



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
28.04.2010 Bulletin 2010/17

(51) Int Cl.:
B65D 5/52 (2006.01) B65D 5/54 (2006.01)

(21) Application number: **09173731.2**

(22) Date of filing: **22.10.2009**

(84) Designated Contracting States:
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 SE SI SK SM TR
Designated Extension States:
AL BA RS

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(30) Priority: **23.10.2008 IT BO20080652**

(54) **Display box**

(57) A display box has a front wall (4), a back wall (5), a top wall (2), a bottom wall (3), and two side walls (6, 7); at least the front wall (4) being defined by a first shaped panel (8) defining, in turn, an opening (9) for ex-

tracting a product from the display box, and a second panel (11), at least partially removable which is adapted to close the opening (9) and is hinged on an upper edge (10) of the first panel (8).

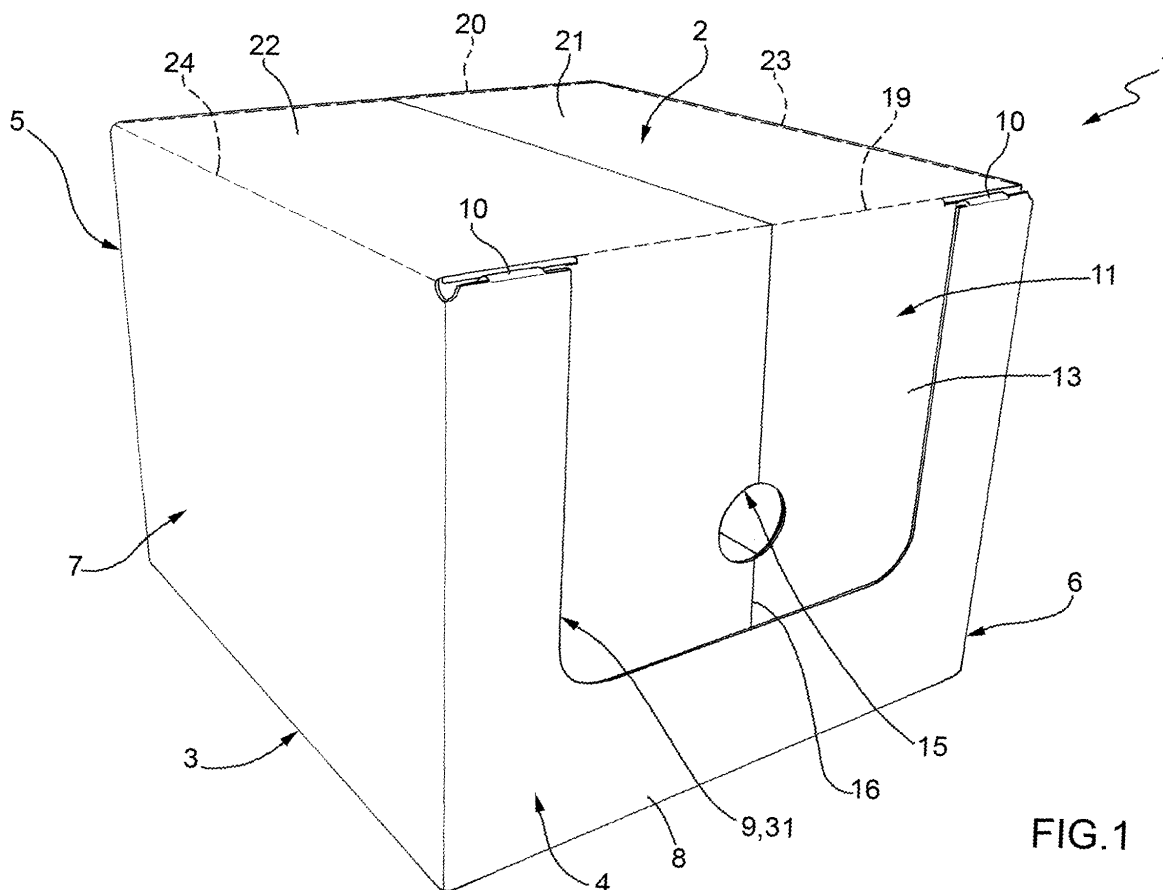


FIG.1

Description

[0001] The present invention refers to a display box.

[0002] In particular, the present invention refers to a display box of the type comprising a front wall and a back wall, substantially vertical and parallel to each other; a bottom wall and a top wall, substantially horizontal, parallel to each other, and orthogonal to the front and back walls; and two side walls, substantially vertical, parallel to each other and orthogonal to the front, back, bottom and top walls.

[0003] Generally, at least the front wall comprises a removable portion, which is detached from the display box along at least one pre-notch line to open the display box and allow a product contained therein to be extracted.

[0004] The known display boxes of the above-described type have some drawbacks mainly deriving from that, once the removable portion has been detached, the mentioned pre-notch line may be viewed by the user's eye and confers an unpleasant appearance to the open display box.

[0005] In order to obviate this problem, a display box is provided having a front wall comprising a first shaped panel defining an opening for extracting the product contained inside the display box and a second panel adapted to close the opening itself.

[0006] The display box is generally made either by means of two separate blanks, one of which defines the second panel, or by means of a single blank provided with an additional panel, which defines the second panel, and is connected to a panel defining the top wall of the display box. Therefore, manufacturing the known display box of the above-described type implies, in one case, the design and construction of a special cartoning machine capable of inserting the blank defining the second panel into the display box, and in the other case, the use of an amount of wrapping material, which is higher than the amount of wrapping material used for manufacturing a display box with a front pre-notched wall.

[0007] It is the object of the present invention to provide a display box which is free from the above-described drawbacks and which is simple and cost-effective to be implemented.

[0008] According to the present invention, a display box is provided as claimed in claims from 1 to 12.

[0009] The present invention further refers to a blank for manufacturing a display box.

[0010] According to the present invention, a blank for manufacturing a display box is provided as claimed in claims 13 to 20.

[0011] The present invention further refers to a method for manufacturing a display box.

[0012] According to the present invention, a method for manufacturing a display box is provided as claimed in claims 21 to 23.

[0013] The present invention will now be described with reference to the accompanying drawings, which illustrate a non-limitative embodiment thereof, in which:

figure 1 is a diagrammatic, perspective view of a preferred embodiment of the display box of the present invention shown in an initially closed configuration; figure 2 is a perspective view of a blank used to form the display box of figure 1 and shown in a first initial flat configuration;

figure 3 is a perspective view of the blank of figure 2 shown in a first intermediate, partially folded configuration; and

figure 4 is a perspective view of the blank of figure 2 shown in a second intermediate, partially folded configuration.

[0014] With reference to figure 1, numeral 1 indicates as a whole a display box comprising, in an initial closed configuration, a top wall 2 and a bottom wall 3, horizontal and parallel to each other, a front wall 4 and a back wall 5, vertical, parallel to each other and orthogonal to the walls 2, 3, and two side walls 6, 7 vertical, parallel to each other and orthogonal to the walls 2, 3, 4, and 5.

[0015] The front wall 4 comprises an external shaped panel 8, which extends between the walls 2 and 3, is substantially U-shaped to define an opening 9 for extracting a product from box 1, and is delimited at the top by two longitudinal edges 10 substantially horizontal and aligned to each other, and an internal panel 11 superimposed on panel 8 so as to close the opening 9.

[0016] As shown in figures 2 and 3, panel 11 comprises two side tabs 12 parallel to each other, each of which is substantially rectangular in shape, is hinged to the panel 8 along a corresponding edge 10, is folded in contact with the panel 8, and is glued to the panel 8 itself, and a central portion 13, which extends between the tabs 12, protrudes downwards from the tabs 12 themselves, is completely detached from the panel 8, and is connected to each tab 12 by means of a corresponding substantially vertical pre-notch line 14.

[0017] Panel 11 is further provided with a grasping element, which facilitates the detachment of portion 13 from tabs 12, and is defined, in this case, by a central hole 15 obtained through the portion 13, and further has a central, substantially vertical weakening line 16, which extends through the portion 13, and is adapted to facilitate the extraction of portion 13 through the opening 9.

[0018] With reference to figure 4, the top wall 2 comprises two inner panels 17, 18 connected to the portion 13 and respectively to the back wall 5, by means of two pre-notch lines 19 and 20, respectively, and two external panels 21, 22, which are folded in contact with the panels 17, 18, are glued to the panels 17, 18, and are connected to the side walls 6 and 7, respectively, by means of two pre-notch lines 23 and 24, respectively. Alternatively, the panels 21 and 22 are joined together by means of adhesive tape.

[0019] The box 1 is further provided with an end tab 25, which is connected to the side wall 6, is folded in contact with the back wall 5 inside box 1, and is glued to the wall 5 itself.

[0020] Box 1 is opened from its initial closed configuration by gripping the portion 13 by means of the hole 15, detaching the portion 13 from tabs 12 and panel 17 of the top wall 2, and extracting the portion 13 itself through the opening 9 with the aid of the central weakening line 16.

[0021] Finally, box 1 may be opened to a greater extent by detaching the panels 17, 18, 21, 22 of the top wall 2 from portion 13, back wall 5, side wall 6 and side wall 7, respectively.

[0022] According to some variants (not shown):

the tabs 12 are not glued to the panel 8, the pre-notch lines 14 are eliminated, and the whole panel 11 is connected to the panel 8 itself by means of two pre-notch lines obtained along the edges 10; the weakening line 16 is eliminated; the hole 15 is eliminated and/or replaced by a different gripping element; the opening 9 may be also made through the walls 5 and/or 6 and/or 7 of the box 1; and the panel 17 is eliminated and the panel 8 has an annular shape, for example, and a central hole defining the opening 9.

[0023] With reference to figures 2, 3 and 4, box 1 is made from a flat, elongated, substantially rectangular blank 26, the parts of which will be indicated, where possible, by accented reference numbers equal to the reference numbers which characterize the corresponding parts of the box 1 itself.

[0024] Blank 26 has two longitudinal weakening lines 27, 28 and a plurality of transversal weakening lines 29 (four lines 29a, 29b, 29c, 29d in this case), which sequentially define the tab 25, a panel 6' defining the side wall 6, the panel 8 of the front wall 4, a panel 7' defining the side wall 7, and a panel 5' defining the back wall 5, all between lines 27 and 28.

[0025] Outside the panels 6', 8, 7', and 5', line 27 defines the panels 21, 11, 22 and 18, respectively, and comprises two folding stretches defining two edges 10 and three pre-notched stretches defining the pre-notch lines 23, 24 and 20, respectively; and line 28 is a folding line and defines four panels 30 defining the bottom wall 3, outside the panels 6', 8, 7', e 5' and on opposite sides with respect to the panels 21, 11, 22, and 18.

[0026] Panel 11 has two side tabs 12, the central portion 13, the two pre-notch lines 14 connecting the tabs 12 and the portion 13, the hole 15, and the weakening line 16.

[0027] Blank 26 further comprises the panel 17, which is completely detached from the panel 8, extends within the panel 8 itself, and is connected to the portion 13 of panel 11 along a pre-notched stretch of the line 27 defining the pre-notch line 19.

[0028] Box 1 is formed from the flat blank 26 (figure 2) by means of an operating cycle comprising the steps of:

rotating the assembly consisting of the panels 11 and 17 according to a substantially 180° angle about the two edges 10 so as to move the panel 17 towards the outside of line 27, folding the panel 11 on panel 8, and gluing the tabs 12 on the panel 8 itself (figure 3);

rotating the panel 6' about the line 29b so as to fold the panel 6' and the tab 25 on panels 8 and 11; rotating the panel 5' about the line 29d so as to fold the panel 5' on panel 7' and on tab 25; gluing together the panel 5' and the tab 25 so as to define a tubular housing (not shown) arranged according to two superimposed layers; moving the two layers away to expand the mentioned tubular housing (not shown) and confer a parallelogram section to the tubular housing (not shown); folding and gluing together the panels 30 so as to form the bottom wall 3 (figure 4); and folding and gluing together the panels 17, 18, 21, and 22 so as to form the top wall 2 and complete the formation of box 1 (figure 1).

[0029] Alternatively, at least two panels 30 may be fixed together by means of adhesive tape.

[0030] Alternatively, the panels 21 and 22 may be fixed together by means of adhesive tape.

[0031] Box 1 has some advantages mainly consisting in that the opening 9 is delimited laterally and at the bottom by an edge 31 defined by a notching line having a particularly pleasant appearance and the shape of the blank 26 allows to make the box 1 with a relatively small amount of wrapping material.

Claims

1. Display box comprising a front wall (4); a back wall (5); a bottom wall (3); a top wall (2); and two side walls (6, 7); at least the front wall (4) comprising a first shaped panel (8) defining an opening (9) for the extraction of a product from the display box, and a second panel (11), at least partially removable, for closing the opening (9); and **characterized in that** the first and the second panel (8, 11) are mutually hinged in correspondence to an upper edge (10) of the first panel (8).
2. Display box according to Claim 1, wherein the first and the second panel (8, 11) are detached at least by means of a first weakening line to allow, in use, the detachment of the second panel (11) from the first panel (8) and the opening of the display box.
3. Display box according to Claim 2, wherein said first weakening line is made along said upper edge (10).
4. Display box according to Claim 1, wherein the second panel (11) comprises at least a first portion (12),

superimposed and fixed to the first panel (8), and a second portion (13), completely detached from the first panel (8) and connected to the first portion (12) by means of a second weakening line (14).

5. Display box according to Claim 4, wherein the first panel (8) is substantially U-shaped and extends between the top wall (2) and the bottom wall (3); the second panel (11) comprising two said first portions (12), which are hinged to the upper edge (10) of the first panel (8), and each of them is detached from said second portion (13) by means of a respective said second weakening line (14).
6. Display box according to any one of the preceding Claims, wherein the second panel (11) is provided with at least a grasping element (15) to facilitate the detachment of at least a part of the second panel (11) from the first panel (8).
7. Display box according to Claim 6, wherein the grasping element (15) comprises a hole (15) made through the second panel (11).
8. Display box according to any one of the preceding Claims, wherein the second panel (11) is folded inside the first panel (8) and has at least a third weakening line (16) to facilitate the extraction of at least a part of the second panel (11) through said opening (9).
9. Display box according to any one of the preceding Claims, wherein the top wall (2) comprises a third panel (17) hinged to the second panel (11).
10. Display box according to Claim 9, wherein the second and the third panel (11, 17) are mutually detached at least by means of a fourth weakening line (19) to facilitate, in use, the detachment of the second panel (11) from the third panel (17).
11. Display box according to Claim 10, wherein the top wall (2) further comprises a fourth, a fifth and a sixth panel (18, 21, 22) hinged to the back wall (5), to one of the side walls (6, 7) and, respectively, to the other side wall (6, 7).
12. Display box according to Claim 11, wherein the fourth, the fifth and the sixth panel (18, 21, 22) are detached from the relative back and side walls (5, 6, 7) by respective fifth weakening lines (20, 23, 24) to allow, in use, the detachment of the top wall (2) from the back and the side walls (5, 6, 7).
13. Blank for the manufacture of a display box, the blank comprising, in a plane starting configuration, two longitudinal weakening lines (27, 28) and a plurality of transversal weakening lines (29a, 29b, 29c, 29d) de-

fining, between the longitudinal weakening lines (27, 28) a first, a second, a third and a fourth panel (6', 8, 7', 5) defining, on their turn, a first side wall (6), a part of a front wall (4), a second side wall (7) and, respectively, a back wall (5) of the display box; the second panel (8) being a shaped panel defining an opening (9) for the extraction of a product from the display box; and being **characterized in that** it further comprises, outside a first said longitudinal weakening line (27), a fifth panel (11) defining a part of said front wall (4), closing, in use, said opening (9), and hinged to the second panel (8) along the first longitudinal weakening line (27).

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14. Blank according to Claim 13, wherein the second and the fifth panel (8, 11) are mutually detached by a first pre-notch line made along said first longitudinal weakening line (27).

15. Blank according to Claim 13, wherein the fifth panel (11) comprises at least a first portion (12) hinged to the second panel (8) along the first longitudinal weakening line (27) and a second portion (13) completely detached from the second panel (8) and connected to the first portion (12) by means of a second pre-notch line (14).

16. Blank according to Claim 15, wherein the second panel (8) is substantially U-shaped; the fifth panel (11) comprising two said distinct first portions (12), which are hinged to the second panel (8) along the first longitudinal weakening line (27), each of them being detached from said second portion (13) by means of a respective said second pre-notch line (14).

17. Blank according to any one of Claims 13-16, further comprising a sixth panel (17) which extends inside the second panel (8), is completely detached from the second panel (8) by means of a cutting line (31) and is hinged to the fifth panel (11) along said first longitudinal weakening line (27).

18. Blank according to Claim 17, wherein the fifth and the sixth panel (11, 17) are mutually detached by a third pre-notch line (19) made along said first longitudinal weakening line (27).

19. Blank according to any one of Claims 13-18, wherein the fifth panel (11) is provided with at least a grasping element (15) to facilitate the detachment of at least a part of the fifth panel (11) from the second panel (8).

20. Blank according to any one of Claims 13-19, wherein the fifth panel (11) has at least a further weakening line (16) extending through the fifth panel (11).

21. Method for the manufacture of a display box starting

from a blank (26) according to any one of Claims 13-20, the method comprising the following steps:

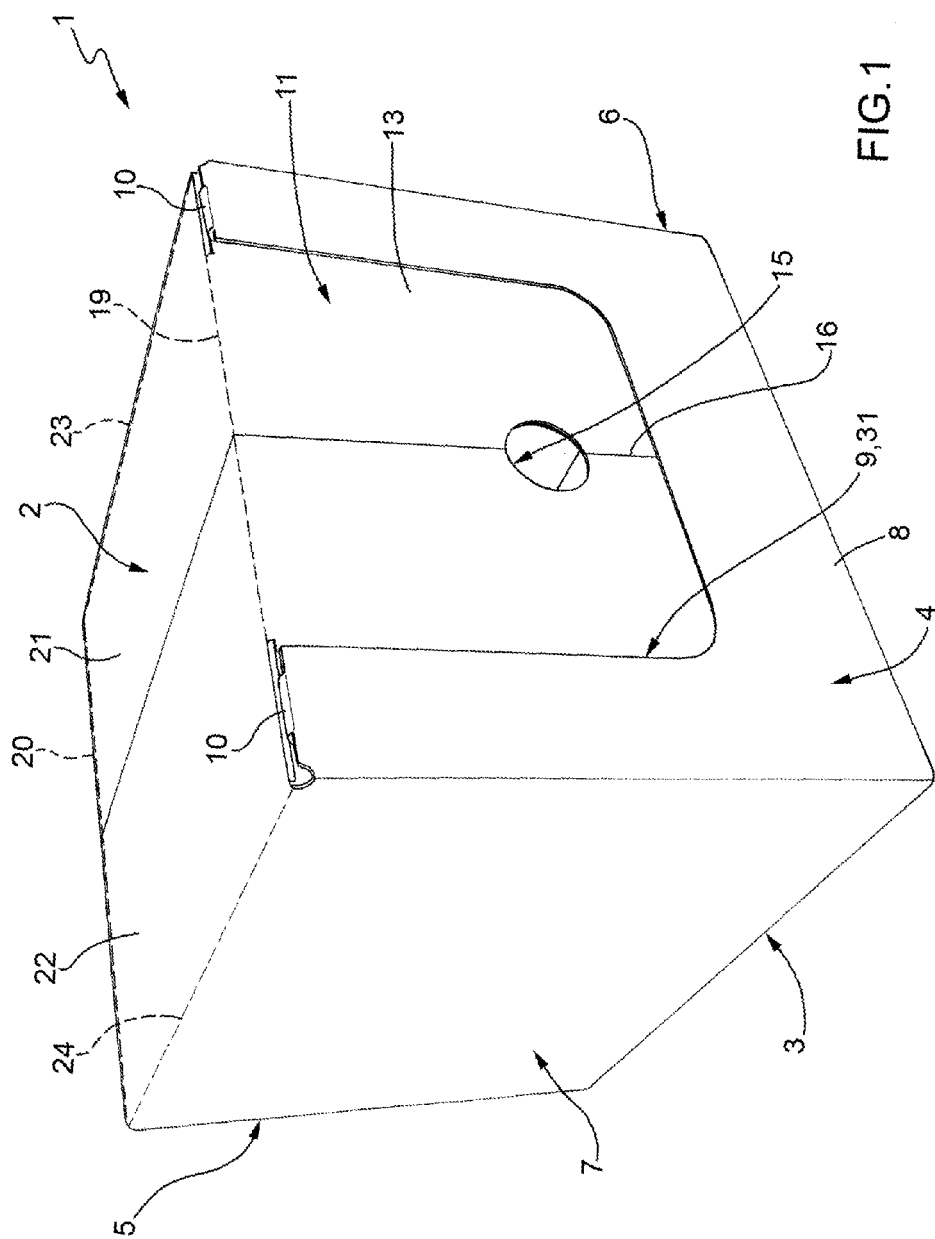
folding the fifth panel (11) on the second panel (8);
forming a tubular housing having two open ends;
and
closing the two open ends to finish the manufacture of the display box.

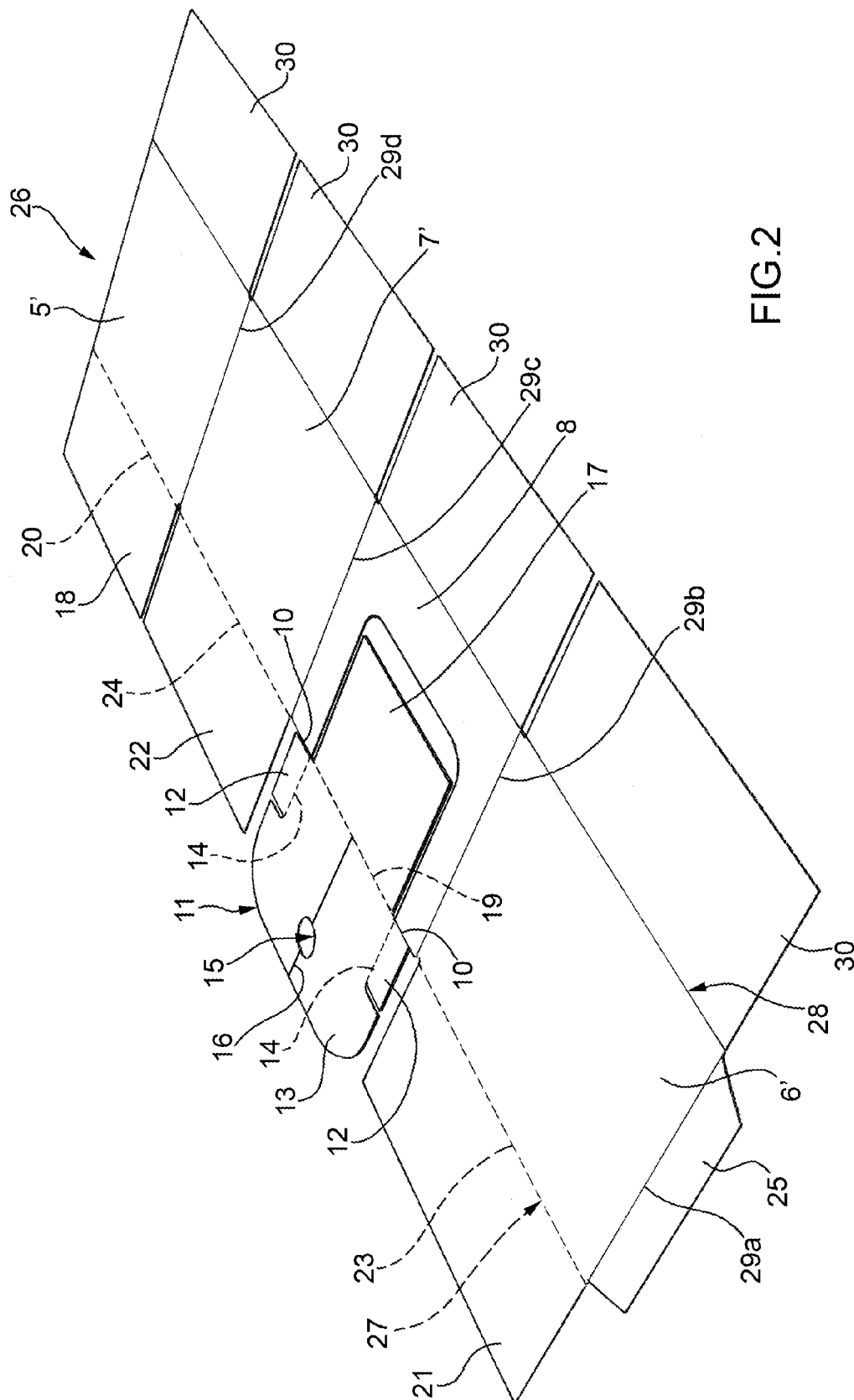
22. A method according to claim 21 and further comprising the step of:

fastening each said first portion (12) to the second panel (8).

23. A method according to claim 21 or 22 and further comprising the step of:

rotating the sixth panel (17) outside the first longitudinal weakening line (27) while the fifth panel (11) is folded on the second panel (8).





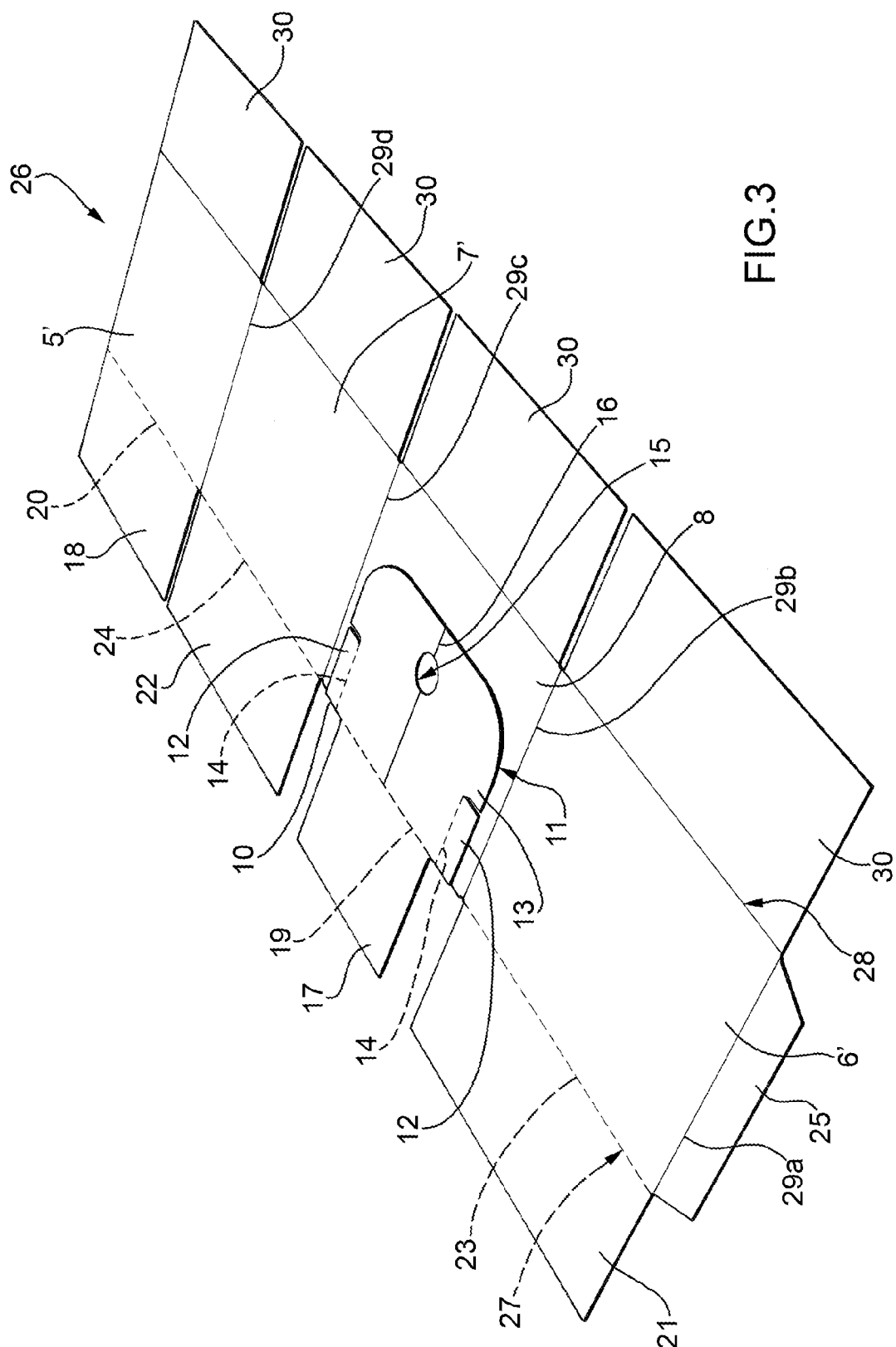


FIG.3

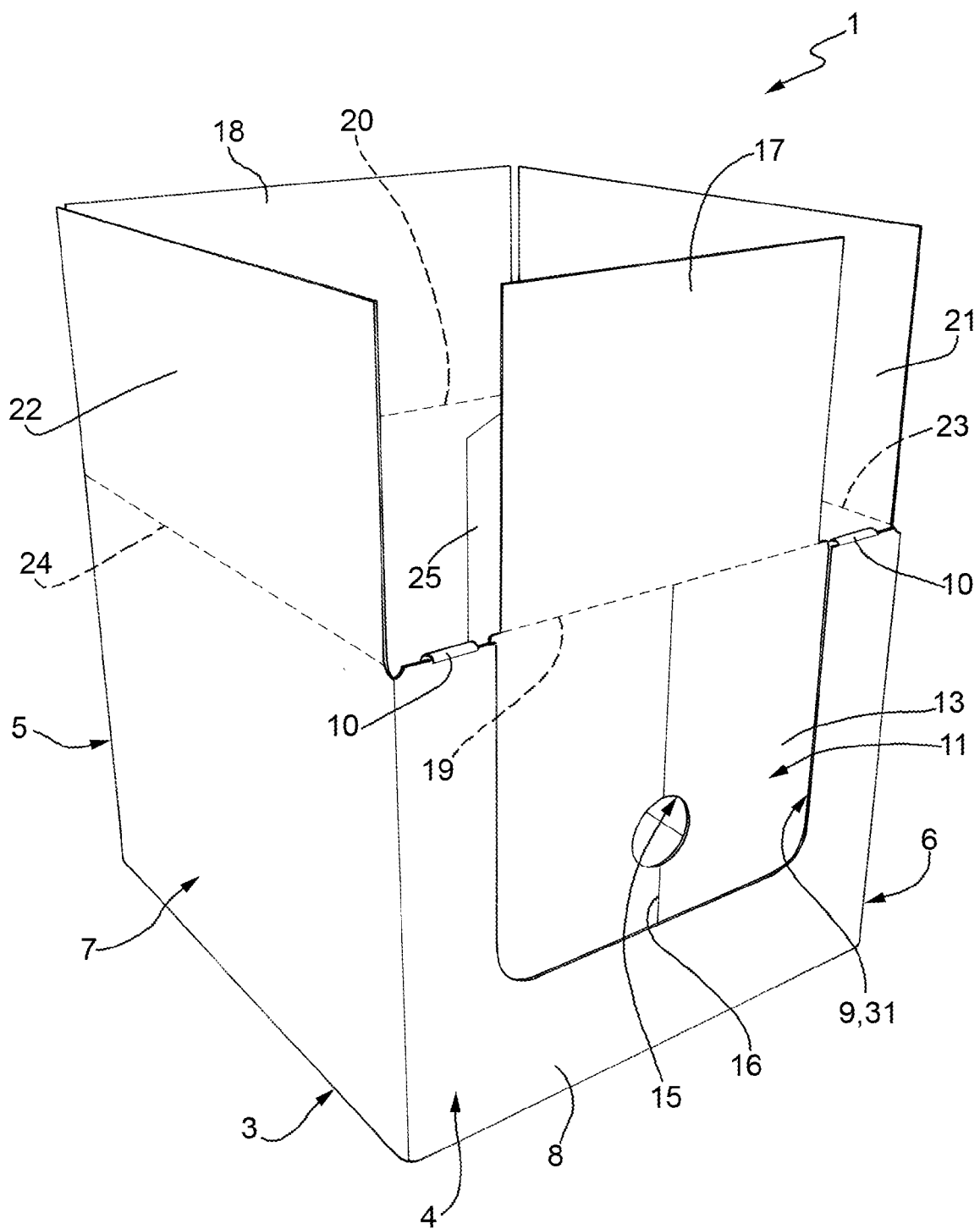


FIG.4



EUROPEAN SEARCH REPORT

Application Number
EP 09 17 3731

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Y	* page 6, line 1 - page 9, line 10;	6-7	
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	figures 1-8 *		

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			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 14 January 2010	Examiner Leijten, René
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 17 3731

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The members are as contained in the European Patent Office EDP file on
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14-01-2010

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