(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 017 197 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
21.01.2009 Bulletin 2009/04

(51) Int Cl.:
B65D 85/10 *(2006.01)*

(21) Application number: **07252891.2**

(22) Date of filing: **20.07.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK RS

(71) Applicant: **Philip Morris Products S.A.**
2000 Neuchâtel (CH)

(72) Inventor: **Weiss, Jacques**
1302 Vuffiens-la-Ville (CH)

(74) Representative: **Millburn, Julie Elizabeth**
Reddie & Grose
16 Theobalds Road
London
WC1X 8PL (GB)

(54) Package with double hinged connector

(57) A container for smoking articles comprises at least two hingedly connected packs, each for housing a separate bundle of smoking articles. The container comprises: a first pack having a first wall; a second pack having a first wall; and a separate connector (10). The separate connector comprises a series of panels and sub-panels to form a container according to an embodiment of the invention, the first sub-panels (16) of the second (14) and fourth (26) panels and the first sub-panel (22) of the third panel (20) are folded through 180 degrees about the vertical fold lines connecting them to the edges of the first panel (12) so that they overlie the first panel (12). The second sub-panels (18) of the second (14) and fourth (26) panels and the second sub-panel (24) of the third panel (20) are folded through 180 degrees about the vertical fold lines connecting them to the first sub-panels (16) of the second (14) and fourth (26) panels and the first sub-panel (22) of the third panel (20), respectively, so that the second-sub panels (18,24,18) of the second (14), third (20) and fourth (26) panels overlie the corresponding first-sub panels (16,22,16) thereof. To complete formation of the container, the outer surface of the first panel (12) is affixed to the first wall of a first pack and the inner surfaces of the second-sub panels (18,24,18) of the second (14), third (20) and fourth (26) panels are affixed to the first wall of a second pack.

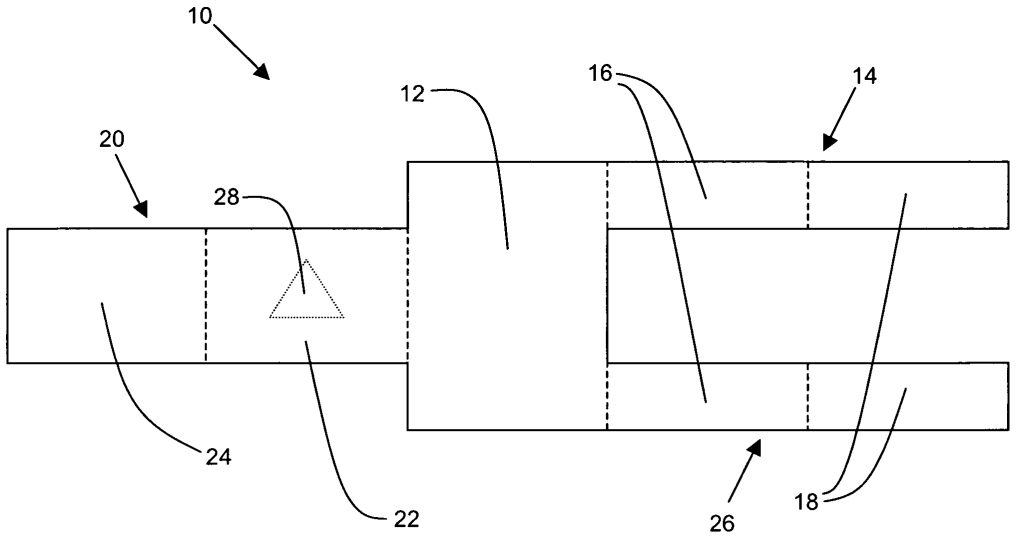

Figure 1

EP 2 017 197 A1

Description

[0001] The present invention relates to a container for smoking articles comprising at least two hingedly connected packs, each for housing a separate bundle of smoking articles.

[0002] WO-A-2006/079799 discloses packages comprising two packs connected in a Jacob's ladder arrangement by at least first and second straps and blanks and a method for forming such packages.

[0003] In one aspect, WO-A-2006/079799 describes a package comprising: first and second packs each capable of containing items, each pack having a first face bound by a first edge and a second edge, the second edge being parallel to the first edge; and means, connecting the first and second packs, which means comprising first and second straps which are attachable to the first and second packs; wherein, in a first position of the packs the first face of the first and second packs face each other with the first edges of the first and second pack adjacent to each other and the second edges of the first and second pack adjacent each other, the first and second straps extending across the first face and being hinged about the first and second edges, wherein the first strap is hinged about the first edge of the first pack and hinged about the second edge of the second pack and the second strap is hinged about the second edge of the first pack and hinged about the first edge of the second pack, whereby the first and second packs are movable, one relative to the other between at least the first position, a second position in which the second pack is rotated relative to the first pack about the first edge and a third position in which the second pack is rotated relative to the first pack about the second edge.

[0004] In another aspect, WO-A-2006/079799 describes a blank for forming the means comprising first and second straps that connects the first and second packs of the package, which comprises a single sheet of material, having at least a first region providing a first strap and a second region providing a second strap, the regions being adjoined by a line operable to separate the first region from the second region, the line having a first, second and third section thereon, the second section being a weakened section such that the first and second regions are separable, and the first and second sections being cut portions extending from respective ends of the weakened section to the edge of the sheet.

[0005] In a further aspect, WO-A-2006/079799 describes another blank for forming the means comprising first and second straps that connects the first and second packs of the package, which comprises a single sheet of material having a first elongate section in which there is an elongate hole having major edges which are spaced apart and a second section aligned with the hole and extending from a minor edge of the first section, the second section having a maximum width substantially equal or less than the minimum width of the hole and a length greater than the length of the hole such that a free minor edge of the second section is threadable through the hole and capable of attaching to the free minor edge of the first section.

[0006] The first and second packs of all of the packages described in the specification and shown in the drawings of WO-A-2006/079799 are connected in a Jacobs Ladder arrangement by a separate joining blank or by a separate Jacobs Ladder structure. To manufacture the packages, a separate joining blank is either fixed to the first and second packs or the first and second packs are positioned within, and in some cases fixed to, two pack containing sections in a separate Jacobs Ladder structure.

[0007] It would be desirable to provide a container comprising two or more packs connected in a Jacob's ladder or similar arrangement that can be manufactured in a simple way.

[0008] According to the invention there is provided a container for smoking articles comprising at least two hingedly connected packs, each for housing a separate bundle of smoking articles, the container comprising: a first pack having a first wall; a second pack having a first wall; and a separate connector comprising: a first panel with opposed first and second edges; a second panel comprising a first sub-panel hingedly connected to the first panel along the first edge and a second sub-panel hingedly connected to the first sub-panel along a first fold line; and a third panel comprising a first sub-panel hingedly connected to the first panel along the second edge and a second sub-panel hingedly connected to the first sub-panel along a second fold line, wherein the first panel of the separate connector is affixed to the first wall of the first pack and the second sub-panels of the second and third panels of the separate connector are affixed to the first wall of the second pack.

[0009] The first pack and the second pack of containers according to the invention are hingeable relative to one another about the first edge of the first panel of the separate connector between an initial position and a second position. In the initial position the first edge of the first panel of the separate connector and the second fold line are adjacent and the second edge of the first panel of the separate connector and the first fold line are adjacent. The first sub-panels of the second and third panels of the separate connector overlie the first panel of the separate connector and the second-sub panels of the second and third panels of the separate connector overlie the respective first sub-panels of the second and third panels of the separate connector in the initial position.

[0010] In the second position the first edge of the first panel of the separate connector and the second fold line are adjacent and the second edge of the first panel of the separate connector and the first fold line are spaced apart. The first-sub panel of the third panel of the separate connector overlies the first panel of the separate connector and the first-sub panel of the second panel of the separate connector overlies the second-sub panel of the second panel of the separate connector in the second

position.

[0011] The first pack and the second pack of containers according to the third aspect of the invention are also hingeable relative to one another about the second edge of the first panel of the separate connector between the initial position and a third position. In the third position the second edge of the first panel of the separate connector and the first fold line are adjacent and the first edge of the first panel of the separate connector and the second fold line are spaced apart. The first-sub panel of the second panel of the separate connector overlies the first panel of the separate connector and the first-sub panel of the third panel of the separate connector overlies the second-sub panel of the third panel of the separate connector in the third position.

[0012] In the initial position the first walls of the first and second packs are parallel and opposed and in the second and third positions the first walls of the first and second packs are substantially coplanar.

[0013] The first pack and the second pack of containers according to the invention are thus advantageously hingedly connected in a Jacob's ladder arrangement by the second and third panels of the separate connector.

[0014] Preferably, the first and second edges of the first panel of the separate connector are longitudinal edges of the first panel of the separate connector.

[0015] The first fold line is preferably substantially parallel to the second edge of the first panel of the separate connector. The second fold line is preferably substantially parallel to the first edge of the first panel of the separate connector.

[0016] Preferably, the opposed first and second edges of the first panel of the separate connector are parallel and adjacent to opposed first and second longitudinal edges of the first wall of the first pack. More preferably, the opposed first and second edges of the first panel of the connector are parallel and adjacent to opposed first and second longitudinal vertical edges of the first wall of the first pack.

[0017] Preferably, the second fold line is substantially parallel and adjacent to a first longitudinal edge of the first wall of the second pack and the first fold line is substantially parallel and adjacent to an opposed second longitudinal edge of the first wall of the second pack. More preferably, the second fold line is substantially parallel and adjacent to a first longitudinal vertical edge of the first wall of the second pack and the first fold line is substantially parallel and adjacent to an opposed second longitudinal vertical edge of the first wall of the second pack.

[0018] In a preferred embodiment of the invention, the separate connector further comprises a fourth panel comprising a first sub-panel hingedly connected to the first panel along the first edge and a second sub-panel hingedly connected to the first sub-panel along a third fold line, wherein the second sub-panel of the fourth panel of the separate connector is affixed to the first wall of the second pack.

[0019] In the initial position the first sub-panels of the second, third and fourth panels of the separate connector overlie the first panel of the separate connector and the second-sub panels of the second, third and fourth panels of the separate connector overlie the respective first sub-panels of the second, third and fourth panels of the separate connector, the first sub-panel of the third panel being disposed between the first sub-panels of the second and fourth panels.

[0020] One or both of the first pack and the second pack of containers according to the invention may be a slide and shell pack comprising an outer shell and an inner slide within the outer shell. Alternatively or in addition, one or both of the first pack and the second pack of containers according to the first aspect of the invention may be a hinge-lid pack comprising a lower box portion and an upper lid portion hinged to the lower box portion.

[0021] Where the first pack is a slide and shell pack, the first panel of the separate connector is preferably of substantially the same dimensions as the first wall of the first pack. Where the second pack is a slide and shell pack, the second sub-panels of the second panel, third panel and any further panels of the separate connector are, in combination, preferably of substantially the same dimensions as the first wall of the second pack.

[0022] Where the first pack is a hinge-lid pack, the first panel of the separate connector is preferably of substantially the same dimensions as the lower box portion of the first wall of the first pack. Where the second pack is a hinge-lid pack, the second sub-panels of the second panel, third panel and any further panels of the separate connector are, in combination, preferably of substantially the same dimensions as the lower box portion of the first wall of the second pack.

[0023] Preferably, the first pack and the second pack of containers according to the invention are both slide and shell packs or both hinge-lid packs. It will be appreciated, however, that containers according to the invention may comprise a first pack and a second pack provided with different types of opening and closing means. For example, the first pack may be a hinge-lid pack and the second pack may be a slide and shell pack.

[0024] Where both the first pack and the second pack of containers according to the invention are hinge-lid packs, the first pack may have a hinge-lid pivotable about a hinge line extending across the first wall of the first pack and the second pack may have a hinge-lid pivotable about a hinge line extending across the first wall of the second pack.

[0025] In alternative embodiments of the invention, the first pack may have a hinge-lid pivotable about a hinge line extending across a second wall of the first pack that is parallel and opposed to the first wall of the first pack and the second pack may have a hinge-lid pivotable about a hinge line extending across a second wall of the second pack that is parallel and opposed to the first wall of the second pack.

[0026] Preferably, the first panel of the separate con-

nector is adhered to the first wall of the first pack and the second sub-panels of the second panel, third panel and any further panels of the separate connector are adhered to the first wall of the second pack with, for example, hot melt adhesive, contact adhesive or double sided adhesive tape. However, it will be appreciated that, a variety of other known means may be employed to affix the separate connector of containers according to the invention to the first walls of the first and second packs thereof such as, for example, hook and loop type fasteners, magnetic fasteners or mating plug (male) and socket (female) type fasteners.

[0027] Containers according to the invention preferably further comprise retention means to provide resistance to movement of the first and second packs from the initial position to the second position and from the initial position to the third position, such that a positive force must be applied by a consumer to hinge the first and second packs relative to one another from the initial position to the second position and from the initial position to the third position. If desired, containers according to the invention may comprise retention means which provides a positive force that urges movement of the first pack and the second pack towards the initial position.

[0028] For example, the first pack and the second pack of containers according to the invention may be releasably connected in the initial position by the releasable engagement of first retention means provided on the first pack and second retention means provided on the second pack. The first retention means and the second retention means may comprise any suitable known magnetic fasteners, mechanical fasteners, adhesive fasteners or combinations thereof. For example, the first retention means and the second retention means may comprise one or more releasable pressure-actuated hook-and-loop type fasteners, snap fasteners or other mating plug (male) and socket (female) type fasteners.

[0029] Containers according to the invention may comprise two or more hingedly connected packs, each for housing a bundle of smoking articles, for example cigarettes, such as conventional lit-end cigarettes or cigarettes for use with electrical smoking systems (for example cigarettes of the type disclosed in US-A-5 692 525), cigars or cigarillos. Preferably, containers according to the invention comprise two or more hingedly connected packs, each for housing a separate bundle of cigarettes.

[0030] Through an appropriate choice of the dimensions thereof, the first pack and the second pack of containers according to the invention may be designed to house separate bundles of different numbers of cigarettes. Alternatively or in addition, the first pack and the second pack of containers according to the invention may be designed to house separate bundles of cigarettes of different dimensions (for example, cigarettes of different length or different circumference). The first pack and the second pack of containers according to the invention may, for example, be designed to house separate bundles of different numbers of short (between about 70 mm and about 75 mm in length), regular size (about 80mm in length), king size (about 84 mm in length), super-king size, slim, super-slim or wide cigarettes.

[0031] Through an appropriate choice of the dimensions of the first pack and the second pack thereof, containers according to the invention may also be designed to hold different total numbers of smoking articles. For example, containers for cigarettes according to the invention may comprise a first pack and a second pack for housing, in combination, a total of twenty or twenty-one regular size cigarettes. Alternatively, containers for cigarettes according to the invention may comprise a first pack and a second pack for housing, in combination, a total of seventeen or eighteen wide cigarettes.

[0032] The length, width and depth of the first pack and the second pack of containers according to the invention may be such that, when in the initial position, the resultant overall dimensions of the containers are similar to, or substantially the same as, the dimensions of a conventional disposable pack of smoking articles. For example, the length, width and depth of the first pack and the second pack may be such that, in the initial or first position, the resultant overall dimensions of the container are similar to the dimensions of a conventional disposable hinge-lid pack of twenty cigarettes.

[0033] Containers according to the invention may advantageously comprise first packs and second packs for housing separate bundles of smoking articles of different types. A wide variety of different types of cigarettes are produced and sold. For example, different types of tobacco having unique characteristic tastes and aromas, such as Burley, Oriental and Virginia tobacco, are used alone or in varying amounts in tobacco blends to produce brands of cigarettes having different characteristic tastes. In addition, both plain cigarettes and cigarettes having many different types of filter tips are manufactured as well as cigarettes of differing length (for example, regular size, king size or super-king size), circumference (for example, slim or super-slim), strength of taste, resistance to draw and total particulate matter delivery. Furthermore, cigarettes containing flavourings such as menthol are also available.

[0034] Containers according to the invention may comprise first packs and second packs for housing separate bundles of cigarettes of a different tobacco blend or flavour. Alternatively, or in addition, containers according to the invention may comprise first packs and second packs for housing separate bundles of cigarettes of a different size (different length, different circumference or both different length and different circumference).

[0035] The first pack and the second pack of containers according to the invention may be of the same or different cross-section. For example, one or both of the first pack and the second pack of containers according to the invention may be rectangular, square, triangular, pentagonal, hexagonal, D-shaped, semi-circular or semi-oval in cross-section.

[0036] Preferably, the first pack and the second pack

of containers according to the invention are substantially parallelepipedal. More preferably, the first pack and the second pack of containers according to the invention are substantially cuboid.

[0037] The first pack and the second pack of containers according to the invention may have one or more right-angled longitudinal edges, one or more right-angled transverse edges, one or more rounded longitudinal edges, one or more rounded transverse edges, one or more bevelled longitudinal edges, one or more bevelled transverse edges or any suitable combination thereof.

[0038] Preferably, the first pack and the second pack of containers according to the invention are of substantially the same shape. The dimensions of the first pack and the second pack of containers according to the invention may be the same or different. Preferably, the first pack and the second pack of containers according to the invention are of different dimensions. More preferably, the first pack and the second pack of containers according to the invention are of substantially the same length and width, but of different depth.

[0039] Preferably, the first wall of the first pack and the first wall of the second pack of containers according to the invention are of substantially the same dimensions.

[0040] Preferably, the first wall of the first pack and the first wall of the second pack are major walls of the packs. Preferably, the first wall of the first pack is a front wall or a rear wall of the first pack. Preferably, the first wall of the second pack is a front wall or a rear wall of the second pack.

[0041] The first pack and the second pack of containers according to the invention are preferably formed from one or more folded laminar blanks, more preferably from one or more folded laminar cardboard blanks.

[0042] The exterior surfaces of the first packs, second packs and separate connectors of containers according to the invention may be printed, embossed, debossed or otherwise embellished (for example using labels or stickers) with manufacturer or brand logos, trade marks, slogans and other consumer information and indicia. It will be appreciated that the same or different manufacturer and brand logos, trade marks, slogans, and other consumer information and indicia may be applied to the exterior surfaces of the first packs, second packs and separate connectors.

[0043] The separate connectors of containers according to the invention may be formed from one or more suitable materials including, but not limited to, paperboard, cardboard, plastic, metal (such as, for example, aluminium), transparent or opaque foil (such as, for example, polyethylene (PE) or polyethylene terephthalate (PET) foils) and laminated material (such as, for example, paper/aluminium, plastic/paper/aluminium or other laminates).

[0044] Containers according to the invention may comprise separate connectors having one or more windows or cut-outs provided therein. In preferred embodiments, the one or more windows or cut-outs interact or cooperate with images provided on the first walls of the first packs, second packs or first and second packs of the containers to generate further images.

[0045] Containers according to the invention may comprise more than two packs. Third and subsequent packs of containers according to the invention may be connected to one or more other packs thereof in the same or a different manner to that in which the first pack and the second pack are hingedly connected.

[0046] Preferably, where containers according to the invention comprise three or more packs, each pack of the container is hingedly connected in a Jacob's ladder arrangement to at least one other pack thereof by a separate connector. For example, containers according to the invention may comprise three, four, five or six packs hingedly connected by two, three, four or five separate connectors, respectively, wherein each pack of the container is hingedly connected in a Jacob's ladder arrangement to either one or two other packs thereof.

[0047] The invention will be further described, by way of example only, with reference to the accompanying drawing in which:

Figure 1 shows the inner surface of a blank for forming the separate connector of a container according to an embodiment of the invention.

[0048] In Figure 1, solid lines are used to denote the outer border of the blank. Dashed lines are used to denote lines, which are formed by compressing or partially cutting the material of the blank by creasing, scoring, embossing or an equivalent process, along which the blank is bent upon erection of the container or which act as hinge.

[0049] As shown in Figure 1, the blank 10 for forming the separate connector comprises a first rectangular panel 12 having opposed first and second edges, a second panel 14 comprising a first sub-panel 16 and a second sub-panel 18, a third panel 20 comprising a first sub-panel 22 and a second sub-panel 24 and a fourth panel 26 comprising a first sub-panel 16 and a second sub-panel 18. As shown in Figure 1, the first sub-panels 16 of the second 14 and fourth 26 panels are connected to the first edge of the first panel 12 along vertical fold lines and the second sub-panels 18 of the second 14 and fourth 26 panels are connected to the first sub-panels 16 thereof along vertical fold lines. The first sub-panel 22 of the third panel 20 is connected to the second edge of the first panel 12, which is opposed to the first edge, along a vertical fold line and the second sub-panel 24 of the third panel 20 is connected to the first sub-panel 22 thereof along a vertical fold line.

[0050] To form a container according to an embodiment of the invention, the first sub-panels 16 of the second 14 and fourth 26 panels and the first sub-panel 22 of the third panel 20 are folded through 180 degrees about the vertical fold lines connecting them to the edges of the first panel 12 so that they overlie the first panel 12.

The second sub-panels 18 of the second 14 and fourth 26 panels and the second sub-panel 24 of the third panel 20 are folded through 180 degrees about the vertical fold lines connecting them to the first sub-panels 16 of the second 14 and fourth 26 panels and the first sub-panel 22 of the third panel 20, respectively, so that the second-sub panels 18, 24, 18 of the second 14, third 20 and fourth 26 panels overlie the corresponding first-sub panels 16, 22, 16 thereof. To complete formation of the container, the outer surface of the first panel 12 is affixed to the first wall of a first pack and the inner surfaces of the second-sub panels 18, 24, 18 of the second 14, third 20 and fourth 26 panels are affixed to the first wall of a second pack.

[0051] One or more window or cut-outs 28 (as, for example, illustrated by the dotted lines in Figure 1) may optionally be provided in the first sub-panels 16, 22 of the second 14, third, 20 and fourth 26 panels of the blank 10. The one or more cut-outs 28 may interact or cooperate with images provided on one or both of the first panel 12 and the second sub-panels 18, 24 of the second 14, third 20 and fourth 26 panels of the blank 10 to generate further images.

[0052] While the invention has been exemplified above with reference to a container comprising two hingedly connected packs, it will be appreciated that containers according to the invention may comprise three or more packs hingedly connected by a plurality of separate connectors.

Claims

1. A container for smoking articles comprising at least two hingedly connected packs, each for housing a separate bundle of smoking articles, the container comprising:

a first pack having a first wall;
a second pack having a first wall; and
a separate connector (10) comprising:

a first panel (12) with opposed first and second edges;
a second panel (14) comprising a first sub-panel (16) hingedly connected to the first panel (12) along the first edge and a second sub-panel (18) hingedly connected to the first sub-panel (14) along a first fold line; and
a third panel (20) comprising a first sub-panel (22) hingedly connected to the first panel (12) along the second edge and a second sub-panel (24) hingedly connected to the first sub-panel (22) along a second fold line,

wherein the first panel (12) of the separate connector (10) is affixed to the first wall of the first pack and the second sub-panels (14, 24) of the second (14) and third (20) panels of the separate connector (10) are affixed to the first wall of the second pack.

2. A container according to claim 1 wherein the separate connector (10) further comprises
a fourth panel (14) comprising a first sub-panel (16) hingedly connected to the first panel (12) along the first edge and a second sub-panel (18) hinged connected to the first sub-panel (14) along a third fold line.
wherein the second sub-panel (18) of the fourth panel (14) of the separate connector is affixed to the first wall of the second pack.

3. A container according to any preceding claim wherein the first pack and the second pack are slide and shell packs.

4. A container according to any preceding claim wherein the first pack and the second pack are hinge-lid packs.

5. A container according to claim 4 wherein the first pack has a hinge-lid pivotable about a hinge line extending across the first wall of the first pack and the second pack has a hinge-lid pivotable about a hinge line extending across the first wall of the second pack.

6. A container according to claim 4 wherein the first pack has a hinge-lid pivotable about a hinge line extending across a second wall of the first pack that is parallel and opposed to the first wall of the first pack and the second pack has a hinge-lid pivotable about a hinge line extending across a second wall of the second pack that is parallel and opposed to the first wall of the second pack.

7. A container according to any preceding claim wherein the first pack and the second pack are of different dimensions.

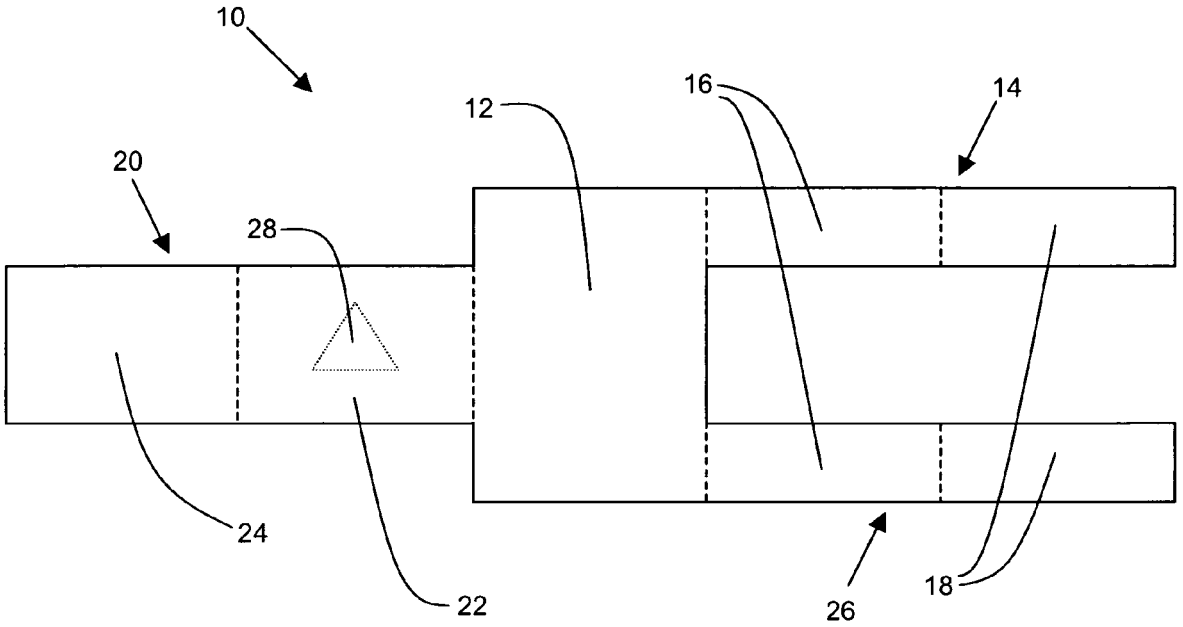

Figure 1

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 25 2891

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X,D	WO 2006/079799 A (BRITISH AMERICAN TOBACCO CO [GB]; BRAY ANDREW JONATHAN [GB]; TEARLE AL) 3 August 2006 (2006-08-03) * page 10, line 29 - line 31; figures 8a,27 * -----	1-7	INV. B65D85/10

TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	19 December 2007	Bridault, Alain

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

1

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 07 25 2891

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-12-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006079799 A	03-08-2006	AU 2006208922 A1	03-08-2006
		CA 2592613 A1	03-08-2006
		EP 1841657 A1	10-10-2007
		KR 20070096055 A	01-10-2007

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 2006079799 A **[0002] [0003] [0004] [0005] [0006]**
- US 5692525 A **[0029]**