 27, located on the front corner edge 10 26, by which the lid 12 is locked in the closed position. In particular, and in accordance with a first embodiment illustrated in figures 1, 1a, 2 and 2a, such locking means 27 comprise an engagement member 28 operating between the container 10 and the lid 12.

15 Referring to the solution of figures 1 and 1a, in particular, the engagement member 28 consists of a shaped portion 29 or tongue presented by the front corner edge 26, integral with the container 10 and extending toward the lid 12.

More exactly, the aforementioned portion 29 projects from the top edge 20 of the container 10, in alignment with the front corner edge 26, and presents a substantially dovetail outline with respective rounded corners 29a.

20 The shaped portion 29, or tongue, is insertable into a recess or notch 30 afforded by the edge 21 of the lid 12, and presents an outline shaped to match that of the recess 30, so that the one can engage positively with the other.

25 When the lid 12 is in the closed position, the aforementioned corners 29a are retained by corresponding undercut parts 30a of the recess 30. Accordingly, the shaped portion 29 remains locked in the recess 30, thereby ensuring that the lid 12 remains stably in position on the container 10.

Alternatively, as illustrated in figures 2 and 2a, the shaped portion 29 can be incorporated into the lid 12 and extend toward the container 10.

In this instance, the recess 30 will be afforded by the edge 20 of the container 10, and fashioned in such a way as to accommodate the shaped

portion 29 when inserted.

A further possible embodiment illustrated in figures 3, 3a, 4, 4a and 5 comprises locking means 27 with an engagement member 28 that operates between the frame 22, and an insert 31 associated with the lid 12.

5 In particular, as illustrated in figures 3, 3a and 5, the engagement member 28 is provided by a shaped portion 29 integral with the frame 22 and extending toward the lid 12.

The portion 29 is again insertable into a respective recess 30, in this instance afforded by the insert 31 on the inside of the lid 12.

10 More exactly, it will be seen that the insert 31 is positioned on the inside surface presented by the front wall 16 of the lid 12, and the recess 30 is positioned along the front corner edge 26, at a point between the edge 21 of the lid 12 and the end face 8 coinciding with the top of the packet 1.

15 It will be seen also that the shaped portion 29 is positioned at a vertex of a substantially Vee shaped edge 22a of the frame 22, located internally of the lid 12 when occupying the closed position.

Alternatively, as illustrated in figures 4 and 4a, the shaped portion 29 could be afforded by the aforementioned insert 31 and insertable into an recess 30 incorporated into the edge 22a of the frame 22.

20 Likewise in this instance, the engagement member 28 remains inside the lid 12 when the lid occupies the closed position.

Moreover, in accordance with a further embodiment not shown in the accompanying drawings, the locking means 27 might consist for example in a tab projecting outside the dimensional compass of the packet and insertable through slot afforded by the packet. By way of example, a tab associated with the edge 22a of the frame 22 and projecting transversely from the packet could be inserted through a slot afforded by the lid 12.

30 Alternatively, the locking means could include two projections associated with the insert 31 of the lid and interacting with through slots arranged mutually parallel and afforded by the frame 22, on opposite sides of the front

corner edge 26.

With reference to figures 6, 6a, 7, 8, 8a and 9, the packet 1 is fashioned from a flat diecut blank 32 of essentially rectangular outline presenting three mutually parallel precreased fold areas 33 delimiting two panels 34 that make up the front 18 of the packet 1, a panel 35 coinciding with the back 17 of the packet 1, and a further connecting panel 36 that will be breasted ultimately in contact with the inside surface of the back panel 35.

The blank 32 also presents a transverse Vee cut 37 intersecting the three precreased fold areas 33 and, more exactly, composed of two angled legs 38 converging on the central precreased area 38 that coincides with the front corner edge 26. The Vee cut 37 divides the front wall 14 of the container 10, on the one hand, from the front wall 16 of the lid 12 on the other.

The two ends of the Vee cut 37 are joined to two respective crease lines 39 extending transversely across the two corresponding panels 35 and 36 and functioning as the hinge 19 of the lid 12.

The panel 35 coinciding with the back 17 of the packet 1 is associated with a top wing 40 and a bottom wing 41, each joined to the selfsame panel 35 along a respective crease line 42. The two wings 40 and 41 coincide respectively with the top end face 8 or top and with the bottom end face 9 or bottom of the packet 1.

Each panel 34 coinciding with the front 18 of the packet 1 presents two flaps 43, extending from opposite ends of the selfsame panel 34. The flaps 34 of each panel 34 will be secured to the inside surfaces of the corresponding wings 40 and 41, thereby making up the aforementioned top and bottom of the erected packet 1.

The blank 32 illustrated in figure 6 is used to fashion a packet as in figures 1 and 1a.

It will be seen that the aforementioned transverse Vee cut 37 presents a substantially looped portion 44 at the convergence of the two angled legs 38, incorporating the shaped portion 29 and the relative recess 30. To advantage,

the looped portion 44 extends transversely across the central precreased fold area 33, with the result that the shaped portion 29 and the relative recess 30 will coincide with the front corner edge 26 of the packet 1.

Still referring to the example of figure 6, the looped portion 44 is positioned with the convex outline directed toward the part of the blank 32 providing the front wall 16 of the lid 12. Thus, the shaped portion 29 is associated with the part of the blank that provides the container 10, whilst the recess 30 is associated with the part of the blank 32 providing the lid 12.

The blank 32 illustrated in figure 7 is used to fashion a packet as in figures 2 and 2a.

In this instance, the looped portion 44 is positioned with the convex outline directed toward the part of the blank 32 providing the front wall 14 of the container 10. Accordingly, the shaped portion 29 is associated with the part of the blank that provides the lid 12, whilst the recess 30 is associated with the part of the blank providing the container 10.

In the examples of figures 1, 1a, 2 and 2a, the stiffening frame 22 is obtained from a flat leaf 45 of wrapping material as illustrated in figure 6a.

The leaf 45 is of substantially rectangular outline and comprises three mutually parallel precreased fold areas 46 delimiting two panels 47 that make up the breast piece 24 of the frame 22. The precreased areas 46 are positioned and proportioned to coincide with the three precreased areas 33 of the packet blank 32.

In the finished packet 1, the two panels 47 will be secured to the inside surfaces of the panels 34 making up the front wall 14 of the container 10.

In addition, the two lateral precreased areas 46 provide two end walls 48 of the frame 22, which will be secured to the inside surface presented by the rear wall 13 of the container 10, coinciding with the back 17 of the packet 1.

The leaf 45 of material also presents a top edge 49 of Vee outline disposed parallel to the top edge 20 of the container 10, and a bottom edge 50 affording two appendages 51, each associated with a respective panel 47 making up the

breast piece 24 of the frame 22.

The two appendages 51 will be associated each with a respective flap 43 and incorporated thus structurally into the bottom of the packet 1.

In this instance the leaf 45 of material extends the full length of the 5 container 10, establishing a frame 22 that projects partially from the selfsame container 10 and is anchored to the bottom of the packet 1.

The blank 32 illustrated in figure 8 is used to fashion a packet as in figures 3, 3a, 4, 4a and 5.

In this embodiment, the locking means 27 are incorporated into the breast 10 piece 24, and accordingly, the transverse Vee cut 37 is formed without the aforementioned looped portion 44.

The leaf 45 illustrated in figure 9 is used to fashion a packet as in figures 3, 3a and 5.

In particular, the leaf 45 presents a transverse Vee cut 52 occupying only the 15 central precreased area 46 of the three, which coincides with the front corner edge 26. The cut 52 delimits the panels 47 of the frame 22 on the one hand, terminating uppermost at the top edge 49, and the aforementioned insert 31 of the lid 12 on the other.

More exactly, the cut 52 establishes a break line along which the insert 31 20 associated internally with the lid 12 is caused to detach from the frame 22 when the packet 1 is opened for the first time.

The Vee cut 52 also presents a looped portion 53, similar to the looped portion 44 of the blank 32, which incorporates the shaped portion 29 and the recess 30.

In the example of figure 9, the looped portion 53 delimits a shaped portion 25 29 associated with the top edge 49 of the frame 22 and a recess 30 afforded by the insert 31.

Figure 8a illustrates the leaf 45 of material used to fashion the packet 1 of figures 4 and 4a, in which the looped portion 53 delimits a shaped portion 29 30 associated with the insert 31 of the lid and a recess 30 afforded by the top edge

49 of the frame 22.

The packet 1 described and illustrated has important advantages.

Firstly, the locking means 27 ensure a firm closure of the lid 12 on the container 10. Consequently, the lid will remain securely in the closed position, even when the packet 1 is subjected to sudden movements, so that the cigarettes are prevented from escaping.

It will be seen also that the leaf 45, formed into the frame 22, gives increased strength to the container 10. As mentioned above, in effect, the frame 22 extends along the axis X of the container 10 for its full length.

10 Furthermore, the steps of securing the frame 22 to the packet 1 are made advantageously simpler. With the addition of the appendages 51, in effect, which are offered to the flaps 43, the frame 22 can be positioned more accurately relative to the packet 1.

15 Finally, it will be appreciated that the longitudinal corner edges, as mentioned previously, can be bevelled or sharp, or alternatively (adopting the geometry of the cigarette packet disclosed in patent application EP-A1-0764595, of which the content is incorporated here by reference in its entirety to provide a full description), the transverse corner edges can be non-rectilinear, and rounded or bevelled; similarly, certain of the longitudinal corner edges and certain of the transverse corner edges might be non-rectilinear, resulting in a packet that presents both longitudinal corner edges and transverse corner edges appearing non-rectilinear and rounded or bevelled.

20 In particular, with the appropriate medications and adjustments needed for a triangular design, the packet 1 might present the features of packets as disclosed in WO-A1-2005/007537 and WO-A1-03/080473, of which the content is incorporated here by reference in its entirety to provide a full description. In other embodiments neither described nor illustrated herein, the packet 1 might present the features of a cigarette packet as disclosed in patent application EP-A1-1066206 (of which the content is incorporated here by reference in its entirety to provide a full description); in this instance, the side

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walls would be convexly profiled, presenting a flat central portion flanked by two precreased and contoured lateral bands.

Claims

- 1) A rigid packet with a hinged lid, comprising a container (10), also a lid (12) attached pivotably to the container (10) along a hinge (19) and pivotable thus between a position in which the container is open and a position in which the container is closed, the closed packet appearing prismatic in shape and substantially triangular in section, characterized in that it comprises locking means (27) by which the lid (12) is retained in the closed position.  
5
- 2) A packet as in claim 1, wherein the locking means (27) are positioned to coincide with an area, remote from the hinge (19), along which two side faces of the prism are joined.  
10
- 3) A packet as in claim 2, wherein the locking means (27) are positioned on a front corner edge (26), establishing the area along which two side faces of the prism are joined.
- 4) A packet as in claim 3, wherein locking means (27) comprise an engagement member or tongue (28) operating between the container (10) and the lid (12).  
15
- 5) A packet as in claim 4, wherein the engagement member (28) comprises a shaped portion (29) of the front corner edge (26) associated with the container (10), extending toward the lid (12) and insertable in a recess (30) afforded by the lid (12).  
20
- 6) A packet as in claim 4, wherein the engagement member (28) comprises a shaped portion (29) of the front corner edge (26) associated with the lid (12), extending toward the container (10) and insertable in a recess (30) afforded by the container (10).

7) A packet as in claim 5 or 6, wherein the shaped portion (29) presents an outline substantially matched to the internal contour of the recess (30).

8) A packet as in claim 7, wherein the shaped portion (29) presents an outline substantially of dovetail appearance.

5 9) A packet as in claims 1 to 8, further comprising a frame (22) associated internally with the container (10), serving to engage and retain the lid (12) when the selfsame lid is in the closed position.

10 10) A packet as in claim 9, where dependent on claim 3, wherein locking means (27) comprise an engagement member (28) operating between the frame (22) and the lid (12).

11) A packet as in claim 10, wherein the engagement member (28) comprises a shaped portion (29) of the front corner edge (26) associated with the frame (22), extending toward the lid (12) and insertable in a recess (30) afforded by the container (10).

15 12) A packet as in claim 10, wherein the engagement member (28) comprises a shaped portion (29) of the front corner edge (26) associated with an internal insert (31) of the lid (12), extending toward the frame (22) and insertable in a recess (30) afforded by the frame (22).

20 13) A packet as in claim 11 or 12, wherein the shaped portion (29) presents an outline substantially matched to the internal contour of the recess (30).

14) A packet as in claim 13, wherein the shaped portion (29) presents an outline substantially of dovetail appearance.

15) A packet as in claims 1 to 14, fashioned from a flat diecut blank (32) of wrapping material appearing substantially rectangular in outline and presenting:

5 - three precreased fold areas (33) disposed mutually parallel and delimiting two panels (34) coinciding with the front (18) of the packet, one panel (35) coinciding with the back (17) of the packet, and one connecting panel (36);

10 - a transverse Vee cut (37) intersecting the three precreased fold areas (33) and coinciding with the open top end (11) of the container (10), by which the front wall (14) of the container (10) on the one hand is separated from the front wall (16) of the lid (12) on the other,

15 - two crease lines (39) extending one from each end of the Vee cut (37), disposed transversely to the precreased areas (33) and functioning as a hinge (19) for the lid (12);

16) -two substantially triangular wings (40, 41) joined along one side to the blank (37) by way of relative crease lines (42) and coinciding respectively with the top (8) and the bottom (9) of the packet (1).

20 16) A packet as in claim 15, wherein the blank (32) further comprises flaps (43) extending from opposite ends of the panels (34) providing the front walls (14, 16) of the container (10) and the lid (12), such as can be associated with the wings (40, 41) to make up the top (8) and the bottom (9) of the packet (1).

25 17) A packet as in claim 15, where dependent on claim 5 or claim 6, wherein the Vee cut (37) presents a substantially looped portion (44) generating the shaped portion (29) and the respective recess (30), extending across a central precreased fold area (33) that coincides with the front corner edge (26) of the packet.

18) A packet as in claims 9 to 16, wherein the frame (22) is fashioned from a flat leaf (45) of wrapping material substantially rectangular in outline and comprising three mutually parallel precreased fold areas (46) positioned to

delimit two panels (47) providing a breast piece (24) of the frame (22), the panels (47) being secured to the inside surface presented by the two panels (34) of the blank (32) providing the front (18) of the packet, in such a way that the frame (22) will project partially from the container (10).

5 19) A packet as in claim 18, wherein a central precreased area (46) of the leaf (45), coinciding with the front corner edge (26) of the packet, is occupied by a transverse Vee cut (52) delimiting the panels (47) of the frame (22) on the one hand and the insert (31) of the lid (12) on the other.

10 20) A packet as in claim 19, wherein the insert (31) is attached permanently to the lid (12) and detached from the frame (22).

21) A packet as in claim 19, wherein the Vee cut (52) presents a substantially looped portion (53) extending across the central precreased area (46) coinciding with the front corner edge (26) of the packet, by which the shaped portion (29) and the respective recess (30) are generated.

15 22) A packet as in claims 18 to 21, wherein the flat leaf (45) presents two appendages (51), each associated with a respective panel (47) making up the breast piece (24) of the frame (22), and attachable to the flaps (43) making up the bottom (9) of the packet (1).

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FIG. 1

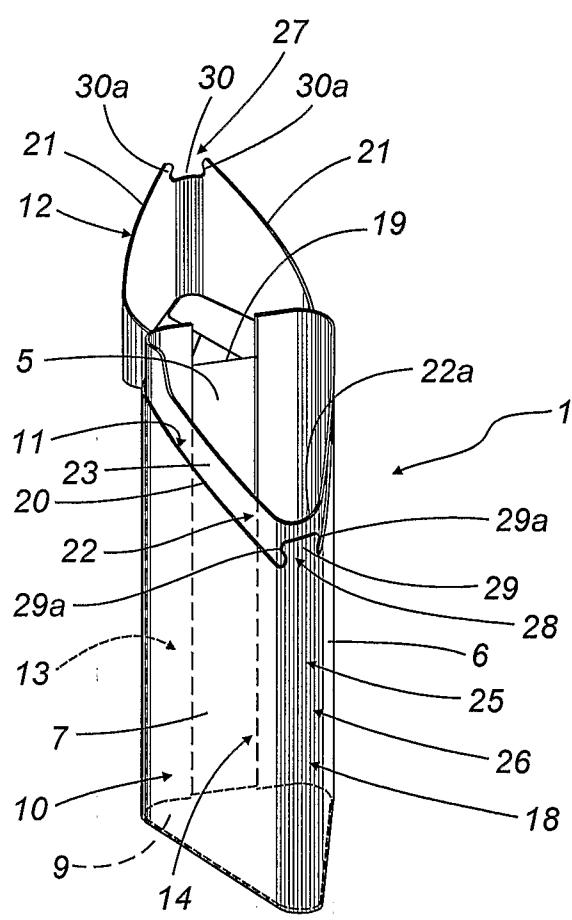
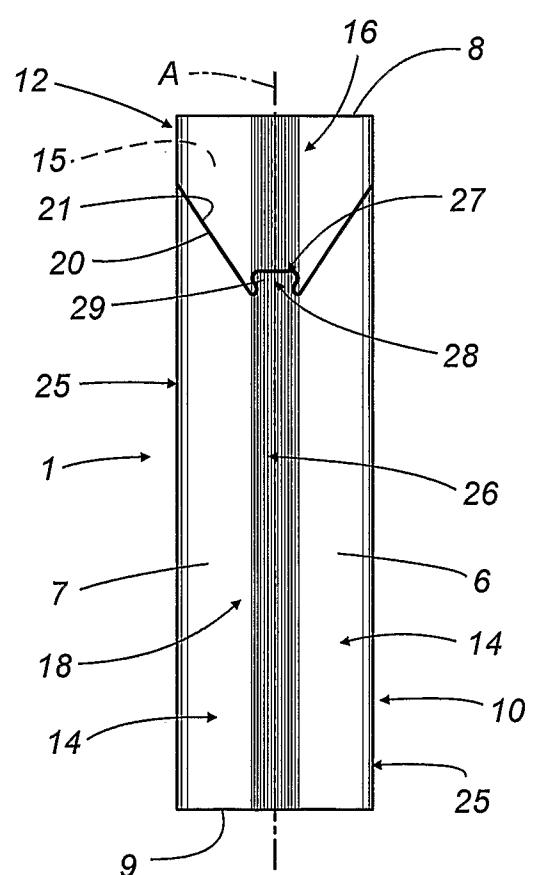


FIG. 1a



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FIG.2

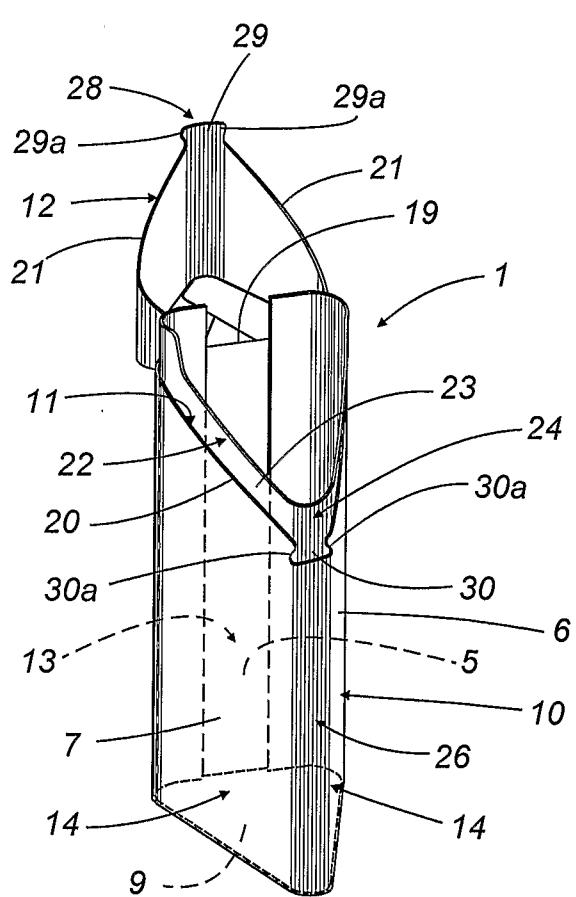
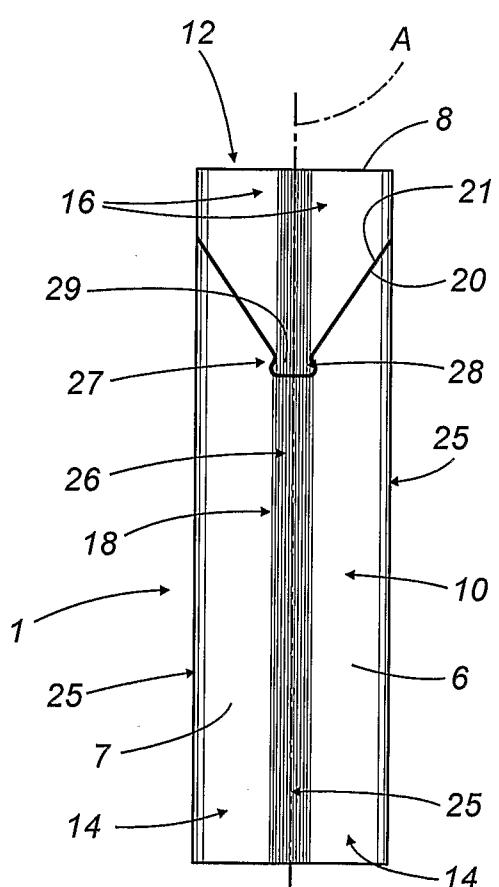


FIG.2a



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FIG. 3

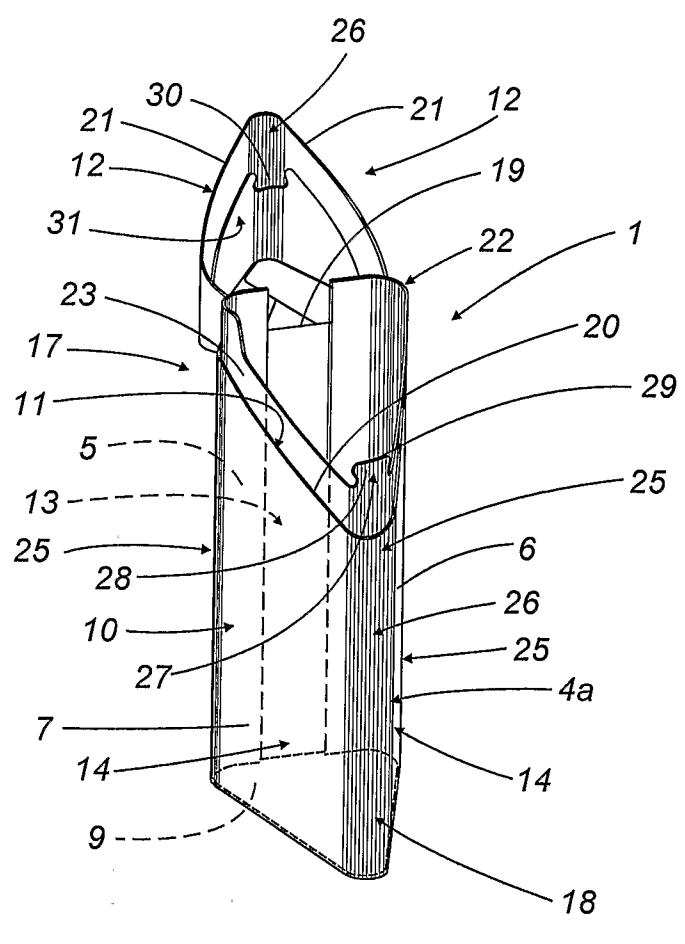
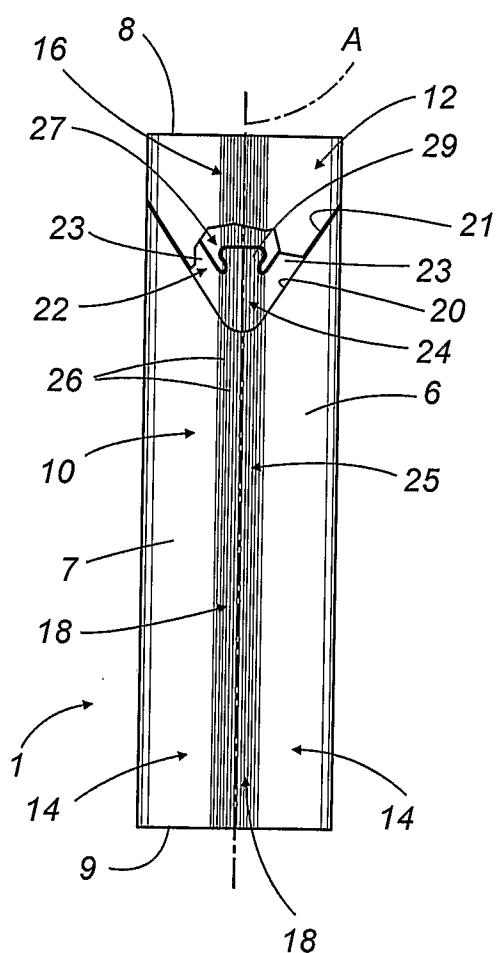


FIG. 3a



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FIG. 4

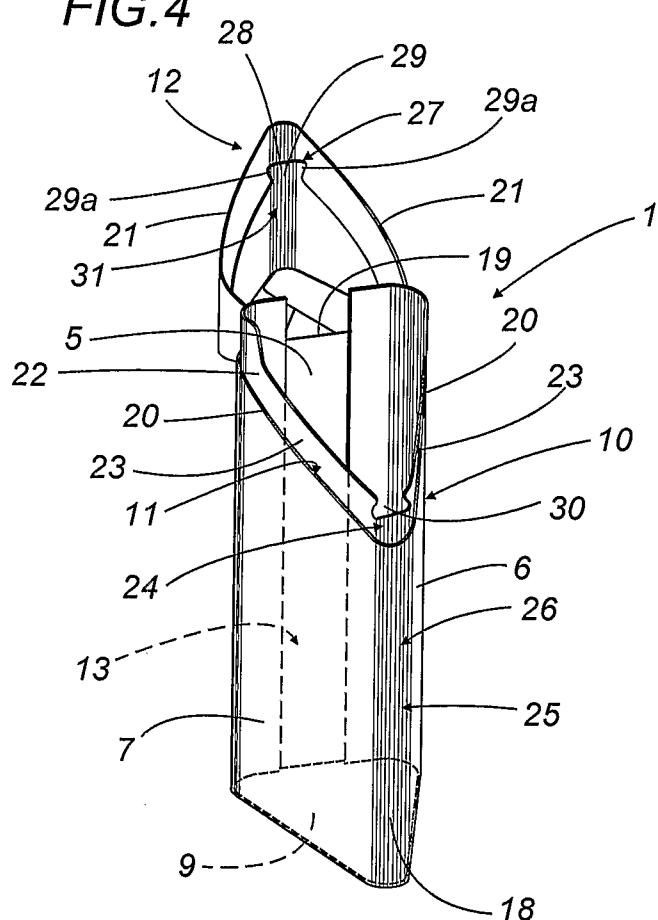


FIG. 4a

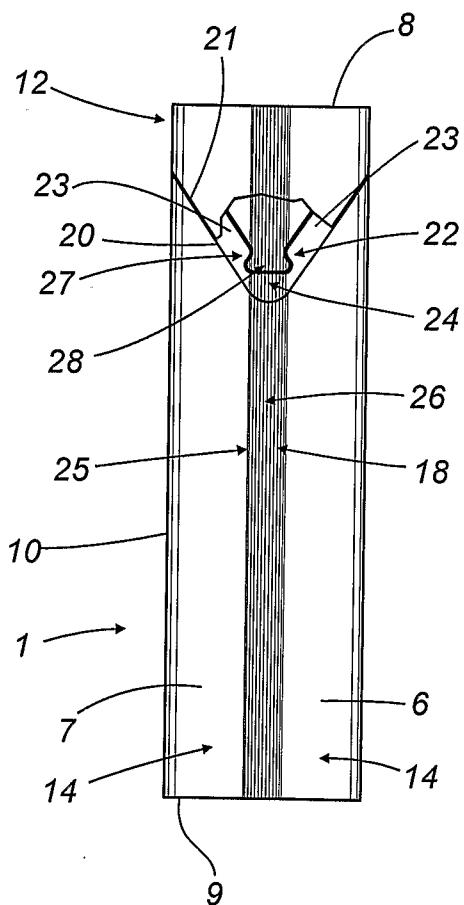
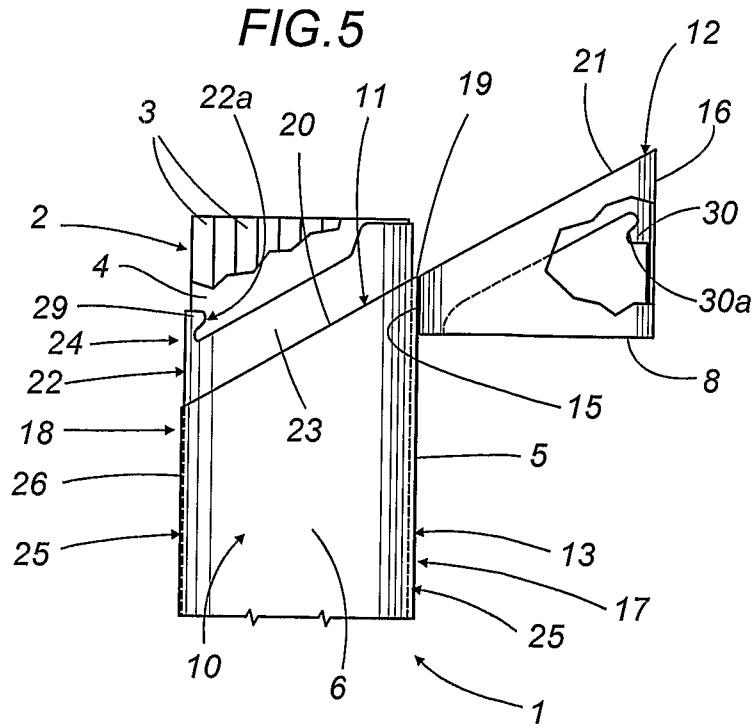


FIG. 5



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FIG. 6

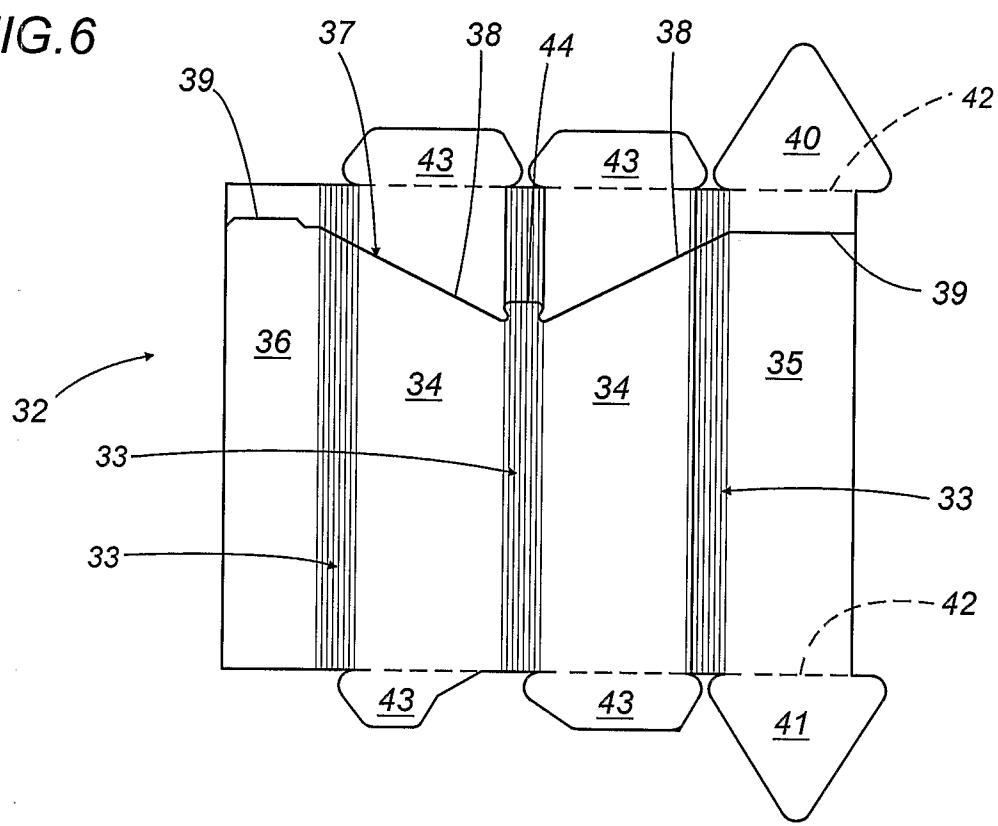
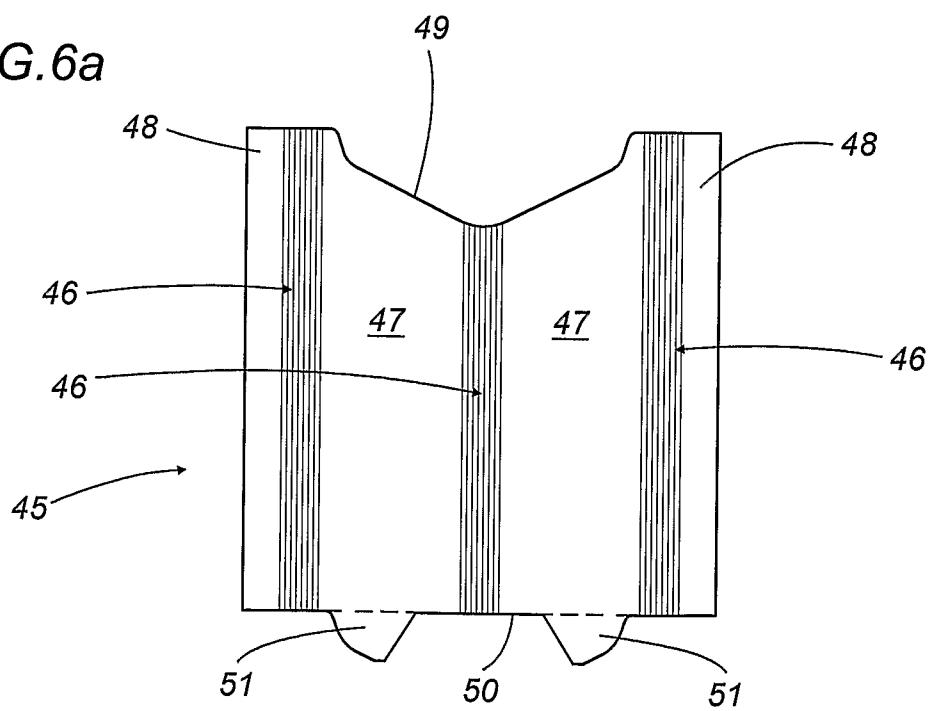


FIG. 6a



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FIG. 7

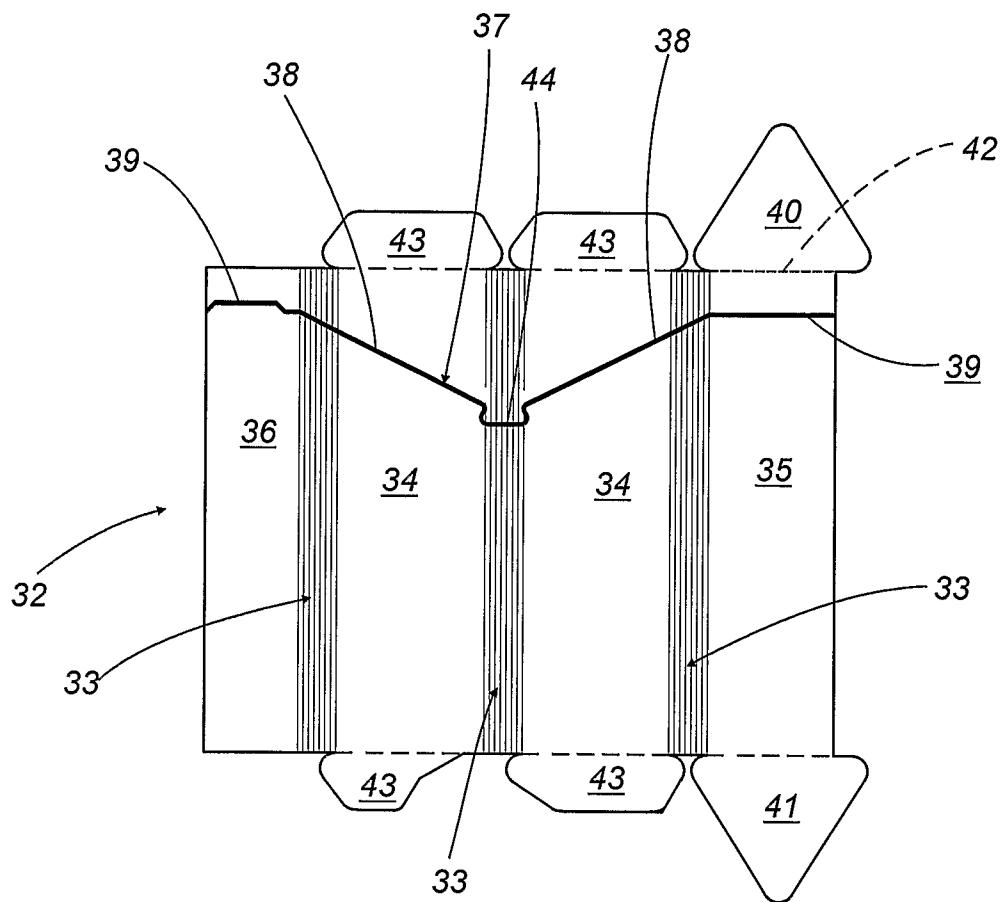
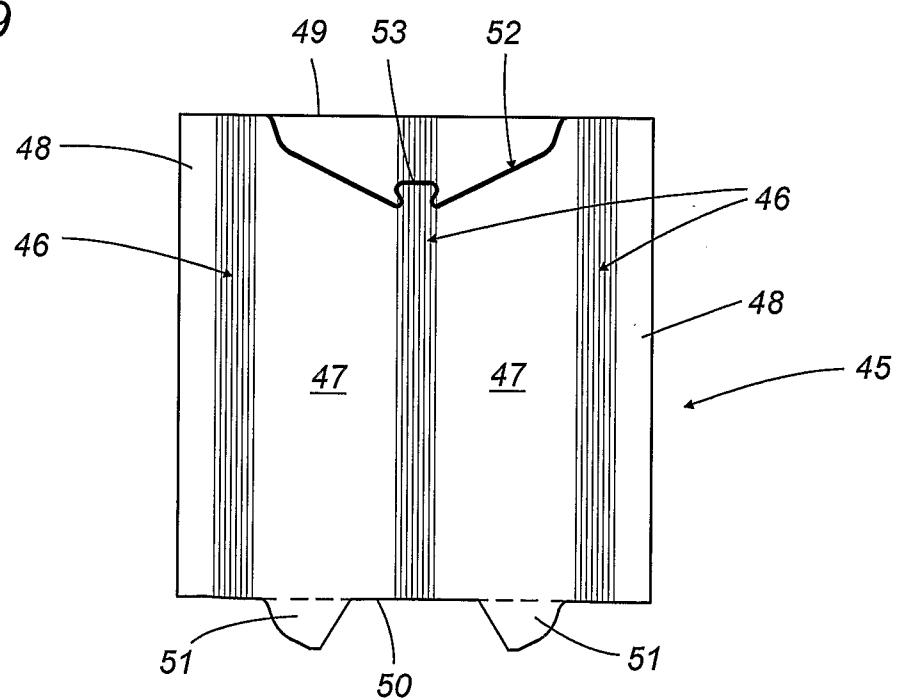


FIG. 9



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FIG.8

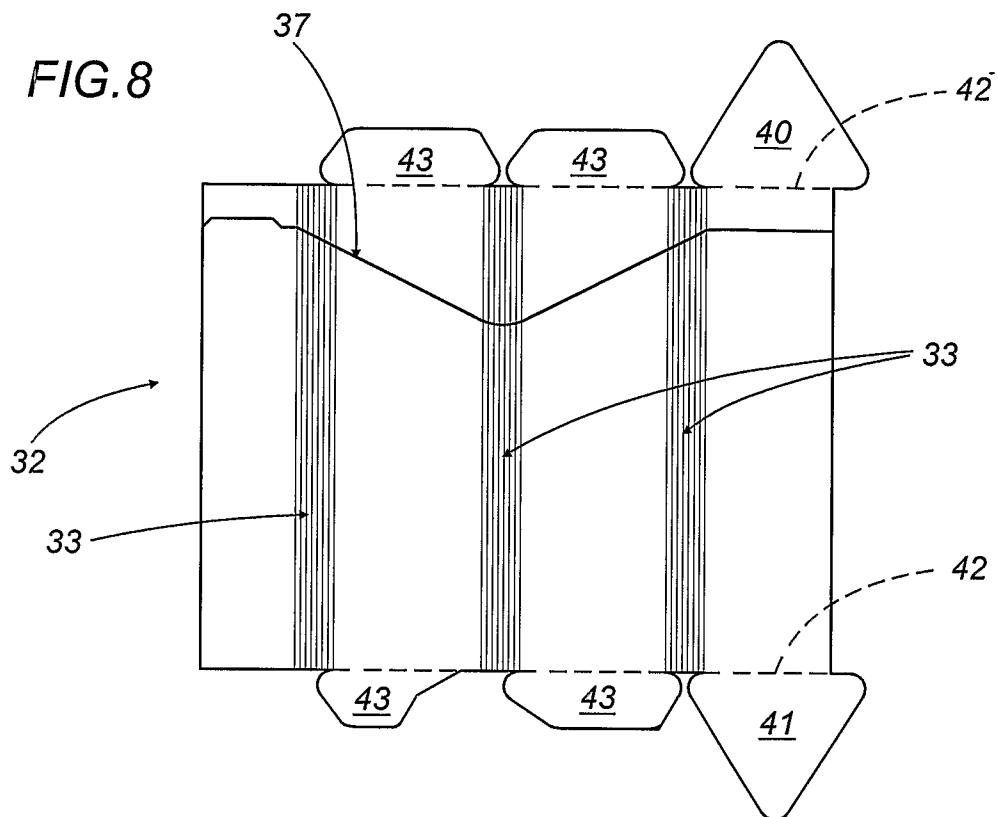
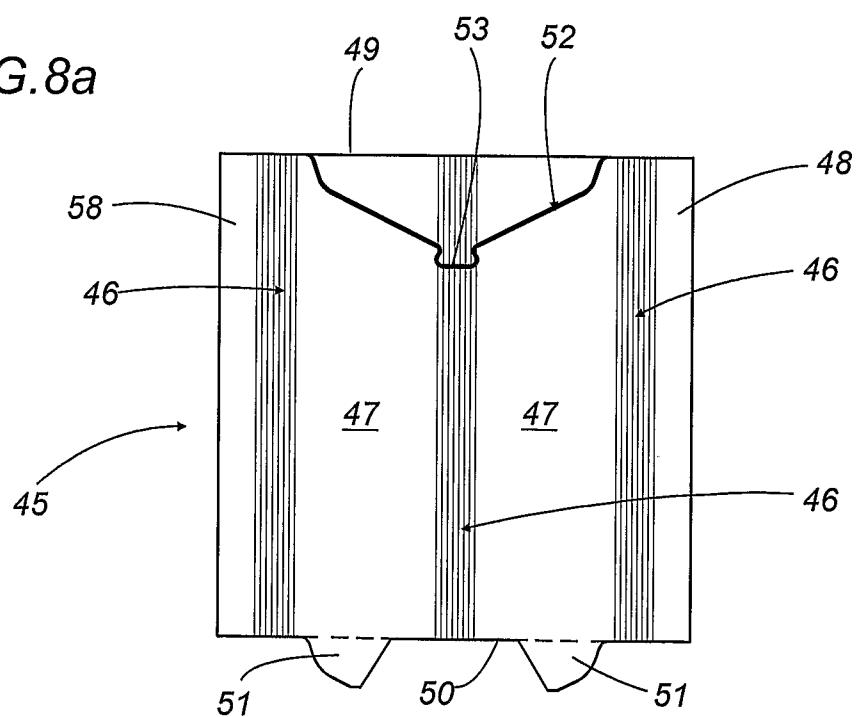


FIG.8a



# INTERNATIONAL SEARCH REPORT

International application No  
PCT/IB2007/001888

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. B65D5/66 B65D85/10

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/44077 A (GD SPA [IT]; POLLONI ROBERTO [IT]; COLO CHIARA [IT]; CONTI IGINO [IT];) 21 June 2001 (2001-06-21) page 14, line 2 – line 6; figures 6,15	1-6, 9-12,15, 16,18
Y	-----	7,8,13, 14
Y	US 2 619 276 A (GIBBONS CLYDE F) 25 November 1952 (1952-11-25) figure 1 -----	7,8,13, 14



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents :

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- \*E\* earlier document but published on or after the international filing date
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- \*&\* document member of the same patent family

Date of the actual completion of the international search

8 November 2007

Date of mailing of the international search report

19/11/2007

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2  
NL – 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.  
Fax: (+31-70) 340-3016

Authorized officer

Bridault, Alain

**INTERNATIONAL SEARCH REPORT**

## Information on patent family members

International application No  
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Patent document cited in search report	Publication date	Patent family member(s)		Publication date
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		EP 1240088	A1	18-09-2002
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