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

(11) **EP 2 989 937 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
02.03.2016 Bulletin 2016/09

(21) Application number: **14788408.4**

(22) Date of filing: **16.04.2014**

(51) Int Cl.:
A47F 5/11 *(2006.01)* ***A47B 47/06*** *(2006.01)*

(86) International application number:
PCT/ES2014/000060

(87) International publication number:
WO 2014/174128 (30.10.2014 Gazette 2014/44)

(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
Designated Extension States:
BA ME

(30) Priority: **26.04.2013 ES 201300389 P**

(71) Applicant: **Promotec Publicidad, SL**
08907 L'Hospitalet de Llobregat Barcelona (ES)

(72) Inventors:
- **MESTRES ARMENGOL, Ferran**
  E-08960 Sant Just Desvern (Barcelona) (ES)
- **LÓPEZ FERNÁNDEZ, Francisco**
  E-08940 Cornellà (Barcelona) (ES)

(74) Representative: **Juncosa Miro, Jaime et al**
Torner, Juncosa i Associates, S.L.
Gran Via de les Corts
Catalanes, 669 bis, 1º, 2ª
08013 Barcelona (ES)

(54) FOLDABLE DISPLAY MADE OF CORRUGATED CARDBOARD OR THE LIKE

(57) The display comprises mutually parallel connection panels (5a, 5b, 5c) hingedly connected to mutually parallel first and second wall panels (1, 2) forming an articulated parallelogram configuration which can be moved between a working position providing shelves and a folded position over an inner face of the second wall panel (2). Third and fourth wall panels (3, 4) are hingedly connected to opposite longitudinal edges of the second wall panel (2) and are movable between a working position wherein the third and fourth wall panels (3, 4) are substantially perpendicular or inclined with respect to the first and second wall panels (1, 2) and connection panels (5a, 5b, 5c), and a folded position wherein the third and fourth wall panels (3, 4) are substantially parallel to and superimposed over an outer face of the second wall panel (2).

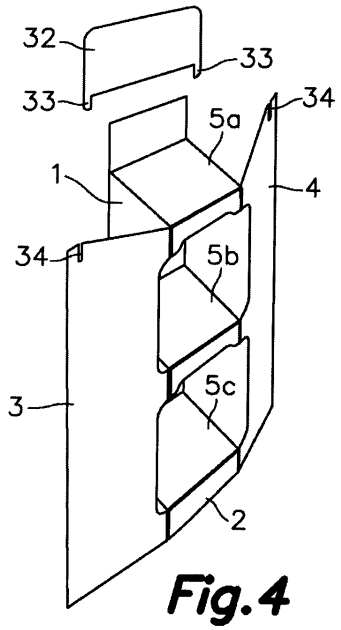

Fig.4

EP 2 989 937 A1

(Cont. next page)

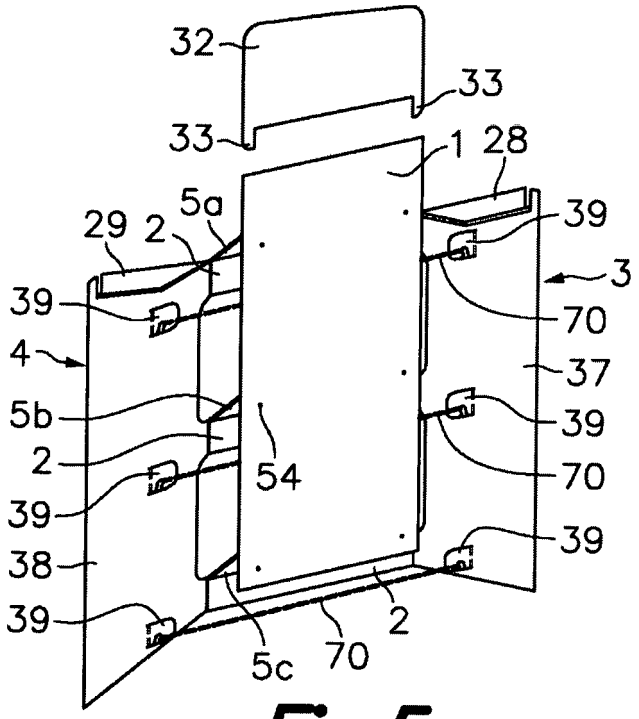

Fig.5

Description

Field of the Art

[0001] The present invention relates to a foldable display made of corrugated cardboard or the like, having a very simple and cost-effective construction and being easy and practical to use, and which in a working position provides a structure capable of standing upright on the ground and provided with one or more shelves for bearing items to be displayed.

Background of the Invention

[0002] Document US 2008/0265726 A1 discloses a foldable display made of a single, bent and glued piece of corrugated cardboard or the like. The foldable display comprises opposite front and rear wall panels, opposite upper and lower panels connected in an articulated manner to said front and rear wall panels, a pair of side panels connected in an articulated manner to the front wall panel, and several shelf panels cut in the front wall panel and connected in an articulated manner to the front and rear wall panels. The front and rear wall panels, the upper and lower panels and said shelf panels form an articulated parallelogram configuration which can be moved between a working position wherein the upper and lower panels and the shelf panels are perpendicular to the front and rear wall panels, and a folded position wherein the front and rear wall panels, the upper and lower panels and the shelf panels are substantially parallel and superimposed. The foldable display includes foldable joint elements keeping the side wall panels coplanar with the front wall panel in the folded position, and retaining means formed by tabs projecting from the rear wall panel and fitting and interlocking in slits of the side wall panels in the working position.

[0003] A drawback of the foldable display of the mentioned document US 2008/0265726 A1 is that due to the existence of the mentioned foldable joint elements, the side wall panels cannot be additionally folded to reduce the extension of the display in the folded position once the side wall panels reach a position that is coplanar with the front wall panel.

Brief Description of the Invention

[0004] The present invention helps overcome the preceding and other drawbacks by providing a foldable display made of corrugated cardboard or the like comprising mutually parallel and opposite first and second wall panels, at least two mutually parallel connection panels, each of which has a first transverse edge connected in an articulated manner to said first wall panel and a second transverse edge connected in an articulated manner to said second wall panel, where the first and second wall panels and said at least two connection panels form an articulated parallelogram configuration which can be moved between a working position wherein the connection panels are perpendicular or inclined with respect to the first and second wall panels, and a folded position wherein the first wall panel and the connection panels are substantially parallel to and superimposed over an inner face of the second wall panel. The foldable display further comprises at least one third wall panel having an edge connected in an articulated manner to a first longitudinal edge of the second wall panel, and retaining means retaining said first, second and third wall panels and the at least two connection panels in said working position.

[0005] The mentioned third wall panel is foldable around said first longitudinal edge between a working position wherein the third wall panel is substantially perpendicular or inclined with respect to the first and second wall panels, closing a space defined between the first and second wall panels and the connection panels, and a folded position wherein the third wall panel is substantially parallel to and superimposed over an outer face of the second wall panel.

[0006] In one embodiment, the foldable display only has the mentioned third wall panel in addition to the first and second wall panels, and in such case the first and second wall panels form side walls, said third wall panel forms a rear wall, and at least one of said connection panels forms a shelf.

[0007] In other embodiments, the foldable display includes a fourth wall panel having a first longitudinal edge connected in an articulated manner to a second longitudinal edge of the second wall panel opposite said first longitudinal edge, where the fourth wall panel can be folded around said second longitudinal edge between a working position wherein the fourth wall panel is substantially perpendicular or inclined with respect to the first and second wall panels, closing a space defined between the first and second wall panels and the connection panels, and a folded position wherein the fourth wall panel is substantially parallel to and superimposed over an outer face of the second wall panel together with the third wall panel in the folded position.

[0008] In the case of including both third and fourth wall panels in addition to the first and second wall panels, the foldable display of the present invention can have two other embodiments. In one embodiment, the first wall panel forms a rear wall, the second wall panel forms a front wall, the third and fourth wall panels form side walls, and at least one of said connection panels forms a shelf. In another embodiment, the first wall panel forms a front wall, the second wall panel forms a rear wall, the third and fourth wall panels form side walls, and at least one of the connection panels forms a shelf.

[0009] Regardless of the embodiment of the foldable display of the present invention, the second wall panel has opposite inner and outer faces, and in the folded position the third and fourth wall panels are folded over the outer face of the second wall panel whereas the articulated parallelogram configuration formed by the first

and second wall panels and the connection panels is folded over the inner face of the second wall panel. Therefore, the thickness of the first wall panel and of the connection panels in the folded position is not an obstacle for folding the third and fourth wall panels, and this allows reaching a significantly compact configuration in the folded position.

[0010] In one embodiment in which the second wall panel forms a front wall, the second, third and fourth wall panels are integral parts of a first piece of sheet made of corrugated cardboard or the like cut from a previously printed first board of corrugated cardboard or the like. Optionally, the connection panels are also integral parts of said first piece of sheet and are cut in the second wall panel. In such case, the first transverse edge of each of the connection panels is connected to a respective fixing tab by a first weakened line, said fixing tab is fixed to the first wall panel by fixing means, and said second transverse edge of each of the connection panels is connected to the second wall panel by a second weakened line.

[0011] Alternatively, one or more of the connection panels are formed by additional pieces of sheet made of corrugated cardboard or the like, where the first transverse edge of each of the connection panels is connected to a first fixing tab by a first weakened line, said first fixing tab is fixed to the first wall panel by fixing means, said second transverse edge of each of the connection panels is connected to a second fixing tab by a second weakened line, and said second fixing tab is fixed to the second wall panel by fixing means. This allows including shelves formed by connection panels with a depth exceeding the vertical distance between shelves.

[0012] In one embodiment, the mentioned retaining means comprise a head piece having first retaining elements which fit and are interlocked in second retaining elements formed in the third and fourth wall panels when they are in the working position. This head piece is made up of a second piece of sheet made of corrugated cardboard or the like and can be cut from said previously printed first board of corrugated cardboard or the like together with said first piece of sheet.

[0013] In an optional embodiment, the head piece is fixed to the first wall panel by fixing means and the first wall panel has a transverse fold line around which that portion of the first wall panel in which the head piece is fixed can be bent over an outer face of the rest of the first wall panel in the folded position.

[0014] In one embodiment in which the first wall panel forms a rear wall, which does not need to be printed, especially if the foldable display includes a printed head piece, the first wall panel is formed by a third piece of sheet made of corrugated cardboard or the like cut from a non-printed second board of corrugated cardboard or the like. This helps reduce the overall cost of the product.

[0015] Preferably, in one embodiment in which the third and fourth wall panels are side wall panels, the latter have respective reinforcement panels adhered to their inner faces, said reinforcement panels having hooking elements attached thereto in an articulated manner by weakened lines. These hooking elements are not adhered to the corresponding third and fourth wall panels, such that they can pivot around the mentioned weakened lines. Furthermore, the foldable display includes elastic elements, such as rubber rings, each of which is connected to one of the hooking elements of the reinforcement panel adhered to the third wall panel and to one of the hooking elements of the reinforcement panel adhered to the fourth wall panel, such that the elastic elements pull the third and fourth wall panels towards the working position.

[0016] The hooking elements are strategically arranged in positions such that when the foldable display is in the working position, both the hooking elements and the elastic elements are adjacent to a lower face of the connection panels and are concealed by the latter.

[0017] Preferably, the third and fourth wall panels have upper edges connected to respective flaps by weakened lines, and said flaps are bent and adhered to an inner face of the respective third and fourth wall panels. In correspondence, the reinforcement panels have cutouts in which the flaps fit.

[0018] The reinforcement panels are formed by respective fourth and fifth pieces of sheet made of corrugated cardboard or the like, and given that the reinforcement panels generally do not need to be printed, said fourth and fifth pieces of sheet are cut from said non-printed second board of corrugated cardboard or the like together with the third piece of sheet making up the first wall panel.

Brief Description of the Drawings

[0019] The foregoing and other features and advantages will be more evident based on the following detailed description of embodiments in reference to the attached drawings in which:

Figure 1 is a perspective view of a foldable display of corrugated cardboard or the like, according to an embodiment of the present invention, in a working position;

Figure 2 is a plan view of a previously printed first board of corrugated cardboard or the like from which some pieces of sheet that are part of the foldable display of Figure 1 are cut;

Figure 3 is a plan view of a non-printed second board of corrugated cardboard or the like from which other pieces of sheet that are also part of the foldable display of Figure 1 are cut;

Figures 4, 5 and 6 are two perspective views and a side view, respectively, illustrating the working of the foldable display of Figure 1 during an action for the folding or unfolding thereof;

Figure 7 is a perspective view of the foldable display of Figure 1 in a folded position;

Figure 8 is a perspective view of a foldable display

of corrugated cardboard or the like, according to another embodiment of the present invention, in a working position;

Figure 9 is a plan view of a previously printed first board of corrugated cardboard or the like from which some pieces of sheet that are part of the foldable display of Figure 8 are cut;

Figure 10 is a plan view of a non-printed second board of corrugated cardboard or the like from which other pieces of sheet that are also part of the foldable display of Figure 8 are cut;

Figure 11 is a perspective view of a foldable display made of corrugated cardboard or the like, according to yet another embodiment of the present invention, in a working position;

Figure 12 is a plan view of a previously printed first board of corrugated cardboard or the like from which some pieces of sheet that are part of the foldable display of Figure 11 are cut;

Figure 13 is a plan view of a pair of pieces of sheet that are part of a foldable display according to yet another embodiment of the present invention;

Figure 14 is a plan view of the pieces of sheet of Figure 13 attached to one another;

Figure 15 is a perspective view of the pieces of sheet that are attached and in a bent position;

Figures 16, 17 and 18 are perspective views illustrating the working of the foldable display incorporating the pieces of sheet of Figures 13 to 15 during an action for the folding or unfolding thereof;

Figure 19 is a plan view illustrating a shortened variant of the pieces of sheet of Figures 13 to 15;

Figure 20 is a perspective view illustrating the effect of using the shortened variant of the pieces of sheet of Figure 19 in a foldable display like the one in Figure 1;

Figure 21 is a plan view illustrating an elongated variant of the pieces of sheet of Figures 13 to 15;

Figure 22 is a perspective view illustrating the effect of using the elongated variant of the pieces of sheet of Figure 21 in a foldable display like the one in Figure 8;

Figure 23 is a perspective view of a foldable display made of corrugated cardboard or the like, according to an additional embodiment of the present invention, in a working position;

Figure 24 is a perspective view illustrating the assembly of several pieces of sheet forming the foldable display of Figure 23;

Figure 25 is a plan view of a previously printed first board of corrugated cardboard or the like from which some pieces of sheet that are part of the foldable display of Figure 23 are obtained;

Figure 26 is a plan view of a non-printed second board of corrugated cardboard or the like from which other pieces of sheet that are also part of the foldable display of Figure 23 are obtained;

Figures 27, 28 and 29 are a perspective view, a side view, and another perspective view, respectively, illustrating the working of the foldable display of Figure 23 during an action for the folding or unfolding thereof;

Figure 30 is a perspective view of a foldable display made of corrugated cardboard or the like, according to another additional embodiment of the present invention, in a working position;

Figures 31 and 32 are a perspective view and a side view, respectively, illustrating the working of the foldable display of Figure 29 during an action for the folding or unfolding thereof;

Figures 33 and 34 are perspective views showing two opposite sides of the foldable display of Figure 30 in a folded position;

Figure 35 is a perspective view of a foldable display of corrugated cardboard or the like, according to yet another additional embodiment of the present invention, in a working position;

Figures 36, 37 and 38 are perspective views illustrating the working of the foldable display of Figure 35 during an action for the folding or unfolding thereof;

Figure 39 is a perspective view of a foldable display made of corrugated cardboard or the like, according to yet another additional embodiment of the present invention, in a working position;

Figure 40 is a plan view of a piece of sheet that is part of the foldable display of Figure 39;

Figure 41 is a perspective view of a foldable display of corrugated cardboard or the like, according to another embodiment of the present invention having a trapezoidal footprint, in a working position;

Figure 42 is a plan view of a grouping of displays including eight of the displays having a trapezoidal footprint of Figure 41;

Figure 43 is a plan view of a simple hinge element that can be applied to a foldable display of corrugated cardboard or the like according to the present invention, in an extended position;

Figure 44 is a perspective view of the simple hinge element of Figure 43 in a partially bent position;

Figure 45 includes several side views illustrating a relative rotation of 90° between two pieces of sheet of the foldable display using the simple hinge element of Figures 43 and 44;

Figure 46 includes several side views illustrating a relative rotation of 180° between two pieces of sheet of the foldable display using the simple hinge element of Figures 43 and 44;

Figure 47 is a plan view of a complex hinge element that can be applied to a foldable display of corrugated cardboard or the like according to the present invention, in an extended position;

Figure 48 is a perspective view of the complex hinge element of Figure 47 in a partially bent position;

Figure 49 includes several side views illustrating a relative rotation of 270° between two pieces of sheet

of the foldable display using the complex hinge element of Figures 47 and 48;

Figure 50 includes several side views illustrating a relative rotation of 360° between two pieces of sheet of the foldable display using the complex hinge element of Figures 47 and 48;

Figure 51 is a perspective view of a foldable display made of corrugated cardboard or the like according to another additional embodiment of the present invention, in a working position;

Figure 52 is a perspective view of the foldable display of Figure 51 in an intermediate position between the working position and a folded position, and with several elements forming a base shown in explosion; and

Figures 53 and 54 are perspective views illustrating the foldable display of Figure 51 in the intermediate position and in the folded position, respectively.

Detailed Description of Embodiments

[0020] Referring first to Figures 1 to 7, a foldable display of corrugated cardboard or the like according to an embodiment of the present invention is shown which comprises a first wall panel 1 forming a rear wall of the foldable display and a second wall panel 2 forming a front wall of the foldable display. Said first and second wall panels 1, 2 are opposite and mutually parallel, and are connected to one another by three connection panels 5a, 5b, 5c forming respective shelves. The mentioned three connection panels 5a, 5b, 5c are mutually parallel, and each of them has a first transverse edge connected in an articulated manner to the first wall panel 1 and a second transverse edge connected in an articulated manner to the second wall panel 2.

[0021] Therefore, the first and second wall panels 1, 2 and the three connection panels 5a, 5b, 5c form an articulated parallelogram configuration which can be moved between a working position (shown in Figure 1) wherein the connection panels 5a, 5b are perpendicular with respect to the first and second wall panels 1, 2, and a folded position (shown in Figure 7) wherein the first wall panel 1 and the connection panels 5a, 5b are substantially parallel to and superimposed over an inner face of the second wall panel 2.

[0022] The foldable display of the embodiment shown in Figures 1 to 7 furthermore has third and fourth wall panels 3, 4 forming side walls of the foldable display. These third and fourth wall panels 3, 4 have respective edges connected in an articulated manner to first and second longitudinal edges 26, 27 opposite of the second wall panel 2, such that the third and fourth wall panels 3, 4 are foldable around said first and second longitudinal edges 26, 27 between a working position (Figure 1) wherein the third and fourth wall panels 3, 4 are substantially perpendicular with respect to the first and second wall panels 1, 2, closing a space defined between the first and second wall panels 1, 2 and the connection panels 5a, 5b, and a folded position (Figure 7) wherein the third and fourth wall panels 3, 4 are substantially parallel to and superimposed over an outer face of the second wall panel 2.

[0023] Given that, in the working position, the third and fourth wall panels 3, 4 are perpendicular to the first and second wall panels 1, 2, to go from the working position to the folded position and vice versa each of the third and fourth wall panels 3, 4 must perform a rotation of 270° around the respective first and second opposite longitudinal edge 26, 27 of the second wall panel 2.

[0024] The foldable display of the embodiment shown in Figures 1 to 7 further comprises retaining means for retaining the first, second, third and fourth wall panels 1, 2, 3, 4 and the connection panels 5a, 5b, 5c in said working position. Said retaining means comprise a head piece 32 which is placed above the upper shelf in a position parallel and adjacent to the first wall panel 1 forming the rear wall of the foldable display. The mentioned head piece 32 has first projecting retaining elements 33 which fit and are interlocked in second retaining elements 34 in the form of a slit formed in the third and fourth wall panels 3, 4 when they are in the working position.

[0025] Furthermore, the foldable display of the embodiment shown in Figures 1 to 7 comprises first and second reinforcement panels 37, 38 adhered to inner faces of the third and fourth wall panels 3, 4, respectively. These first and second reinforcement panels 37, 38 have hooking elements 39 cut in them which are attached thereto in an articulated manner by weakened lines 44, such that said hooking elements 39 can freely pivot with respect to the respective first and second reinforcement panels 37, 38 and corresponding third and fourth wall panels 3, 4.

[0026] The third and fourth wall panels 3, 4 have upper edges connected to respective flaps 28, 29 by weakened lines 30, 31, and said flaps 28, 29 are bent and adhered to an inner face of the respective third and fourth wall panels 3, 4. In correspondence, the first and second reinforcement panels 37, 38 have cutouts 45, 46 in their upper edges in which the mentioned flaps 28, 29 fit.

[0027] The retaining means additionally comprise elastic elements 70 (Figures 5, 6 and 7), such as rubber rings, each of which is connected to one of the hooking elements 39 associated with the third wall panel 3 and to one of the hooking elements 39 associated with the fourth wall panel 4. The hooking elements 39 are strategically arranged in the first and second reinforcement panels 37, 38 in positions selected such that when the foldable display is in the working position, both the hooking elements 39 and the elastic elements 70 are adjacent to a lower face of the connection panels 5a, 5b, 5c, so they are concealed by the connection panels 5a, 5b, 5c and not visible in normal conditions.

[0028] As shown in Figure 2, the second, third and fourth wall panels 2, 3, 4 and the connection panels 5a, 5b, 5c are integral parts of a first piece of sheet 21 made of corrugated cardboard or the like. In the embodiment shown in Figures 1 to 7, the three connection panels 5a,

5b, 5c forming the shelves are cut in the second wall panel 2, so the second wall panel 2 forming the front wall is reduced to three relatively narrow horizontal bands. The mentioned first transverse edge of each of the connection panels 5a, 5b, 5c is connected to a respective fixing tab 23 by a first weakened line 24, and said second transverse edge of each of the connection panels 5a, 5b, 5c is connected to the second wall panel 2 by a second weakened line 25.

[0029] When the foldable display is assembled, the fixing tabs 23 are fixed to the first wall panel 1 forming the rear wall by fixing means, such as an adhesive reinforced with rivets going through corresponding die-cut holes 53, 54 in the fixing tabs 23 and in the first wall panel 1, respectively, for example. The mentioned holes 53, 54 make the operation of positioning the fixing tabs 23 with respect to the first wall panel 1 during a gluing operation significantly easier.

[0030] In the embodiment shown in Figures 1 to 7, the second weakened lines 25 connecting the second transverse edge of each of the connection panels 5a, 5b, 5c with the corresponding horizontal band of the second wall panel 2 are located in the upper edge of the horizontal band of the second wall panel 2, such that in the working position (Figure 1), the upper edge of each horizontal band is flush with the upper surface of the corresponding connection panel 5a, 5b, 5c.

[0031] The head piece 32 is made up of a second piece of sheet 22 made of corrugated cardboard or the like. Both first and second pieces of sheet 21, 22 are preferably cut from a first board of corrugated cardboard or the like 20 a face of which has been previously printed, such that the printed surface will be visible on the outer faces of the second, third and fourth wall panels 2, 3, 4 forming the front and side walls, respectively, on the upper faces of the connection panels 5a, 5b, 5c forming the shelves, on the inner faces of the flaps 28, 29 of the third and fourth wall panels 3, 4, and on the front face of the head piece 32.

[0032] As shown in Figure 3, the first wall panel 1 forming the rear wall and the first and second reinforcement panels 37, 38 are formed by respective third, fourth and fifth pieces of sheet 41, 42, 43 made of corrugated cardboard or the like, and said third, fourth and fifth pieces of sheet 41, 42, 43 are cut from a second board of corrugated cardboard or the like 40, which does not have to be printed. Therefore, the visible surfaces of the foldable display that will not be printed on are the inner and outer faces of the first wall panel 1 forming the rear wall and the inner faces of the first and second reinforcement panels 37, 38 adhered to the third and fourth wall panels 3, 4 forming the side walls.

[0033] It will be understood that the number of connection panels 5a, 5b, 5c can vary, although at least two are essential. Furthermore, given that in this embodiment the connection panels 5a, 5b, 5c forming the shelves are cut from the second wall panel 2 forming the wall front, there is a proportionality between the depth of the shelves and the vertical separation distance between the horizontal bands making up the second wall panel 2, which together with the vertical height of the horizontal bands making up the second wall panel 2, can condition the number of shelves in the foldable display.

[0034] Figures 8 to 10 show another embodiment of the foldable display of the present invention, which is similar to the embodiment described above in relation to Figures 1 to 7, including a first piece of sheet 21 (Figure 9) made of corrugated cardboard or the like integrating the second, third and fourth wall panels 2, 3, 4 and the connection panels 5a, 5b, 5c cut in the second panel 2, a second piece of sheet 22 (Figure 9) made of corrugated cardboard or the like integrating the head piece 32, and third, fourth and fifth pieces of sheet 41, 42, 43 (Figure 10) made of corrugated cardboard or the like integrating the first wall panel 1 and the first and second reinforcement panels 37, 38, respectively.

[0035] The first and second pieces of sheet 21, 22 are preferably cut from a first board of corrugated cardboard or the like 20 a face of which has been previously printed, and the third, fourth and fifth pieces of sheet 41, 42, 43 are preferably cut from a non-printed second board of corrugated cardboard or the like 20.

[0036] The embodiment shown in Figures 8 to 10 differs from the embodiment shown in Figures 1 to 7 in that the second weakened lines 25 connecting the second transverse edge of each of the connection panels 5a, 5b, 5c with the corresponding horizontal band of the second wall panel 2 are located at the lower edge of the horizontal band of the second wall panel 2. This difference means that in the working position (Figure 8), the lower edge of each horizontal band is flush with the lower surface of the corresponding connection panel 5a, 5b, 5c, and accordingly the horizontal bands of the second wall panel 2 form railings or protective walls for the connection panels 5a, 5b, 5c forming the shelves.

[0037] The working of the foldable display according to the embodiment shown in Figures 8 to 10 during folding and unfolding operations is similar to the working described above in relation to Figures 4 to 7.

[0038] Figures 11 and 12 show yet another embodiment of the foldable display of the present invention, which is similar in its entirety to the embodiment described above in relation to Figures 8 to 10, except in that in this case one of the connection panels, and more specifically the connection panel 5c forming the lower shelf, is not integrated in the first piece of sheet 21 but rather is made up of an additional piece of sheet 47, which is preferably cut together with the first and second pieces of sheet 21, 22 from a first board of corrugated cardboard or the like 20 a face of which has been previously printed.

[0039] This additional piece of sheet 47 comprises the corresponding connection panel 5c, a first fixing tab 48 connected by a first weakened line 49 to said first transverse edge of the connection panel 5c and a second fixing tab 50 connected by a second weakened line 51 to said second transverse edge of the connection panel 5c.

When the foldable display is assembled, said first fixing tab 48 is fixed to the first wall panel 1 by fixing means and said second fixing tab 50 is fixed to the second wall panel 2 by fixing means.

[0040] In the embodiment shown in Figures 11 and 12, the foldable display comprises a first wall panel 1 and first and second reinforcement panels 37, 38 similar to those described above in relation to Figure 10, which can be cut from a non-printed second board of corrugated cardboard or the like 40.

[0041] The working of the foldable display according to the embodiment shown in Figures 11 and 12 during folding and unfolding operations is similar to the working described above in relation to Figures 4 to 7.

[0042] Although in the embodiment shown in Figures 11 and 12 the connection panel 5c formed by the additional piece of sheet 47 separated from the first piece of sheet 21 is the connection panel forming the lower shelf, it will be understood that any of the connection panels 5a, 5b, 5c could be formed by a corresponding separate additional piece of sheet 47, and even several or all of the connection panels 5a, 5b, 5c of the foldable display could be formed by respective separate additional pieces of sheet 47. Therefore, the depth of the shelves formed by the connection panels does not have to be proportional to the vertical distance between the horizontal bands of the second wall panel 2 forming the front wall, and the opening of the second wall panel 2 between two connection panels can even be omitted.

[0043] Figures 13 to 18 show a foldable display according to yet another embodiment of the present invention, which is similar in its entirety to the embodiment described above in relation to Figures 8 to 10, except in that in this case the head piece 32 is fixed to an upper region 36 of the first wall panel 1 by fixing means. To that end, the mentioned upper region 36 of the first wall panel 1 forming the rear wall has side protrusions 35 (Figure 13) reproducing the shape of the first retaining elements 33 of the head piece 32. Once the head piece 32 is fixed to the first wall panel 1 (Figure 14), the first retaining elements 33 of the head piece 32 are superimposed over and adhered to said side protrusions 35 of the first wall panel 1.

[0044] Furthermore, the first wall panel 1 has a transverse fold line 52 around which an upper portion of the first wall panel 1 in which the head piece 32 is fixed can be bent towards the folded position (Figure 15). Therefore, in the folded position, the upper portion of the first wall panel 1 and the head piece 32 are parallel to and superimposed over a rear surface of the rest of the first wall panel 1.

[0045] Figure 16 shows the foldable display provided with the first wall panel 1 fixed to the head piece 32 of Figures 14 and 15 in a position prior to the working position wherein the connection panels 5a, 5b, 5c are in a position perpendicular to the first and second wall panels 1, 2 and the third and fourth wall panels 3, 4 are in a position perpendicular to the connection panels 5a, 5b, 5c and to the first and second wall panels 1, 2, although the mentioned upper portion of the first wall panel 1 with the head piece 32 are bent backwards.

[0046] In Figure 17 the upper portion of the first wall panel 1 with the head piece 32 has been lifted until being located almost in the same plane as the rest of the first wall panel 1 and the entire first wall panel 1 and head piece 32 assembly has been lifted off the ground a sufficient distance so that the first retaining elements 33 of the head piece 32 can pass over the upper edges of the third and fourth wall panels 3, 4. The lifting of the first wall panel 1 causes a temporary inclination of the connection panels 5a, 5b, 5c.

[0047] In Figure 18 the upper portion of the first wall panel 1 has been slightly tilted until aligning the first retaining elements 33 of the head piece 32 with the second retaining elements 34 of the third and fourth wall panels 3, 4, and the first wall panel 1 with the head piece 32 has then been lowered until fitting the first retaining elements 33 of the head piece 32 with the second retaining elements 34, whereby the connection panels 5a, 5b, 5c recover their horizontal position and the third and fourth wall panels 3, 4 are held in the working position.

[0048] Given that the connection panels 5a, 5b, 5c are connected to the first wall panel 1, and that the side protrusions 35 of the first wall panel 1 superimposed over and adhered to the first retaining elements 33 of the head piece 32 are fitted in the second retaining elements 34 of the third and fourth wall panels 3, 4 in the working position, part of the weight of the items borne on the connection panels 5a, 5b, 5c is transmitted to the third and fourth wall panels 3, 4, the strength of which is increased as a result of the first and second reinforcement panels 37, 38 adhered thereto.

[0049] Figure 19 shows a variant of the first wall panel 1 and head piece 32 assembly described above in relation to Figures 13 to 15, where a lower region of the first wall panel 1 is shortened such that a lower edge 55 of the first wall panel 1 is at a distance D1 above a position H in which it would theoretically have to be in so that the connection panels 5a, 5b, 5c were horizontal in the working position, taking into account that the positions in which the connection panels 5a, 5b, 5c are connected to the first wall panel 1, which are preferably determined by the positions of the holes 54 through which rivets are optionally installed, have not been modified.

[0050] Figure 20 shows the effect of using the first wall panel 1 and head piece 32 assembly according to the shortened variant of Figure 19 in a foldable display like the one in Figure 1, where said shortened distance D1 causes the rear edges of the connection panels 5a, 5b, 5c to be at a lower level than the front edges, and accordingly causes the connection panels 5a, 5b, 5c to be inclined backwards and downwards. This inclination of the shelves and the first wall panel 1 prevents given items, such as bottles displayed on the shelves, for example, from falling.

[0051] Figure 21 shows a variant of the first wall panel

1 and head piece 32 assembly described above in relation to Figures 13 to 15, where a lower region of the first wall panel 1 is elongated such that a lower edge 55 of the first wall panel 1 is at a distance D2 below a position H in which it would theoretically have to be in so that the connection panels 5a, 5b, 5c were horizontal in the working position, taking into account that the positions in which the connection panels 5a, 5b, 5c are connected to the first wall panel 1, which are preferably determined by the positions of the holes 54 through which rivets are optionally installed, have not been modified.

[0052] Figure 22 shows the effect of using the first wall panel 1 and head piece 32 assembly according to the elongated variant of Figure 21 in a foldable display like the one in Figure 8, where said elongated distance D2 causes the rear edges of the connection panels 5a, 5b, 5c to be at a higher level than the front edges, and accordingly causes the connection panels 5a, 5b, 5c to be inclined forwards and downwards. The railings or protective walls formed by the horizontal bands of the second wall panel 2 prevent items displayed on the shelves, such as flexible containers, for example, from falling.

[0053] It will be understood that the shortened and elongated variants of the first wall panel 1 described above can also be applied even though the head piece 32 is not fixed to the first wall panel 1.

[0054] In relation to Figures 23 to 29, now there is described a foldable display made of corrugated cardboard or the like according to an additional embodiment of the present invention which, in a manner similar to the embodiments described above, comprises first, second, third and fourth wall panels 1, 2, 3, 4 and two connection panels 5a, 5b, where the first and second wall panels 1, 2 and the connection panels 5a, 5b form an foldable articulated parallelogram configuration.

[0055] As shown in Figure 23, in the working position the first wall panel 1 forms a rear wall, the second wall panel 2 forms a front wall, the third and fourth wall panels 3, 4 form side walls, and one of said connection panels 5a, which is located in an upper position, forms a shelf whereas the other one of the connection panels 5b, which is located in a lower position (not shown in Figure 23) performs a merely structural function.

[0056] Nevertheless, in this embodiment of Figures 23 to 29, the first wall panel 1 is made up of first, second and third sections 1a, 1b, 1c, said first and second sections 1a, 1b of which are integrated in a first piece of sheet 21 (Figures 24 and 25) and said third section 1c is integrated in a third piece of sheet 41 (Figures 24 and 26).

[0057] Figure 25 shows a previously printed first board of corrugated cardboard or the like 20 from which there is obtained the mentioned first piece of sheet 21, integrating the first and second sections 1a, 1b of the first wall panel 1, the second third and fourth wall panels 2, 3, 4 and the upper connection panel 5a. A second piece of sheet 22 integrating the head piece 32 is also obtained from said first board of corrugated cardboard or the like 20.

[0058] In the first piece of sheet 21, the first section 1a of the first wall panel 1 has an upper region 36 adjacent to an upper free edge from which side protrusions 35 project. The first and second sections 1a, 1b of the first wall panel 1 are connected to one another by a weakened line 52. The upper connection panel 5a has a rear edge connected to the second section 1b of the first wall panel 1 by a weakened line 56 and a front edge connected to the second wall panel 2 by another weakened line 25. The third and fourth wall panels 3, 4 are connected to side edges of the second wall panel 2 by respective weakened lines 26, 27. The head piece 32 integrated in the second piece of sheet 22 includes first projecting retaining elements 33 which are superimposed over said side protrusions 35 when the head piece is adhered to said upper region 36 of the first section 1a of the first wall panel 1.

[0059] The third and fourth wall panels 3, 4 have upper prolongations which in the working position (Figure 23) are adjacent to the first wall panel 1 forming the rear wall of the foldable display and reach a height proportional to the height of the first wall panel 1. In the first piece of sheet 21 (Figure 25), the third and fourth wall panels 3, 4 have upper edges connected to respective flaps 28, 29 by weakened lines 30, 31, and in the display said flaps 28, 29 are bent and adhered to an inner face of the respective third and fourth wall panels 3, 4. Furthermore, second retaining elements 34 in the form of a slit in which said first retaining elements 33 of the head piece 32 in the working position fit, are formed at the upper edges of the third and fourth wall panels 3, 4.

[0060] Figure 26 shows a non-printed second board of corrugated cardboard or the like 40 from which there is obtained a third piece of sheet 41 integrating the third section 1c of the first wall panel 1 and the lower connection panel 5b, and fourth and fifth pieces of sheet 42, 43 integrating first and second reinforcement panels 37, 38, respectively.

[0061] In the third piece of sheet 41 (Figure 26), the lower connection panel 5b has a rear edge connected to a lower edge of the third section 1c of the first wall panel 1 by a weakened line 57 and a front edge connected to a fixing tab 58 by a weakened line 59. The third section 1c of the first wall panel 1 has an upper edge connected to a fixing tab 60 by a weakened line 61.

[0062] In the fourth and fifth pieces of sheet 42, 43 (Figure 26), each of said first and second reinforcement panels 37, 38 has a fixing portion provided for being fixed to an inner face of the corresponding third and fourth wall panel 3, 4 and an hooking element 39 which is attached in an articulated manner to the rest of the reinforcement panel 37, 38 by a weakened line 44, such that said hooking elements 39 can freely pivot with respect to the respective first and second reinforcement panels 37, 38 and corresponding third and fourth wall panels 3, 4. The lower connection panel 5b has side recesses 62 the purpose of which is to allow tilting of the hooking elements 39 of the first and second reinforcement panels 37, 38

during folding and unfolding operations of the display and to house these hooking elements 39 in the working position.

[0063] Figure 24 illustrates the assembly of the first, second, third, fourth and fifth pieces of sheet 21, 22, 41, 42, 43 for forming the foldable display of the embodiment shown in Figures 23 to 29. To that end, the fixing tab 58 of the third piece of sheet 41 is adhered to an inner face of the second wall panel 2 of the first piece of sheet 21 such that an outer face of the lower connection panel 5b is flush with a lower edge of the second wall panel 2, and the fixing tab 60 of the third piece of sheet 41 is adhered to an inner face of the upper connection panel 5a of the first piece of sheet 21 such that an outer face of the third section 1c of the first wall panel 1 is aligned with an outer face of the second section 1b of the first wall panel 1.

[0064] Furthermore, the head piece 32 of the third piece of sheet 41 is adhered to the upper region 36 of the first section 1a of the first wall panel 1, and the fixing portions of the first and second reinforcement panels 37, 38 of the fourth and fifth pieces of sheet 42, 43 are adhered to the inner faces of the third and fourth wall panels 3, 4 of the first piece of sheet 21. Furthermore, elastic elements 70, such as rubber rings, are installed engaging the hooking elements 39 of the first and second reinforcement panels 37, 38.

[0065] Figures 27 to 29 illustrate folding and unfolding operations of the display of the embodiment shown in Figures 23 to 29, which are similar to those described above for other embodiments. In the folded position shown in Figure 29, the first section 1a of the first wall panel 1 with the head piece 32 are bent backwards over the outer face of the second and third sections 1b, 1c of the first wall panel 1, the second and third sections 1b, 1c of the first wall panel 1 and the upper and lower connection panels 5a, 5b are parallel to and superimposed over the inner face of the second wall panel 2, and the third and fourth wall panels 3, 4 are parallel to and superimposed over the outer face of the second wall panel 2.

[0066] In relation to Figures 30 to 34, now there is described a foldable display according to another additional embodiment of the present invention providing a pedestal, and comprising mutually parallel first and second wall panels 1, 2 which, unlike the preceding embodiments, in a working position (Figure 30) form front and rear walls, respectively, third and fourth wall panels 3, 4 which in the working position form opposite side walls, and three mutually parallel and superimposed connection panels 5a, 5b, 5c, the upper connection panel 5a of which in the working position forms an upper shelf of the pedestal, the intermediate connection panel 5b forms a lower shelf and the lower connection panel 5c performs a merely structural function. The first wall panel 1 has a window 63 through which the lower shelf is accessed.

[0067] Each of the three connection panels 5a, 5b, 5c has a front edge connected in an articulated manner to the first wall panel 1 and a rear edge connected to the second wall panel 2, such that the first and second wall panels 1, 2 and the three connection panels 5a, 5b, 5c form an articulated parallelogram configuration which can be moved between a working position (Figure 30) wherein the three connection panels 5a, 5b, 5c are perpendicular with respect to the first and second wall panels 1, 2, and a folded position (Figures 33 and 34) wherein the first wall panel 1 and the three connection panels 5a, 5b, 5c are substantially parallel to and superimposed over an inner face of the second wall panel 2.

[0068] The third and fourth wall panels 3, 4 have respective vertical edges connected in an articulated manner to first and second opposite vertical edges of the second wall panel 2, such that the third and fourth wall panels 3, 4 are foldable around said first and second vertical edges between the working position (Figure 30) wherein the third and fourth wall panels 3, 4 are substantially perpendicular with respect to the first and second wall panels 1, 2, closing a space defined between the first and second wall panels 1, 2 and the connection panels 5a, 5b, 5c, and the folded position (Figures 33 and 34) wherein the third and fourth wall panels 3, 4 are substantially parallel to and superimposed over an outer face of the second wall panel 2.

[0069] In the inner faces of the third and fourth wall panels 3, 4 there are hooking elements 39, and an elastic element 70, such as a rubber ring, engages the hooking elements 39 to pull the third and fourth wall panels 3, 4 towards the working position, thereby constituting retaining means retaining the display in the working position. The mentioned elastic element 70 is located between the intermediate connection panel 5b and the lower connection panel 5c such that it is concealed in the working position.

[0070] The upper connection panel 5a is sized such that it laterally projects in the working position (Figure 30) from the first, second, third and fourth wall panels 1, 2, 3, 4 and is supported on the upper edges thereof. Furthermore, at least the upper connection panel 3a and the first, second, third and fourth wall panels 1, 2, 3, 4 are made from several pieces of sheet of corrugated cardboard or the like having considerable thickness, so the pedestal can bear an item to be displayed having a relatively heavy weight.

[0071] In relation to Figures 35 to 38, now there is described a foldable display according to yet another additional embodiment of the present invention comprising mutually parallel first and second wall panels 1, 2 which, unlike the preceding embodiments, form side walls in a working position (Figure 30), a third wall panel 3 which forms a rear wall in the working position, and three mutually parallel and superimposed connection panels 5a, 5b, 5c forming three respective shelves. In this embodiment, the fourth wall panel has been omitted.

[0072] Each of the three connection panels 5a, 5b, 5c has a front edge connected in an articulated manner to the first wall panel 1 and a rear edge connected to the second wall panel 2, such that the first and second wall

panels 1, 2 and the three connection panels 5a, 5b, 5c form an articulated parallelogram configuration which can be moved between a working position (Figure 35) wherein the connection panels 5a, 5b, 5c are perpendicular with respect to the first and second wall panels 1, 2, and a folded position (Figure 38) wherein the first wall panel 1 and the three connection panels 5a, 5b, 5c are substantially parallel to and superimposed over an inner face of the second wall panel 2.

[0073] The third wall panel 3 has a vertical edge connected in an articulated manner to one of the opposite vertical edges of the second wall panel 2, such that the third wall panel 3 is foldable around the mentioned vertical edge between the working position (Figure 35) wherein the third wall panel 3 is substantially perpendicular with respect to the first and second wall panels 1, 2 providing a rear wall for the shelves formed by the connection panels 5a, 5b, 5c, and the folded position (Figure 38) wherein the third wall panel 3 is substantially parallel to and superimposed over an outer face of the second wall panel 2.

[0074] In the inner faces of the second and third wall panels 2, 3 there are hooking elements 39. Elastic elements 70, such as rubber rings, at one end engage the hooking elements 39 connected to the second wall panel 2 and at the other end engage the hooking elements 39 connected to the third wall panel 3, such that they pull the third wall panel 3 towards the working position, thereby constituting retaining means retaining the display in the working position. The mentioned elastic elements 70 are located adjacent to the lower faces of the connection panels 5a, 5b, 5c such that they are concealed by same in the working position.

[0075] Figure 39 shows a foldable display according to yet another additional embodiment of the present invention, which is similar in its entirety to the embodiment described above in relation to Figures 1 to 7, except in that the first and second wall panels 1, 2 forming the rear and front walls, respectively, and the connection panels 5a, 5b, 5c forming the shelves are buckled. More specifically, the rear and front walls are convex with respect to the front part of the display and the shelves are concave with respect to the upper part thereof. These concave shelves formed by the buckled connection panels 5a, 5b, 5c are suitable for given items to be displayed, such as bottles lying horizontally, for example. In Figure 39, the head piece 32 has been omitted for greater clarity of the drawing.

[0076] Figure 40 shows a first piece of sheet 21 made of corrugated cardboard or the like, which integrates the second, third and fourth wall panels 2, 3, 4 and the connection panels 5a, 5b, 5c. The first piece of sheet 21 is similar to the described above in relation to Figure 2, except in that the first weakened lines 24 connecting the first transverse edge of each of the connection panels 5a, 5b, 5c to the respective fixing tab 23 to be fixed to the first wall panel 1 and the second weakened lines 25 connecting the second transverse edge of each of the connection panels 5a, 5b, 5c to the corresponding horizontal band of the second wall panel 2 are concave with respect to the upper part thereof, and this determines that the first and second wall panels 1, 2 and the connection panels 5a, 5b, 5c adopt a buckled configuration when the connection panels 5a, 5b, 5c are moved from the folded position to the working position.

[0077] In the foldable display of Figure 39, the first wall panel 1, the reinforcement panels 37, 38 and the head piece 32, as well as the working of the display during folding and unfolding operations, are similar to those described above in relation to Figures 1 to 7.

[0078] Figure 41 shows a foldable display having a trapezoidal footprint the basic structure of which can be according to any of the embodiments of the foldable display of the present invention described up until now, or combinations thereof, in which the horizontal width of the first wall panel 1 forming the rear wall is less than the horizontal width of the second wall panel 2 forming the front wall, and the connection panels 5a, 5b, 5c, 5d are trapezoid-shaped. Accordingly, the third and fourth wall panels 3, 4 adopt inclined positions with respect to the first and second wall panels 1, 2 without this affecting the general working of the display during folding and unfolding operations.

[0079] Figure 42 shows a plan view of a possible grouping of eight of the displays having a trapezoidal footprint of Figure 41 to form an octagonal display island covering 360°. Obviously other groupings with a different number of displays and covering other angles are possible. By changing the angles of the trapezoidal configuration of the display, groupings of a different number of displays, even covering 360°, can be formed. It will be understood that the configuration having a trapezoidal footprint can be applied to a foldable display according to any of the possible embodiments of the present invention.

[0080] It will be understood that some of the features described above in association with one of the embodiments of the present invention can also be applied to other embodiments of the present invention, and that two or more of the embodiments of the present invention can be combined with one another to give rise to new variants.

[0081] It must be pointed out that the panels forming the foldable display according to any possible embodiment of the present invention can be separate pieces of sheet or can be grouped in pieces of sheet different from that described above. Likewise, the different pieces of sheet can be obtained from one or more boards of corrugated cardboard or the like, which can all be previously printed, or one or more can be previously printed and one or more non-printed, and they can even all be non-printed.

[0082] Figures 43 to 46 and Figures 47 to 50 illustrate a simple hinge element 64 and a complex hinge element 65, respectively, which can be applied to a foldable display of corrugated cardboard or the like according to any one of the possible embodiments of the present invention, especially if a corrugated cardboard having consid-

erable thickness is used in the construction thereof, although they can also be applied to any other construction made of pieces of sheet of corrugated cardboard or the like attached in an articulated manner.

[0083] The mentioned simple and complex hinge elements 64, 65, which are shown in their extended positions in Figures 43 and 47, respectively, comprise a strip of flexible material, such as a plastic, a plasticized paper, a textile, a plasticized textile, and the like, showing good tear and fatigue fracture strength when it is repeatedly bent in opposite directions along a bend line.

[0084] As shown in Figure 43, the simple hinge element 64 has a single central bend line 66 longitudinally splitting the strip in two halves. In use, the simple hinge element 64 is bent along said central bend line 66 (Figure 44), and one of the halves of the strip is adhered to a first piece of sheet A and the other one of the halves of the strip is adhered to a second piece of sheet B.

[0085] Figure 45 shows an application of the simple hinge element 64 where the halves of the strip are adhered to the first and second pieces of sheet A, B in positions such that the central bend line 66 is adjacent to an edge of the first piece of sheet A and spaced from an edge of the second piece of sheet B. This arrangement allows a relative rotation of 90° between a position wherein the first and second pieces of sheet A, B are mutually parallel and superimposed (on the left side of Figure 45) and a position wherein the first and second pieces of sheet A, B are mutually perpendicular and a portion of the second piece of sheet B is supported on a flat edge of the first piece of sheet A (on the right side of Figure 45).

[0086] Figure 46 shows another application of the simple hinge element 64 where the halves of the strip are adhered to the first and second pieces of sheet A, B in positions such that the central bend line 66 is adjacent to respective edges of both first and second pieces of sheet A, B. This arrangement allows a relative rotation of 180° between a position wherein the first and second pieces of sheet A, B are mutually parallel and superimposed (on the left side of Figure 46) and a position wherein the first and second pieces of sheet A, B are mutually aligned and a flat edge of the second piece of sheet B is supported on a flat edge of the first piece of sheet A (on the right side of Figure 46).

[0087] As shown in Figure 47, the complex hinge element 65 has two parallel bend lines 67, 68 longitudinally splitting the strip in two end thirds and a central third. In use, the complex hinge element 65 is bent along both bend lines 67, 68 (Figure 48), and one of the end thirds of the strip is adhered to a first piece of sheet A and the other one of the end thirds of the strip is adhered to a second piece of sheet B.

[0088] Figure 49 shows an application of the complex hinge element 65 where the surfaces of one and the same face of the two end thirds of the strip are adhered to flat edges of the first and second pieces of sheet A, B. This arrangement allows a relative rotation of 270° between a position wherein the first and second pieces of sheet A, B are mutually perpendicular, with the flat edge of the second piece of sheet B supported on a face of the first piece of sheet A (on the left side of Figure 49), and a position wherein the first and second pieces of sheet A, B are mutually parallel, whether they are superimposed (in the top right part of Figure 49) or spaced apart by the width of the central third of the strip (in the bottom right part of Figure 49).

[0089] Figure 50 shows an application of the complex hinge element 65 where the surfaces of opposite faces of the two end thirds of the strip are adhered to flat edges of the first and second pieces of sheet A, B. This arrangement allows a relative rotation of 360° between a position wherein the first and second pieces of sheet A, B are mutually parallel and superimposed (on the left side of Figure 50), and a position wherein the first and second pieces of sheet A, B are likewise parallel and superimposed, although in inverse positions (on the right side of Figure 50).

[0090] The main advantage of the simple and complex hinge elements 64, 65 described above is that they provide hinged attachments between pieces of sheet of corrugated cardboard or the like without having to use weakened lines, for example score lines, crushing the internal structure of the corrugated cardboard or the like and destroying its strength capacity at the crushed edges, conserving flat edges capable of providing firm support for other adjacent pieces of sheet.

[0091] Figures 51 to 54 illustrate another additional embodiment of the foldable display of the present invention, which is essentially identical to the embodiment described above in relation to Figures 1 to 7, except in that the foldable display of Figures 51 to 54 includes a base platform panel 71 connected in an articulated manner to lower ends of the first and second wall panels 1, 2 by means of a base connection panel 72 and an elastic band 73. The mentioned base platform panel 71 has dimensions greater than the footprint of the foldable display in the working position (Figure 51) to provide additional stability to the display.

[0092] The base platform panel has cutouts 74 defining hooking elements 75 (Figure 52) which, in the working position, are inscribed within the footprint of the foldable display and accordingly concealed. The base connection panel 72 has at two of its opposite ends attachment flaps 76 provided for being adhered to the first and second wall panels 1, 2, and at the other two opposite ends cutouts defining corresponding hooking elements 77 which are conjugated with the mentioned hooking elements 75 of the base platform panel 71 when the base connection panel 72 is superimposed over the base platform panel 71.

[0093] In an operative situation (Figure 53), the attachment flaps 76 of the base connection panel 72 are bent upwards and adhered to the lower edges of the first and second wall panels 1, 2 such that the base connection panel 72 is substantially flush with the ground. The elastic band 73, which is in the form of a rubber ring, for example,

is arranged above the base connection panel 72 and engaging at the ends thereof both the hooking elements 77 of the base connection panel 72 and the hooking elements 75 of the base platform panel 71 to connect the base platform panel 71 to the foldable display (Figure 53).

[0094] Figure 54 shows the foldable display in the folded position, which is similar to the one described above in relation to the embodiment of Figures 1 to 7, although here the base platform panel 71 slightly projects from the sides and below the rest of superimposed panels of the foldable display.

[0095] The scope of the present invention is defined in the attached claims.

Claims

1. A foldable display made of corrugated cardboard or the like, comprising:

first and second mutually parallel and opposite wall panels (1, 2);
at least two mutually parallel connection panels (5a, 5b, 5c), each of which has a first transverse edge connected in an articulated manner to said first wall panel (1) and a second transverse edge connected in an articulated manner to said second wall panel (2), where the first and second wall panels (1, 2) and said at least two connection panels (5a, 5b, 5c) form a an articulated parallelogram configuration which can be moved between:

- a working position wherein the connection panels (5a, 5b, 5c) are perpendicular or inclined with respect to the first and second wall panels (1, 2); and
- a folded position wherein the first wall panel (1) and the connection panels (5a, 5b, 5c) are substantially parallel to and superimposed over an inner face of the second wall panel (2);

at least one third wall panel (3) having an edge connected in an articulated manner to a first longitudinal edge (26) of the second wall panel (2); and
retaining means retaining said first, second and third wall panels (1, 2, 3) and the at least two connection panels (5a, 5b, 5c) in said working position;
characterized in that said third wall panel (3) is foldable around said first longitudinal edge (26) between:

- a working position wherein the third wall panel (3) is substantially perpendicular or inclined with respect to the first and second wall panels (1, 2), closing a space defined between the first and second wall panels (1, 2) and the connection panels (5a, 5b, 5c); and
- a folded position wherein the third wall panel (3) is substantially parallel to and superimposed over an outer face of the second wall panel (2).

2. The foldable display according to claim 1, **characterized in that** it includes a fourth wall panel (4) having a first longitudinal edge connected in an articulated manner to a second longitudinal edge (27) of the second wall panel (2) opposite said first longitudinal edge (26), where the fourth wall panel (4) can be folded around said second longitudinal edge (27) between:

- a working position wherein the fourth wall panel (4) is substantially perpendicular or inclined with respect to the first and second wall panels (1, 2), closing a space defined between the first and second wall panels (1, 2) and the connection panels (5a, 5b, 5c); and
- a folded position wherein the fourth wall panel (4) is substantially parallel to and superimposed over an outer face of the second wall panel (2) together with the third wall panel (3).

3. The foldable display according to claim 2, **characterized in that** the second, third and fourth wall panels (2, 3, 4) are integral parts of a first piece of sheet (21) made of corrugated cardboard or the like.

4. The foldable display according to claim 3, **characterized in that** the connection panels (5a, 5b, 5c) are also integral parts of said first piece of sheet (21) and are cut in the second wall panel (2).

5. The foldable display according to claim 4, **characterized in that** said first transverse edge of each of the connection panels (5a, 5b, 5c) is connected to a respective fixing tab (23) by a first weakened line (24), said fixing tab (23) is fixed to the first wall panel (1) by fixing means, and said second transverse edge of each of the connection panels (5a, 5b, 5c) is connected to the second wall panel (2) by a second weakened line (25).

6. The foldable display according to claim 3, **characterized in that** at least one of the connection panels (5a, 5b, 5c) is made up of an additional piece of sheet (47) made of corrugated cardboard or the like integrating a first fixing tab (48) connected by a first weakened line (49) to said first transverse edge of the connection panel (5a, 5b, 5c), and a second fixing tab (50) connected by a second weakened line (1) to said second transverse edge of the connection

panel (5a, 5b, 5c), where said first fixing tab (48) is fixed to the first wall panel (1) by fixing means and said second fixing tab (50) is fixed to the second wall panel (2) by fixing means.

7. The foldable display according to claim 3 or 4, **characterized in that** said retaining means comprise a head piece (32) having first retaining elements (33) which fit and are interlocked in second retaining elements (34) formed in the third and fourth wall panels (3, 4) when they are in the working position.

8. The foldable display according to claim 7, **characterized in that** said head piece (32) is made up of a second piece of sheet (22) made of corrugated cardboard or the like, and said first and second pieces of sheet (21, 22) are cut from a previously printed first board of corrugated cardboard or the like (20).

9. The foldable display according to claim 7 or 8, **characterized in that** said head piece (32) is fixed to the first wall panel (1) by fixing means.

10. The foldable display according to claim 9, **characterized in that** the first wall panel (1) has a transverse fold line (52) around which a portion of the first wall panel (1) in which the head piece (32) is fixed can be bent in the folded position.

11. The foldable display according to claim 3 or 4, **characterized in that** the first wall panel (1) is formed by a third piece of sheet (41) made of corrugated cardboard or the like.

12. The foldable display according to claim 11, **characterized in that** the third and fourth wall panels (3, 4) have respective first and second reinforcement panels (37, 38) adhered to inner faces thereof, said first and second reinforcement panels (37, 38) have hooking elements (39) attached thereto in an articulated manner by weakened lines (44), and elastic elements (70) are connected to said hooking elements (39) of the first and second reinforcement panels (37, 38).

13. The foldable display according to claim 12, **characterized in that** said first and second reinforcement panels (37, 38) are formed by respective fourth and fifth pieces of sheet (42, 43) made of corrugated cardboard or the like, and said third, fourth and fifth pieces of sheet (41, 42, 43) are cut from a second board of corrugated cardboard or the like (40).

14. The foldable display according to claim 12 or 13, **characterized in that** the third and fourth wall panels (3, 4) have upper edges connected to respective flaps (28, 29) by weakened lines (30, 31), and said flaps (28, 29) are bent and adhered to an inner face of the respective third and fourth wall panels (3, 4).

15. The foldable display according to claim 14, **characterized in that** said first and second reinforcement panels (37, 38) have cutouts (45, 46) in which the flaps (28, 29) fit.

16. The foldable display according to any one of claims 2 to 15, **characterized in that** said first wall panel (1) forms a rear wall, said second wall panel (2) forms a front wall, said third and fourth wall panels (3, 4) form side walls, and at least one of said connection panels (5a, 5b, 5c) forms a shelf.

17. The foldable display according to any one of claims 2 to 15, **characterized in that** said first wall panel (1) forms a front wall, said second wall panel (2) forms a rear wall, said third and fourth wall panels (3, 4) form side walls, and at least one of said connection panels (5a, 5b, 5c) forms a shelf.

18. The foldable display according to claim 1, **characterized in that** said first and second wall panels (1, 2) form side walls, said third wall panel (3) forms a rear wall, and at least one of said connection panels (5a, 5b, 5c) forms a shelf.

19. The foldable display according to claim 2, **characterized in that** it includes a base platform panel (71) having dimensions greater than the footprint of the foldable display in the working position, said base platform panel (71) being connected in an articulated manner to lower ends of the first and second wall panels (1, 2) by means of a base connection panel (72) and an elastic band (73).

20. The foldable display according to claim 19, **characterized in that** the base platform panel (71) has cutouts (74) defining hooking elements (75) and the base connection panel (72) has at two of its opposite ends attachment flaps (76) adhered to the first and second wall panels (1, 2) and it has at the other two opposite ends hooking elements (77) which are conjugated with said hooking elements (75) of the base platform panel (71) when the base connection panel (72) is superimposed over the base platform panel (71), and the elastic band (73) is arranged above the base connection panel (72) and has its ends engaging both the hooking elements (77) of the base connection panel (72) and the hooking elements (75) of the base platform panel (71).

Amended claims under Art. 19.1 PCT

1. A foldable display made of corrugated cardboard or the like, comprising:

first and second mutually parallel and opposite wall panels (1, 2);
at least two mutually parallel connection panels (5a, 5b, 5c), each of which has a first transverse edge connected in an articulated manner to said first wall panel (1) and a second transverse edge connected in an articulated manner to said second wall panel (2), where the first and second wall panels (1, 2) and said at least two connection panels (5a, 5b, 5c) form an articulated parallelogram configuration which can be moved between:

- a working position wherein the connection panels (5a, 5b, 5c) are perpendicular or inclined with respect to the first and second wall panels (1, 2); and
- a folded position wherein the first wall panel (1) and the connection panels (5a, 5b, 5c) are substantially parallel to and superimposed over an inner face of the second wall panel (2);

a third wall panel (3) having an edge connected in an articulated manner to a first longitudinal edge (26) of the second wall panel (2) and a fourth wall panel (4) having a first longitudinal edge connected in an articulated manner to a second longitudinal edge (27) of the second wall panel (2) opposite said first longitudinal edge (26), where said third and fourth wall panels (3) are foldable, respectively, around said first and second longitudinal edges (26, 27) between:

- a working position wherein the third and fourth wall panels (3) are substantially perpendicular or inclined with respect to the first and second wall panels (1, 2), closing a space defined between the first and second wall panels (1, 2) and the connection panels (5a, 5b, 5c); and
- a folded position wherein the third and fourth wall panels (3) are substantially parallel to and superimposed over one another and substantially parallel to and superimposed over an outer face of the second wall panel (2); and

retaining means retaining said first, second, third and fourth wall panels (1, 2, 3, 4) and the at least two connection panels (5a, 5b, 5c) in said working position;
characterized in that the third and fourth wall panels (3, 4) have hooking elements (39) and said retaining means comprise at least one elastic element (70) connected to said hooking elements (39), where said elastic element (70) pulls the third and fourth wall panels (3, 4) towards the working position.

2. The foldable display according to claim 1, **characterized in that** the second, third and fourth wall panels (2, 3, 4) are integral parts of a first piece of sheet (21) made of corrugated cardboard or the like.

3. The foldable display according to claim 2, **characterized in that** the connection panels (5a, 5b, 5c) are also integral parts of said first piece of sheet (21) and are cut in the second wall panel (2).

4. The foldable display according to claim 3, **characterized in that** said first transverse edge of each of the connection panels (5a, 5b, 5c) is connected to a respective fixing tab (23) by a first weakened line (24), said fixing tab (23) is fixed to the first wall panel (1) by fixing means, and said second transverse edge of each of the connection panels (5a, 5b, 5c) is connected to the second wall panel (2) by a second weakened line (25).

5. The foldable display according to claim 2, **characterized in that** at least one of the connection panels (5a, 5b, 5c) is made up of an additional piece of sheet (47) made of corrugated cardboard or the like integrating a first fixing tab (48) connected by a first weakened line (49) to said first transverse edge of the connection panel (5a, 5b, 5c), and a second fixing tab (50) connected by a second weakened line (51) to said second transverse edge of the connection panel (5a, 5b, 5c), where said first fixing tab (48) is fixed to the first wall panel (1) by fixing means and said second fixing tab (50) is fixed to the second wall panel (2) by fixing means.

6. The foldable display according to claim 2 or 3, **characterized in that** said retaining means further comprise a head piece (32) having first retaining elements (33) which fit and are interlocked in second retaining elements (34) formed in the third and fourth wall panels (3, 4) when they are in the working position.

7. The foldable display according to claim 6, **characterized in that** said head piece (32) is made up of a second piece of sheet (22) made of corrugated cardboard or the like, and said first and second pieces of sheet (21, 22) are cut from a previously printed first board of corrugated cardboard or the like (20).

8. The foldable display according to claim 6 or 7, **characterized in that** said head piece (32) is fixed to the first wall panel (1) by fixing means.

9. The foldable display according to claim 8, **characterized in that** the first wall panel (1) has a transverse fold line (52) around which a portion of the first

wall panel (1) in which the head piece (32) is fixed can be bent in the folded position.

10. The foldable display according to claim 2 or 3, **characterized in that** the first wall panel (1) is formed by a third piece of sheet (41) made of corrugated cardboard or the like.

11. The foldable display according to claim 1, **characterized in that** the third and fourth wall panels (3, 4) have respective first and second reinforcement panels (37, 38) adhered to inner faces thereof, and said first and second reinforcement panels (37, 38) have said hooking elements (9) attached thereto in an articulated manner by weakened lines (44).

12. The foldable display according to claim 11, **characterized in that** said first and second reinforcement panels (37, 38) are formed by respective fourth and fifth pieces of sheet (42, 43) made of corrugated cardboard or the like, and said third, fourth and fifth pieces of sheet (41, 42, 43) are cut from a second board of corrugated cardboard or the like (40).

13. The foldable display according to claim 11 or 12, **characterized in that** the third and fourth wall panels (3, 4) have upper edges connected to respective flaps (28, 29) by weakened lines (30, 31), and said flaps (28, 29) are bent and adhered to an inner face of the respective third and fourth wall panels (3, 4).

14. The foldable display according to claim 13, **characterized in that** said first and second reinforcement panels (37, 38) have cutouts (45, 46) in which the flaps (28, 29) fit.

15. The foldable display according to any one of claims 1 to 14, **characterized in that** said first wall panel (1) forms a rear wall, said second wall panel (2) forms a front wall, said third and fourth wall panels (3, 4) form side walls, and at least one of said connection panels (5a, 5b, 5c) forms a shelf.

16. The foldable display according to any one of claims 1 to 14, **characterized in that** said first wall panel (1) forms a front wall, said second wall panel (2) forms a rear wall, said third and fourth wall panels (3, 4) form side walls, and at least one of said connection panels (5a, 5b, 5c) forms a shelf.

17. The foldable display according to the claim 1, **characterized in that** it includes a base platform panel (71) having dimensions greater than the footprint of the foldable display in the working position, said base platform panel (71) being connected in an articulated manner to lower ends of the first and second wall panels (1, 2) by means of a base connection panel (72) and an elastic band (73).

18. The foldable display according to claim 17, **characterized in that** the base platform panel (71) has cutouts (74) defining hooking elements (75) and the base connection panel (72) has at two of its opposite ends attachment flaps (76) adhered to the first and second wall panels (1,2) and it has at the other two opposite ends hooking elements (77) which are conjugated with said hooking elements (75) of the base platform panel (71) when the base connection panel (72) is superimposed over the base platform panel (71), and the elastic band (73) is arranged above the base connection panel (72) and has its ends engaging both the hooking elements (77) of the base connection panel (72) and the hooking elements (75) of the base platform panel (71).

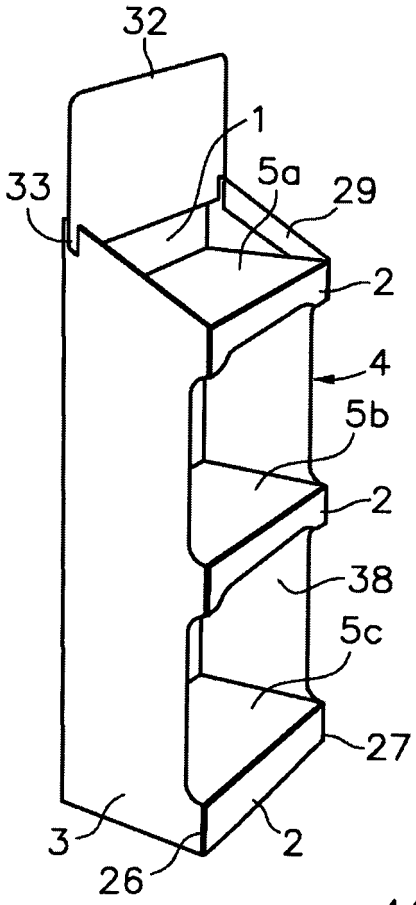

Fig.1

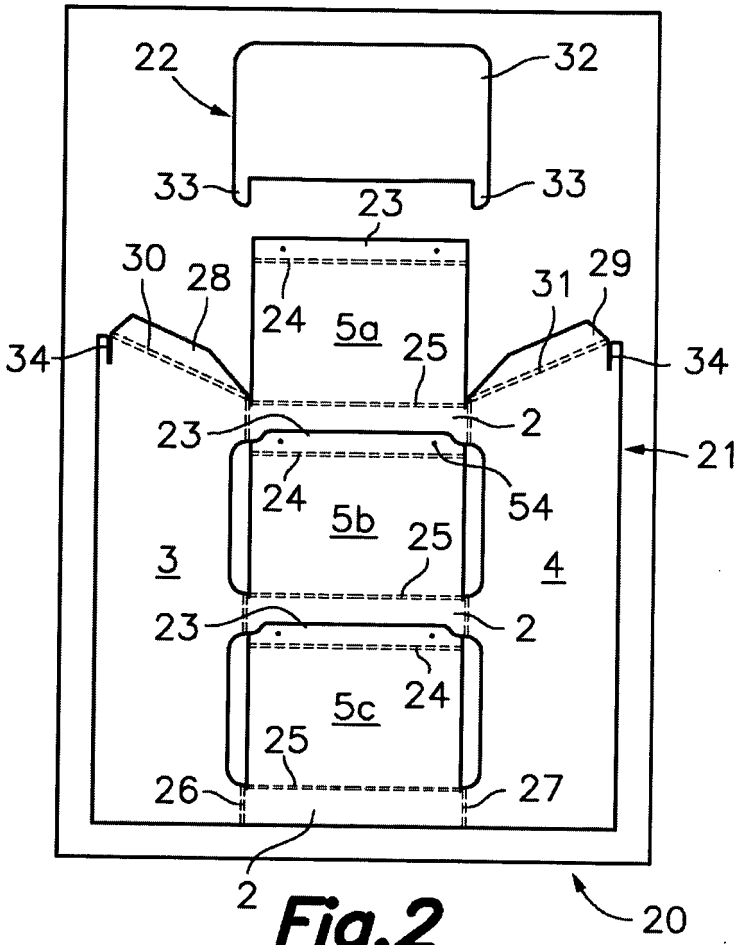

Fig.2

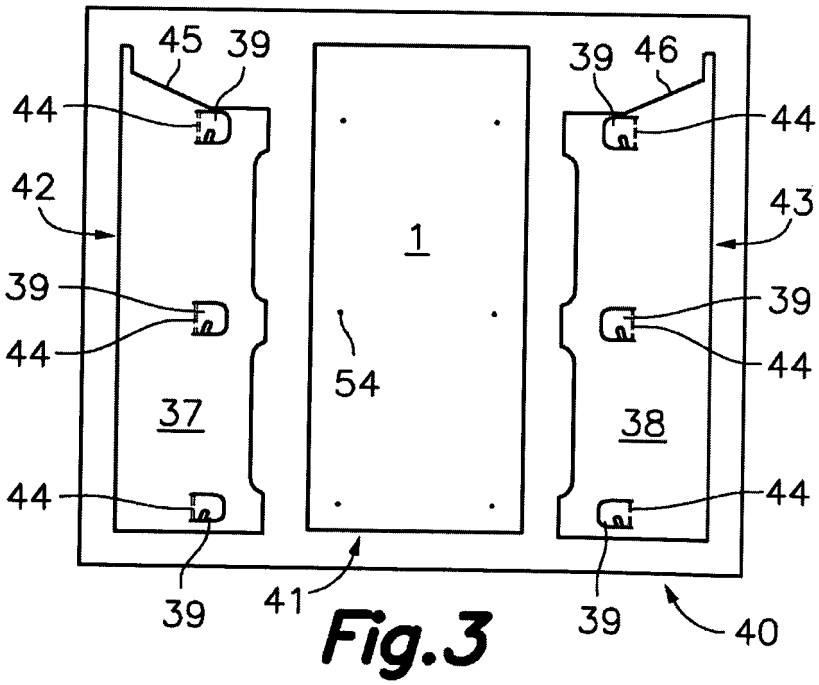

Fig.3

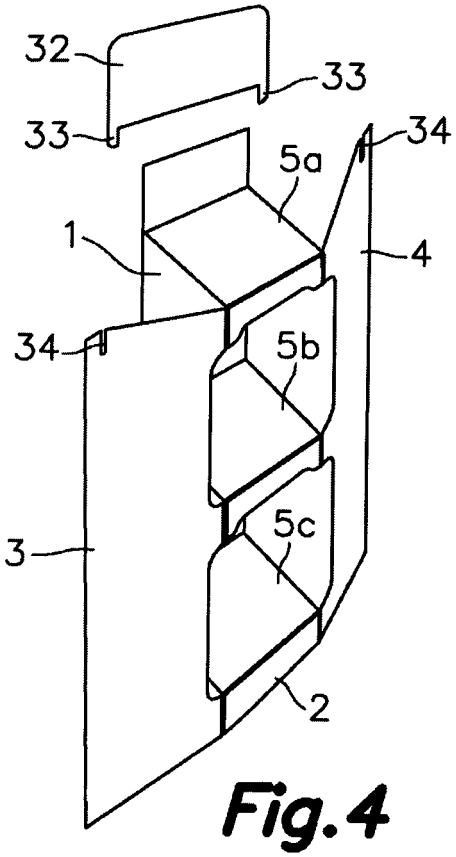

Fig.4

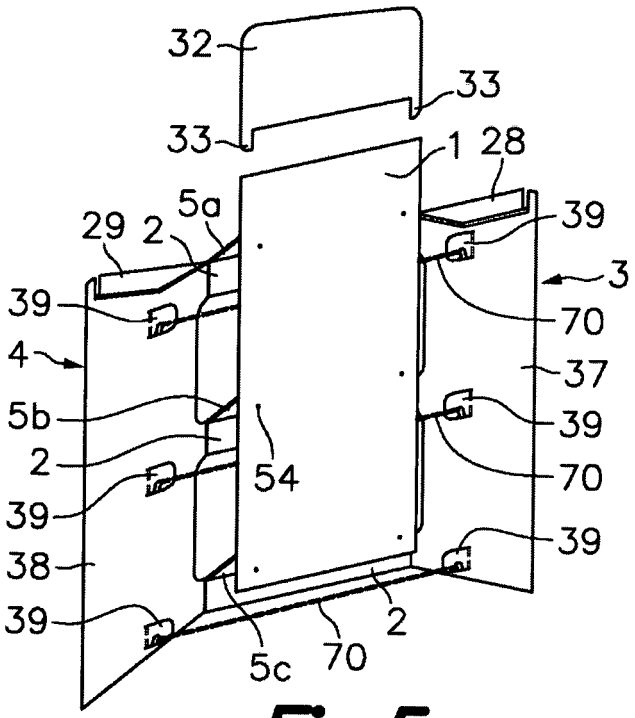

Fig.5

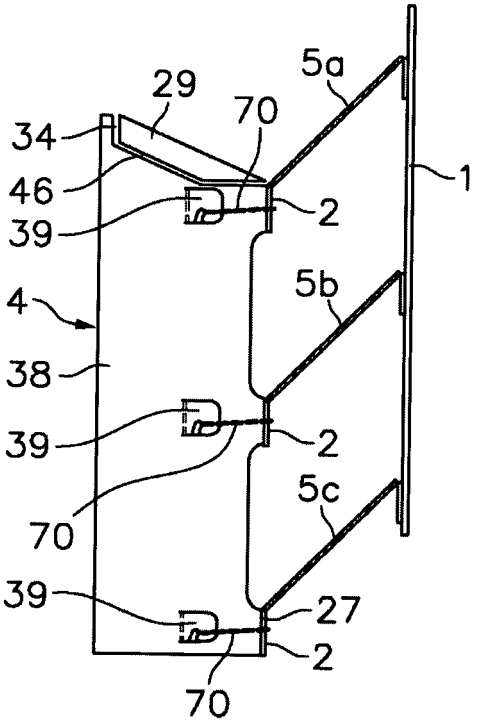

Fig.6

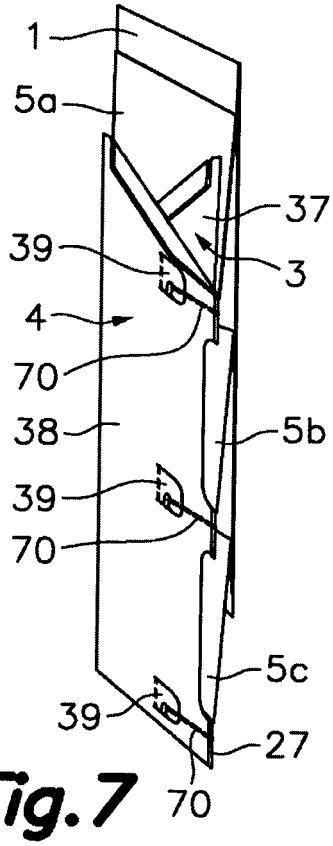

Fig.7

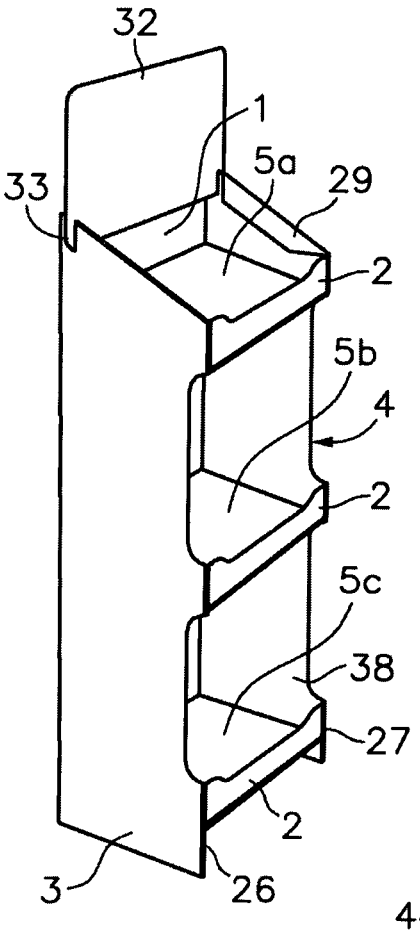

Fig.8

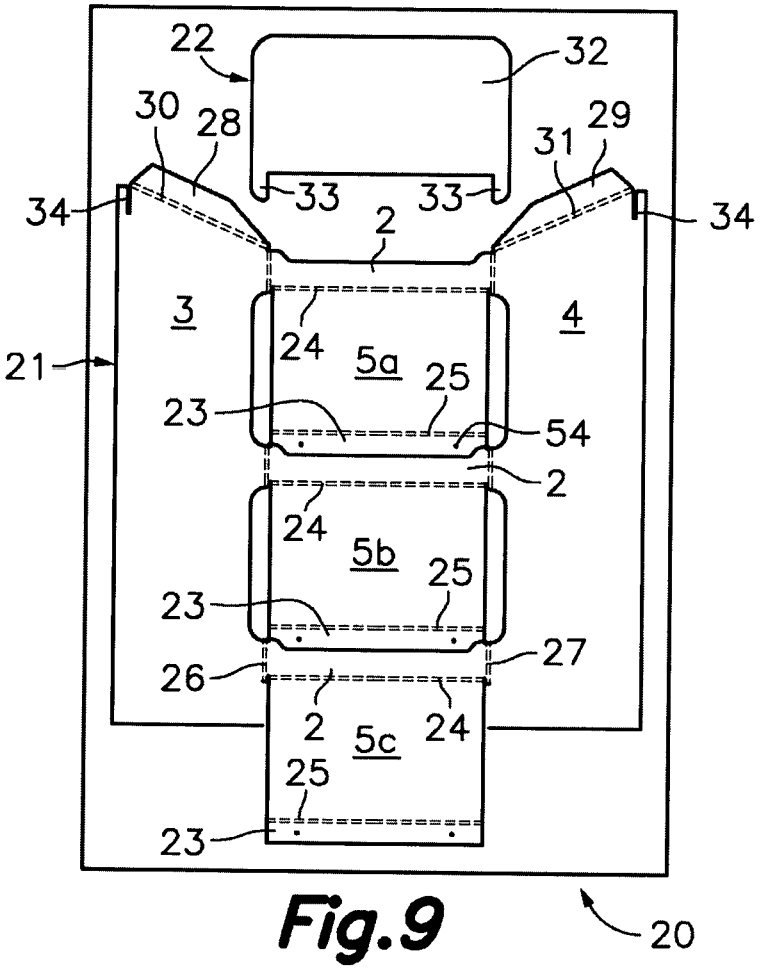

Fig.9

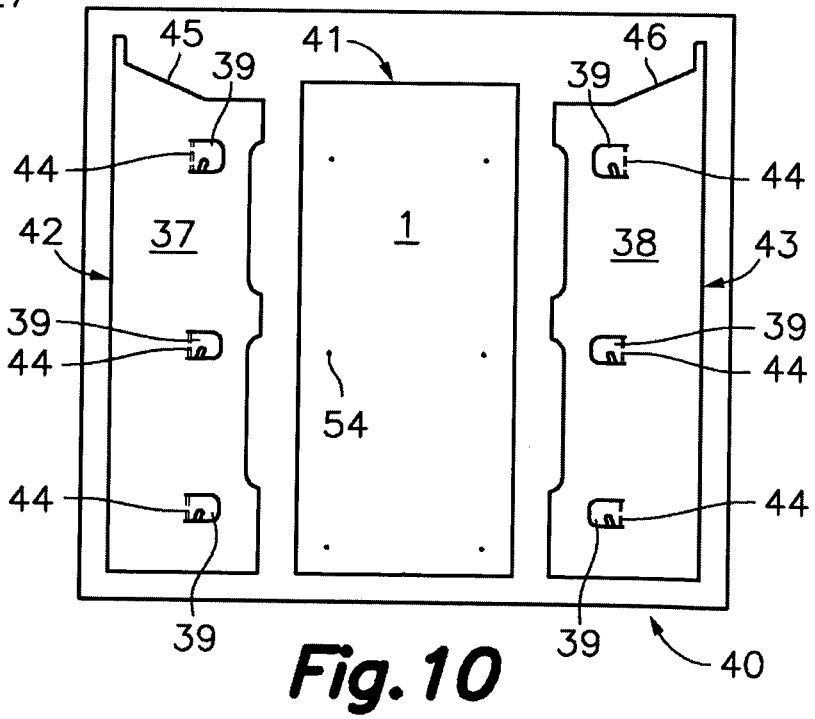

Fig.10

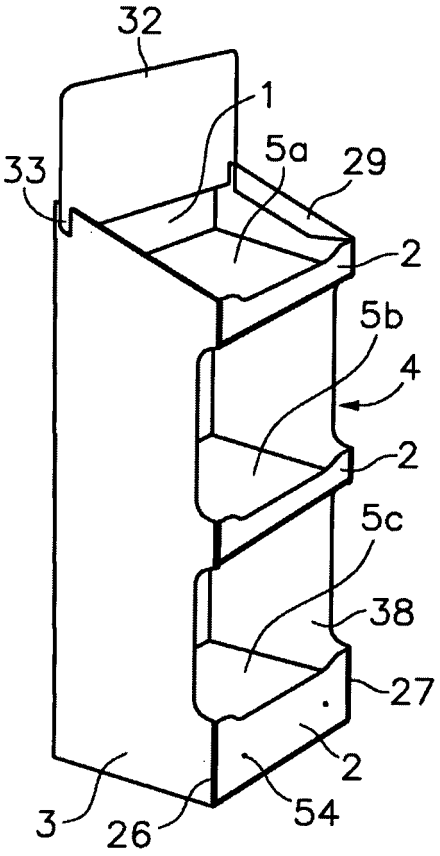
32
1
33
5a
29
2
5b
4
2
5c
38
27
2
3
26
54

Fig. 11

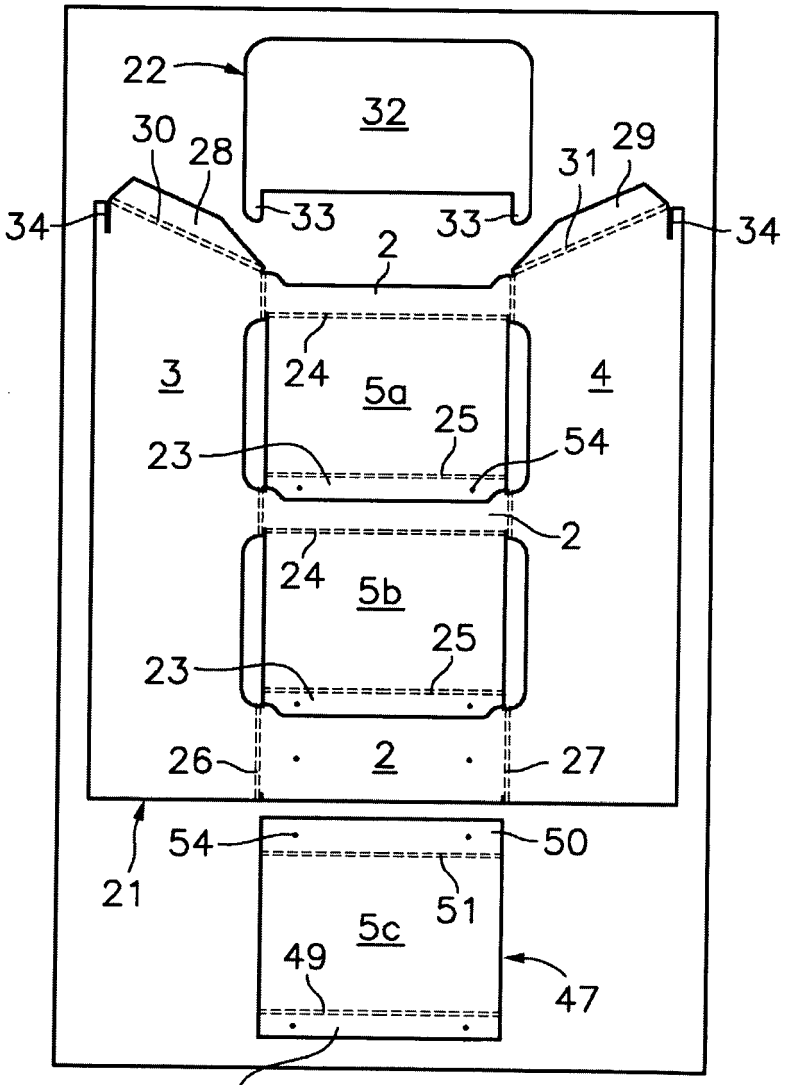
22
32
30
28
31
29
34
33
33
34
2
3
24
5a
25
4
23
54
2
24
5b
25
23
26
2
27
21
54
50
51
5c
49
47
48
20

Fig. 12

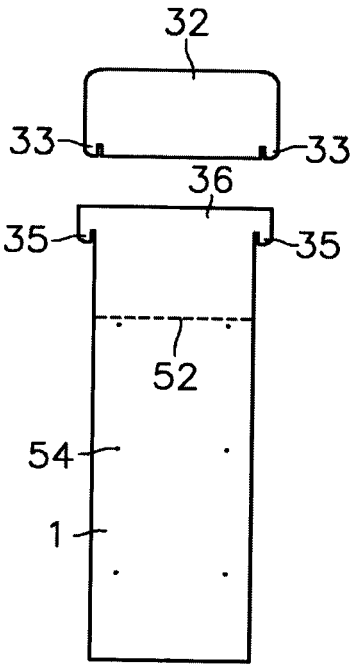

Fig. 13

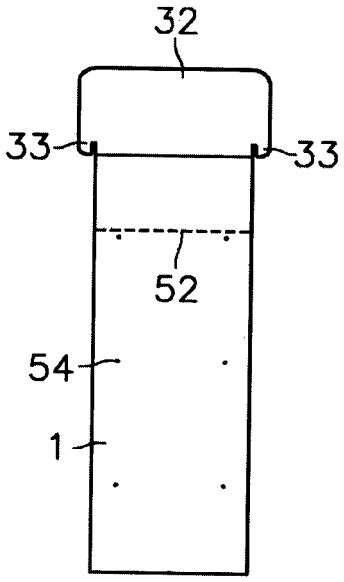

Fig. 14

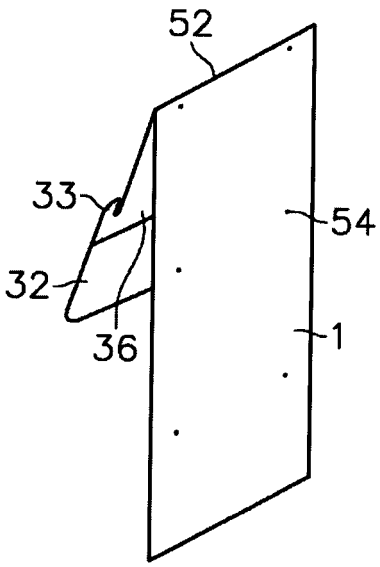

Fig. 15

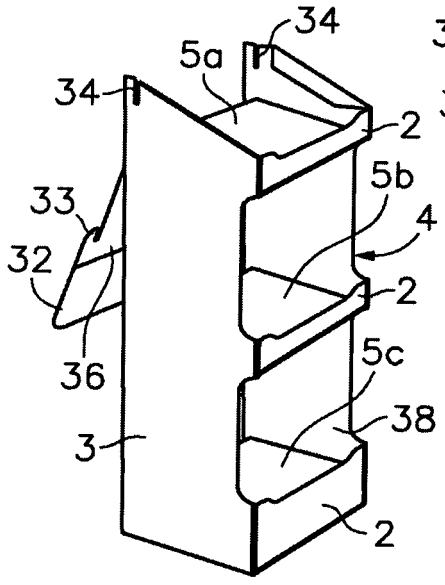

Fig. 16

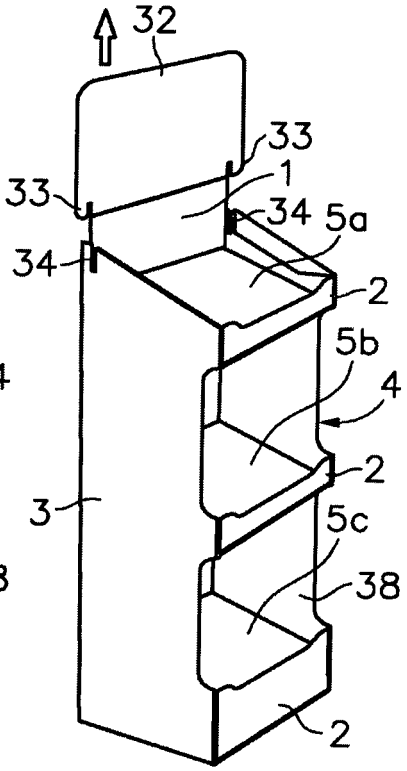

Fig. 17

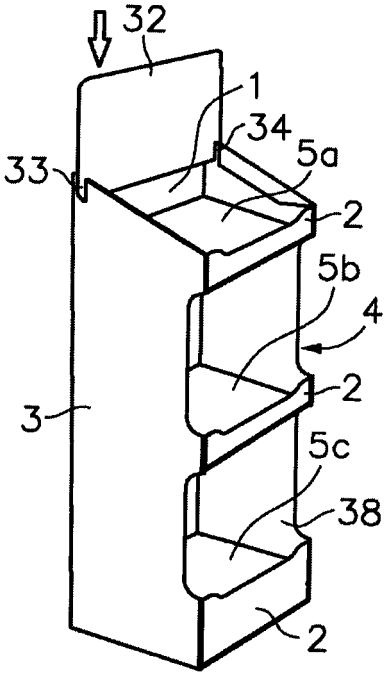

Fig. 18

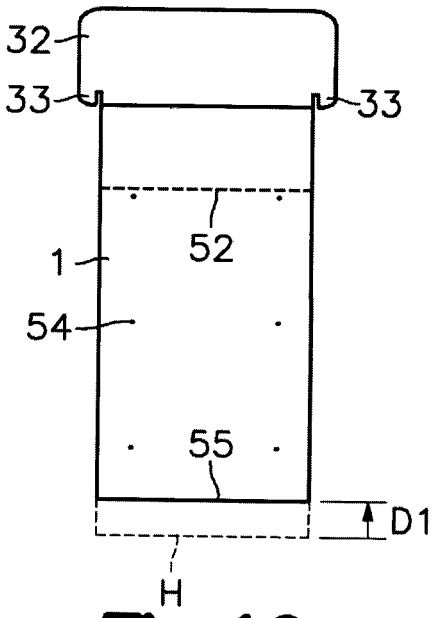

Fig.19

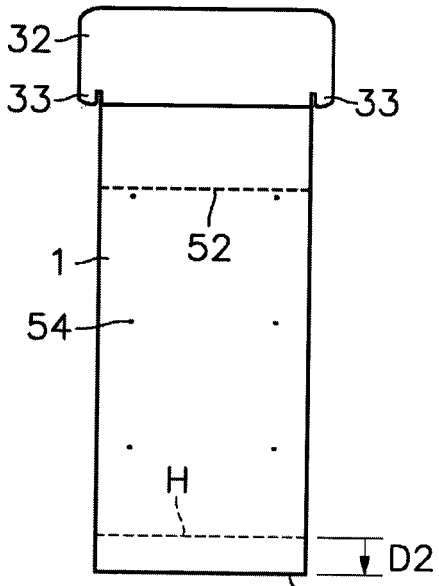

Fig.21

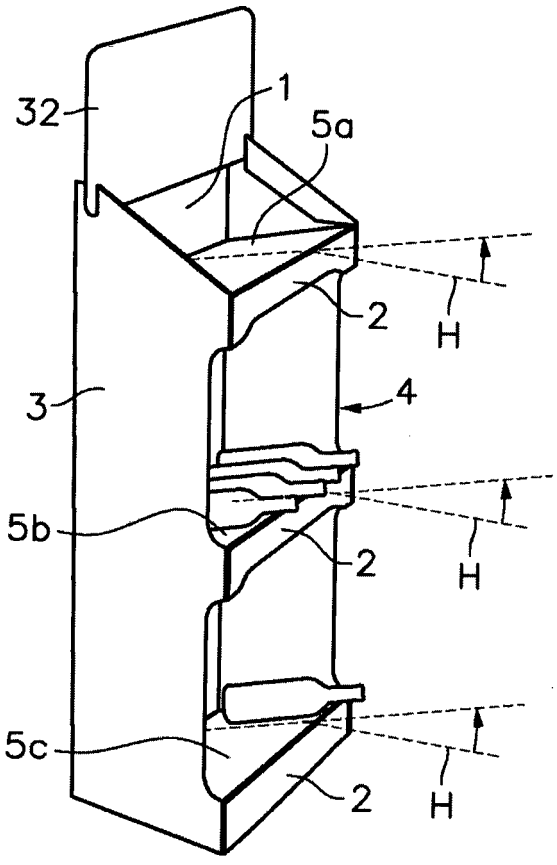

Fig.20

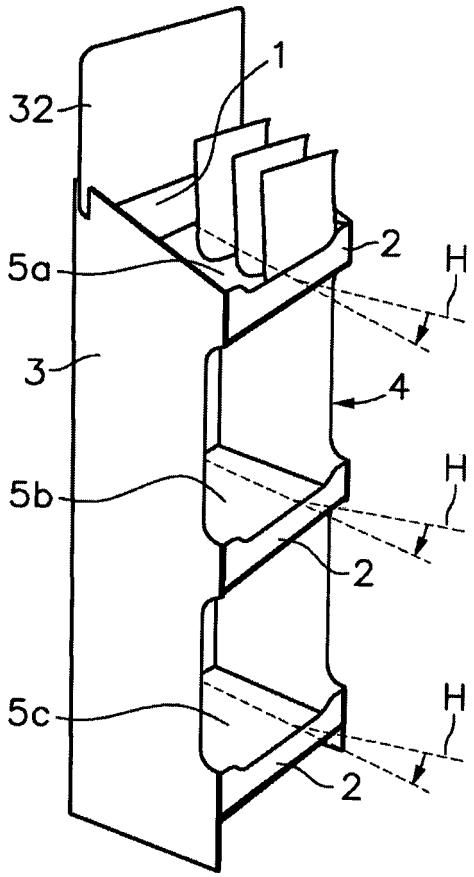

Fig.22

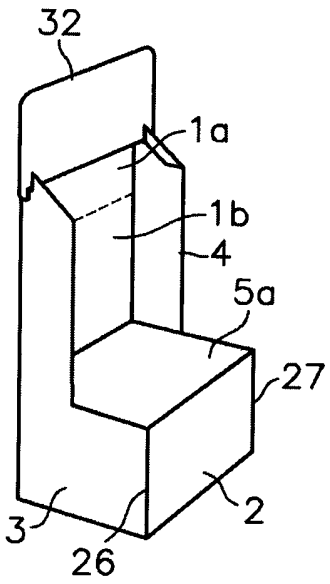

Fig.23

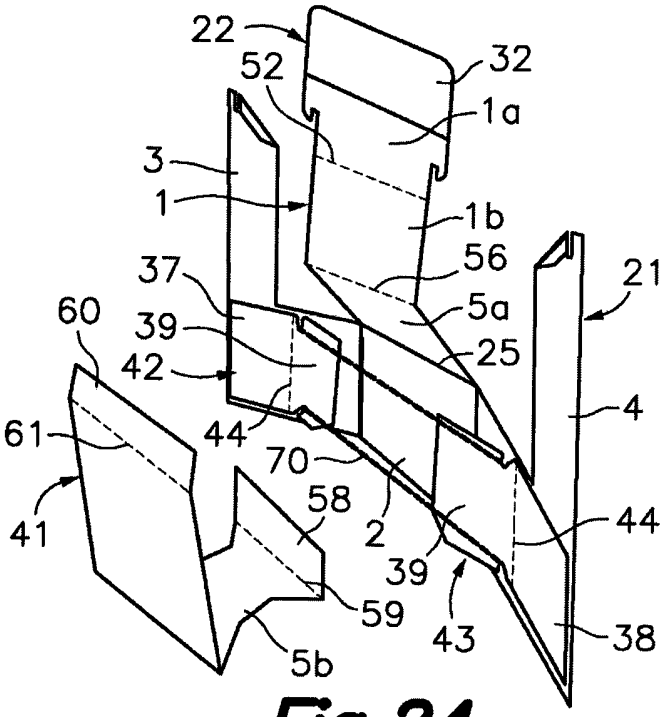

Fig.24

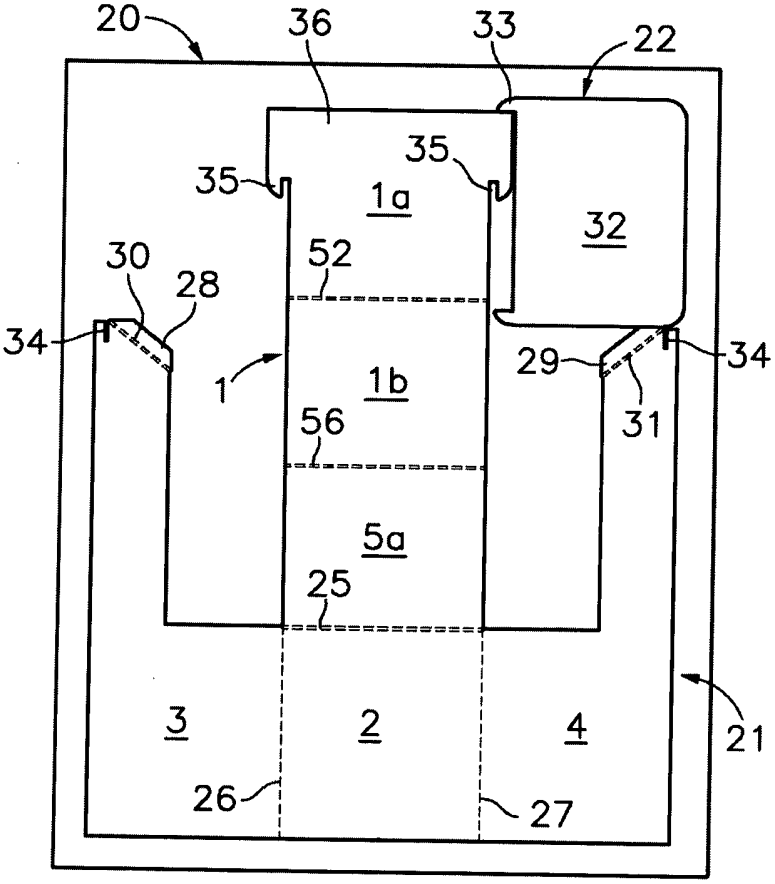

Fig.25

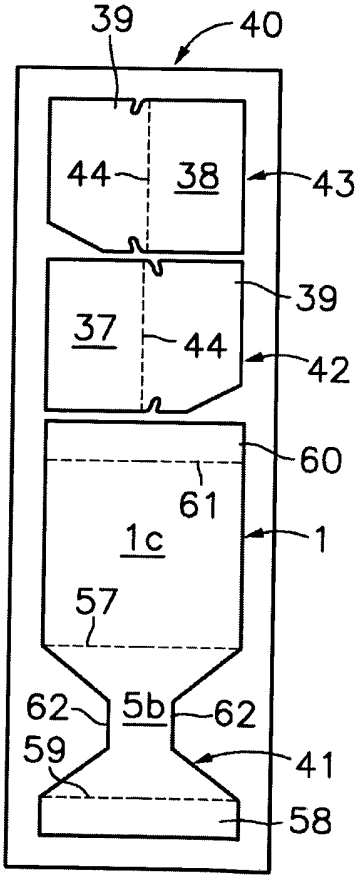

Fig.26

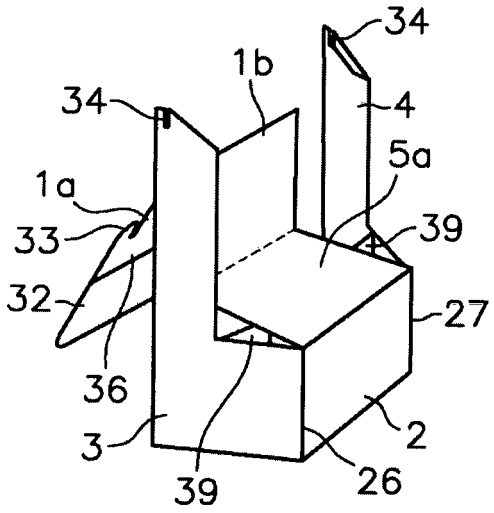

Fig.27

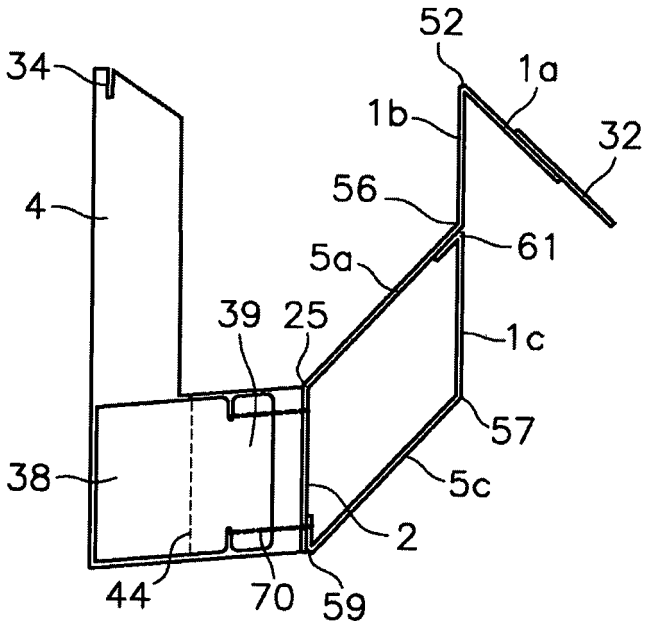

Fig.28

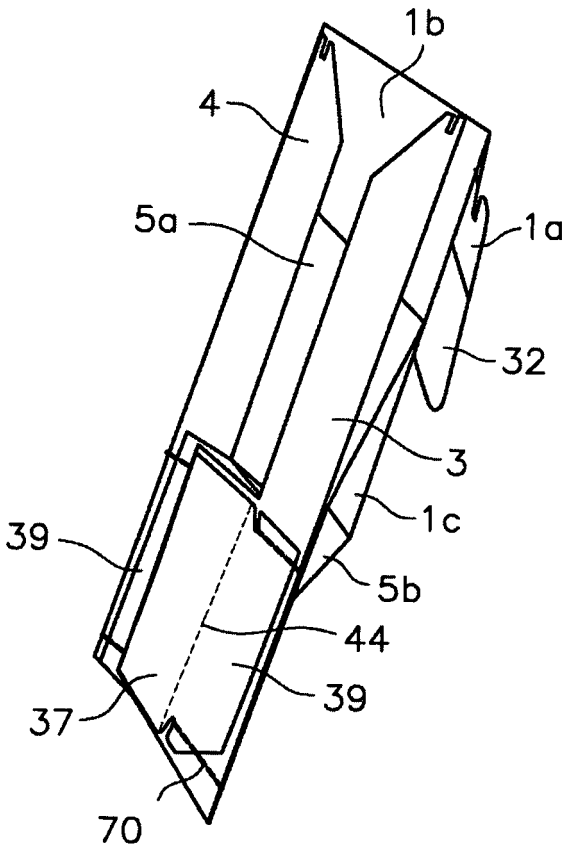

Fig.29

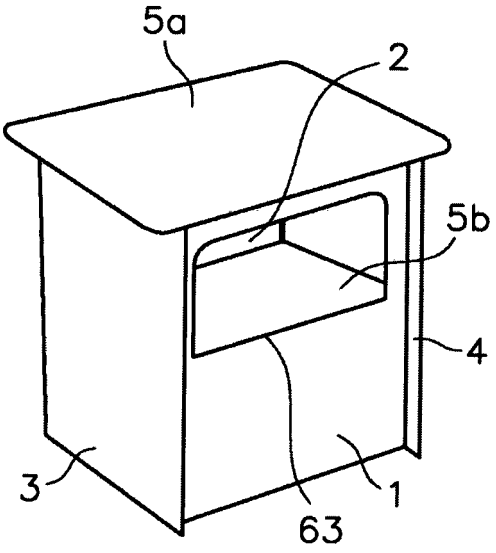

Fig.30

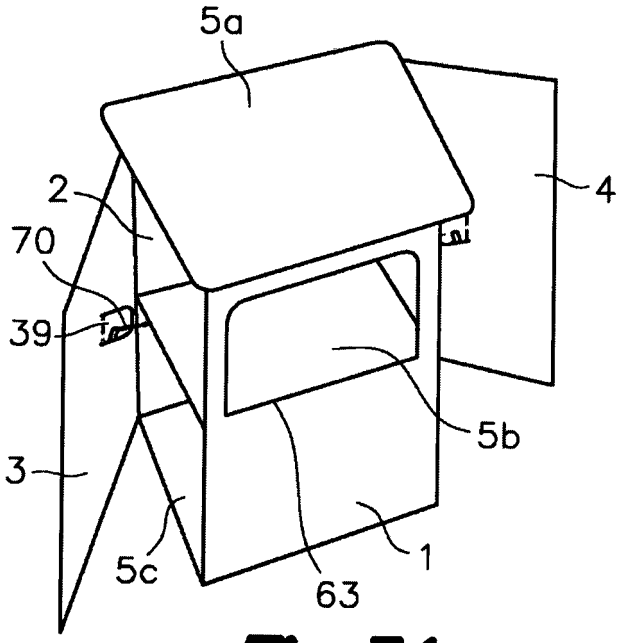

Fig.31

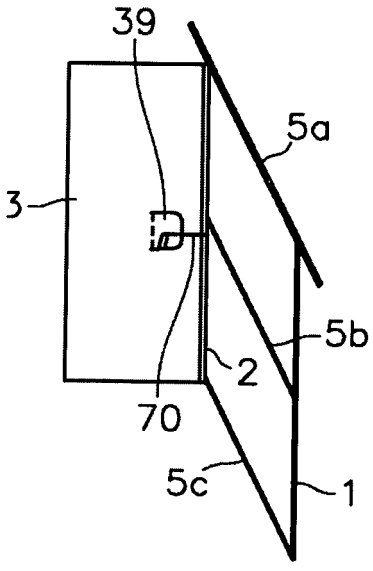

Fig.32

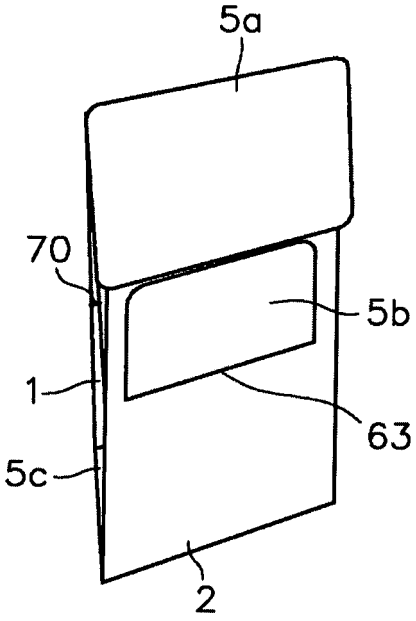

Fig.33

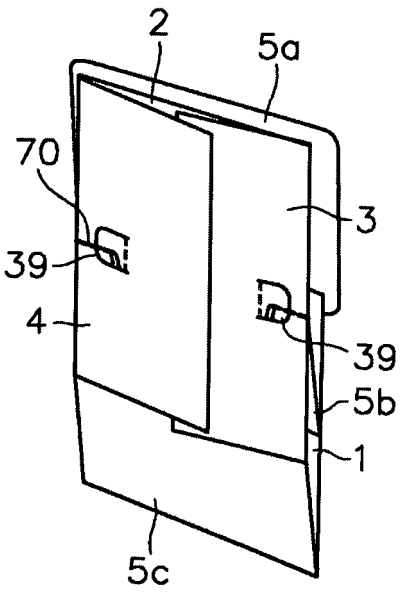

Fig.34

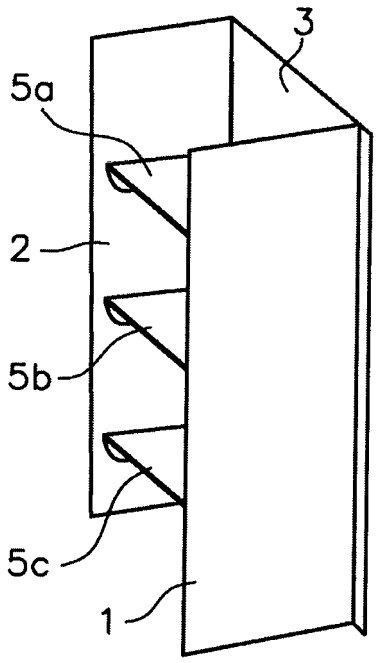

Fig.35

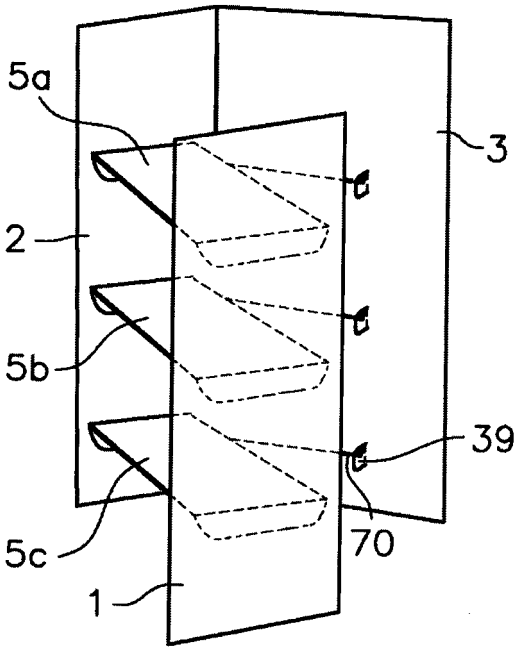

Fig.36

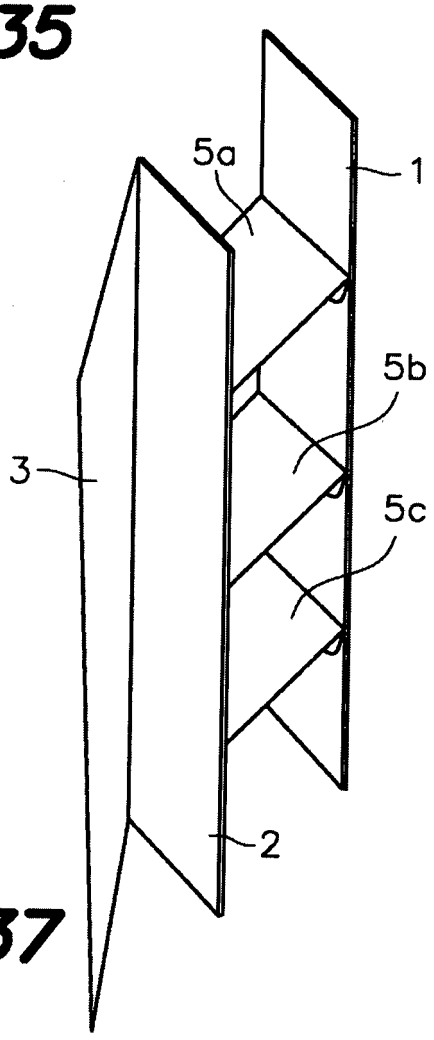

Fig.37

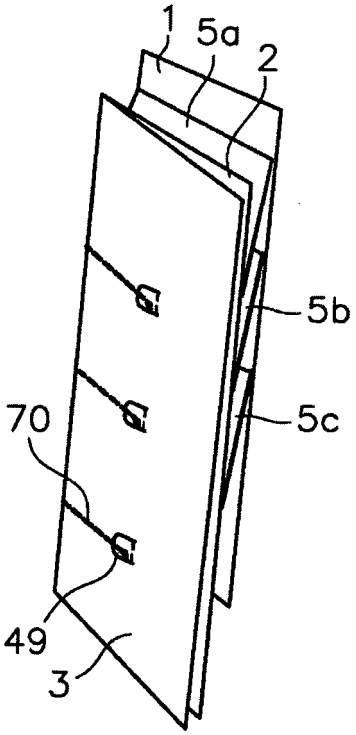

Fig.38

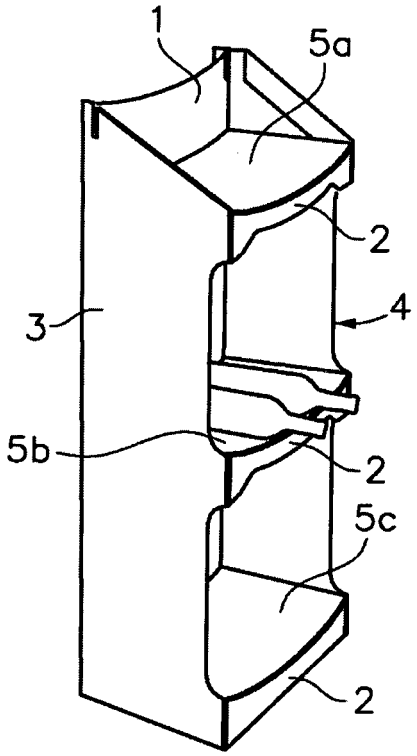

Fig.39

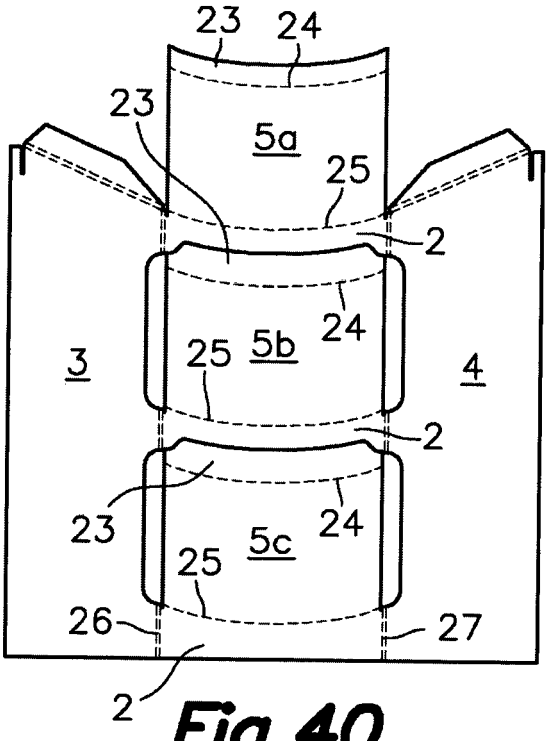

Fig.40

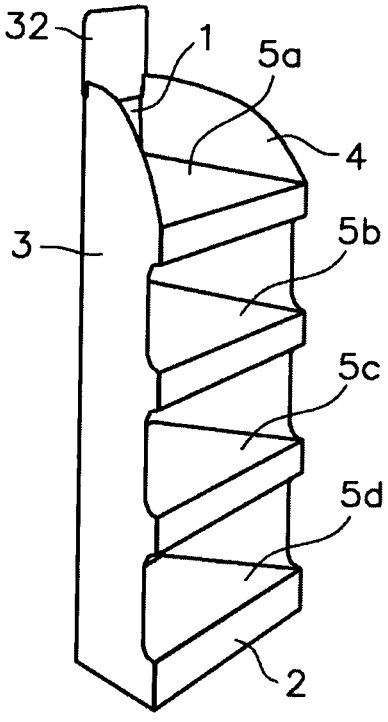

Fig.41

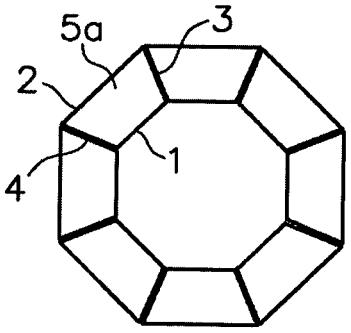

Fig.42

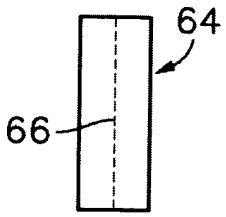

Fig.43

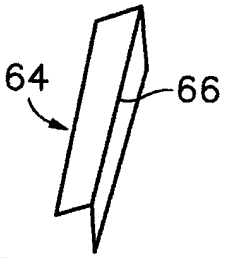

Fig.44

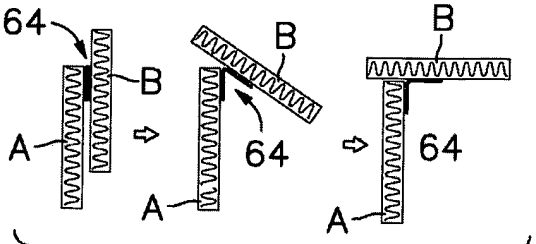

Fig.45

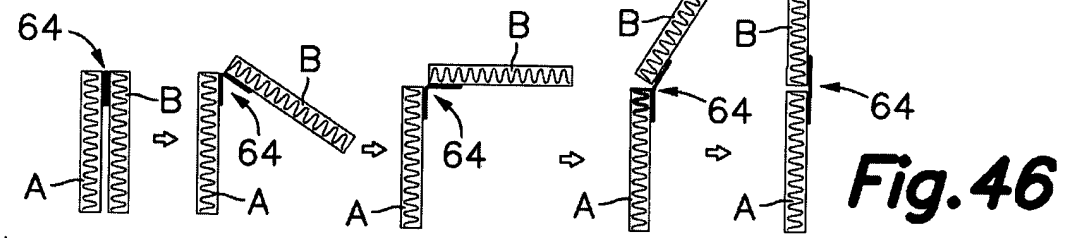

Fig.46

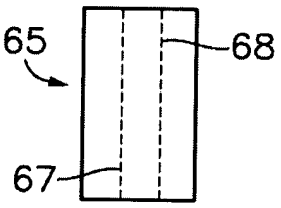

Fig.47

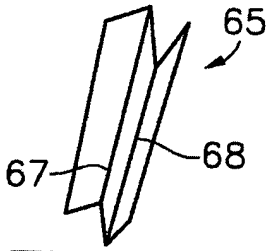

Fig.48

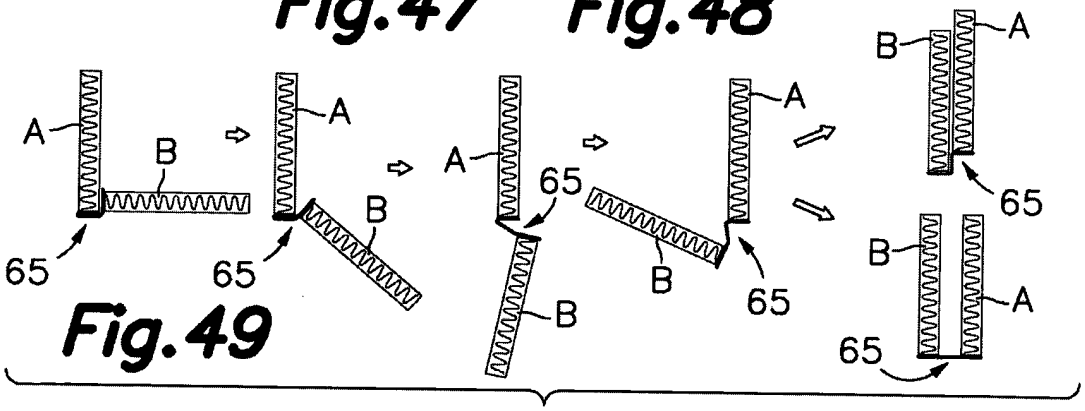

Fig.49

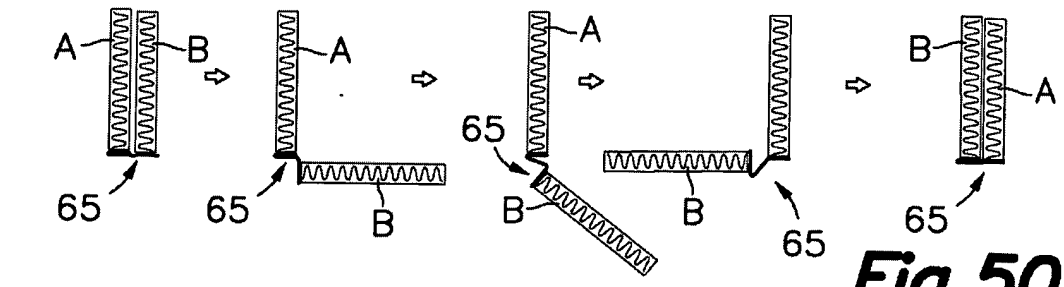

Fig.50

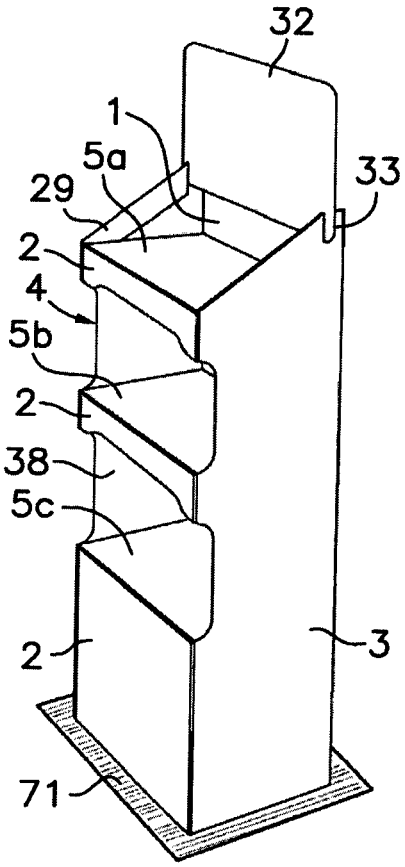
32
1
5a
33
29
2
4
5b
2
38
5c
2
3
71

Fig.51

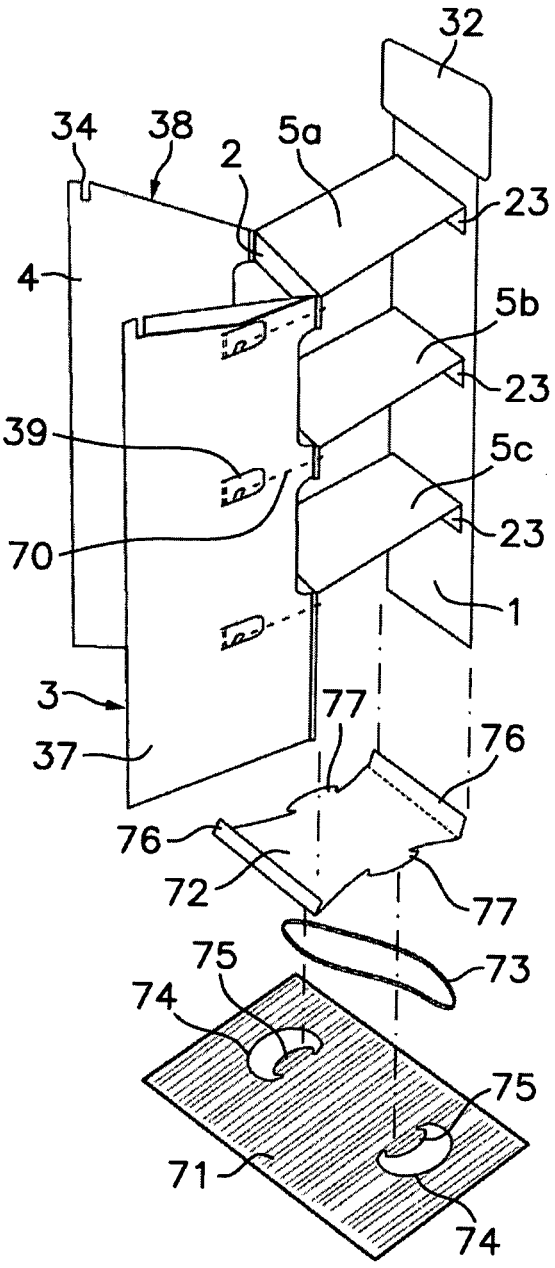
32
34
38
2
5a
23
4
5b
23
39
5c
23
70
1
3
77
76
37
76
72
77
73
75
74
75
71
74

Fig.52

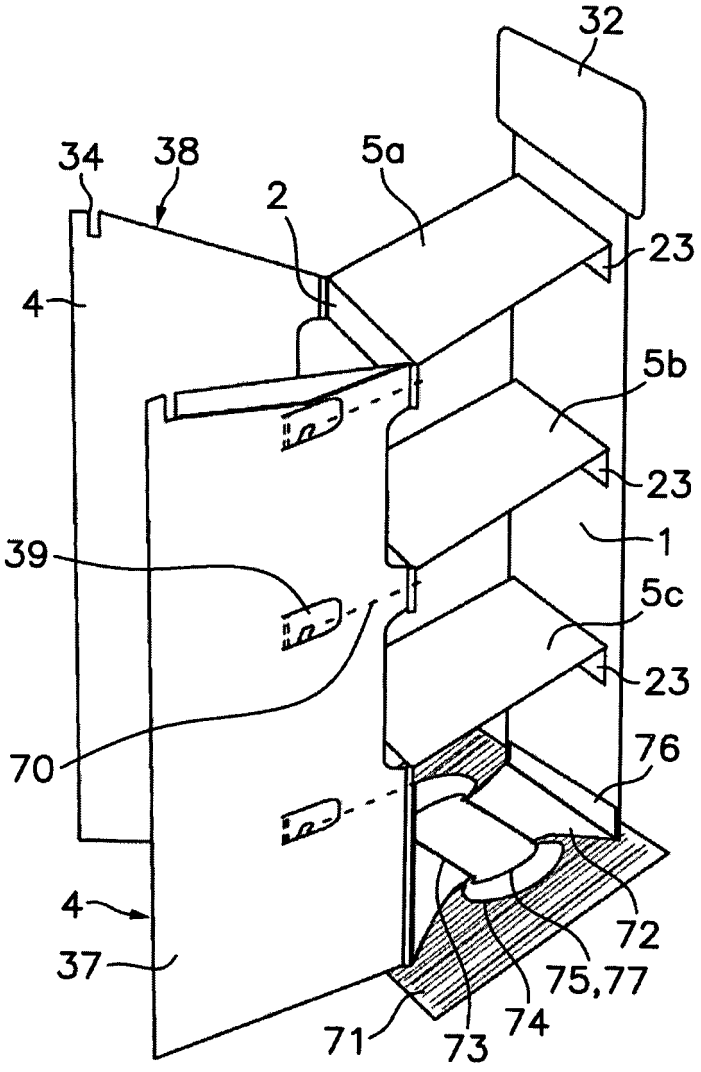
32
34
38
2
5a
23
4
5b
23
39
1
5c
23
70
76
4
37
72
75,77
71
73
74

Fig.53

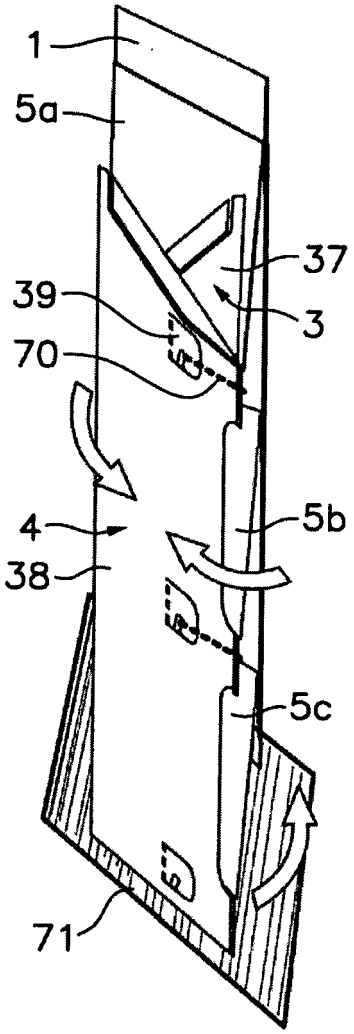
1
5a
37
39
3
70
4
5b
38
5c
71

Fig.54

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2014/000060

A. CLASSIFICATION OF SUBJECT MATTER

A47F5/11 (2006.01)
A47B47/06 (2006.01)
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)
A47F, A47B

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 practicable, search terms used)

EPODOC, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 2559360 A1 (DRUKARNIA ELLERT SP Z O O) 20/02/2013, pages 2 - 4; figures 1 - 4F	1-3,11,16-19
Y		4-10
A		12,15, 20
Y	FR 2679521 A1 (ROCHETTE CENPA) 29/01/1993, pages 1 - 4; figures 1 - 2.	4-10
E,X	EP 2682025 A1 (DRUKARNIA ELLERT SP Z O O) 08/01/2014, figures 1A - 3B, paragraphs[0006 - 0034];	1,2,16,19
A	WO 2013025155 A1 (BERGLAND JAN ET AL.) 21/02/2013, Figures 1B, 8 and 10 & Abstract from base of datos of WPI. Retrieved from EPOQUE; AN-2013-C53712	1-20

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance.
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure use, exhibition, or other means.
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents , such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
12/08/2014	**(19/08/2014)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer M. Revuelta Pollán Telephone No. 91 3496824

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/ES2014/000060

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
EP2559360 A1	20.02.2013	NONE	
FR2679521 A1	29.01.1993	NONE	
EP2682025 A1	08.01.2014	NONE	
WO2013025155 A1	21.02.2013	SE1150737 A1	13.02.2013

Form PCT/ISA/210 (patent family annex) (July 2009)

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

- US 20080265726 A1 **[0002] [0003]**