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(54) **FOLDABLE DISPLAY MADE OF LAMINAR MATERIAL AND ASSEMBLY METHOD OF SUCH FOLDABLE DISPLAY**

(57) A folding display stand (1) made of sheet material, comprising at least one rear wall (2), at least a pair of substantially flat and vertical side walls (3', 3") and a plurality of substantially horizontal shelves (4', 4") interposed between the side walls (3', 3"). The rear wall (2), the side walls (3', 3") and said shelves (4', 4") are simply formed from a pair of sheet elements, i.e. a front sheet element (6) and a rear sheet element (7) respectively, wherein said sheet elements (6, 7) are coupled together to define a foldable structure that is able to alternate from an idle configuration with the sheet elements (6, 7) in mutually overlapping relationship to an operating configuration with the sheet elements (6, 7) in mutually spaced relationship and with the shelves (4', 4") in vertical superimposed relationship. The front element (6) comprises a central portion (8) and two lateral end portions (9A, 9B) defined by first fold lines (10A, 10B), the rear element (7) comprises a central portion (11) and two lateral end portions (12A, 12B) defined by second fold lines (13A, 13B) and the shelves (4', 4") are formed from the central portion (8) cut out to form at least two flat panels (14A, 14B) and folded along respective third fold lines (15A, 15B) substantially perpendicular to the first and second fold lines (10A, 10B; 13A, 13B).

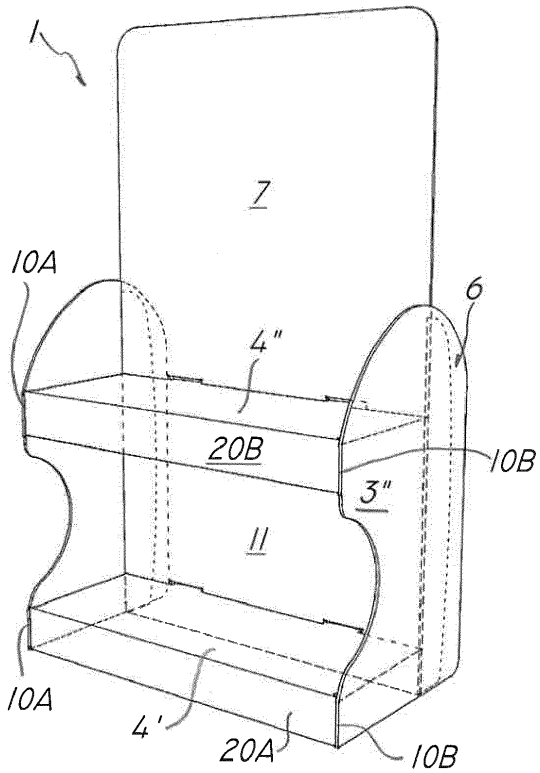

FIG. 1

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Description

Technical Field

[0001] The present invention generally finds application in the field of paper processing and advertising and particularly relates to a folding display stand.

Background art

[0002] Folding stands have been long known to be used in small- and large-scale retail applications to display various types of products, such as cosmetic or pharmaceutical products.

[0003] A first drawback of this display stands is their very large size in the mounted or folded state.

[0004] In an attempt to at least partially obviate this drawback folding display stands have been developed, which are collapsed to reduce the space required thereby when they do not perform their function, e.g. during transportation or storage.

[0005] US2011011814 discloses a product display stand formed with a single specially shaped cardboard panel and having a single shelf.

[0006] The panel comprises a substantially rectangular main portion having a pair of foldable side edges formed by corresponding vertical fold lines and an upper portion that extends upwards from a horizontal fold line located on the top edge of the top panel.

[0007] This stand has various panels and folds, as well as various joints and mountings which stiffen its structure.

[0008] EP3213660, US2017231404 and ES2393026 disclose folding display stands which are formed each from a plurality of panels in mutually coupled relationship to define a foldable structure adapted to alternate from a collapsed storage configuration to an operating configuration in which the structure is able to stand.

[0009] A first drawback of these display stands, and of prior art display stands in general, is that they have complex structures in terms of both numbers of panels in use and fold lines to be formed to obtain the structure in the operating configuration.

[0010] A further drawback of these arrangements is that the systems that are used to fix the panels together and hence stiffen the structure are rather complex to make.

[0011] Another common drawback of these arrangements is that they are very difficult to assemble, which increases assembly times.

[0012] This drawback leads to an increase of manufacturing times and final production costs.

Technical Problem

[0013] In view of the prior art, the technical problem addressed by the present invention is to provide a folding display stand that can be easily manufactured, and assembled and has a sturdy construction.

Disclosure of the invention

[0014] The object of the present invention is to obviate the above drawback, by providing a folding display stand that is highly efficient and relatively cost-effective.

[0015] A particular object of the present invention is to provide a folding display stand of the aforementioned type that affords simple manufacture and assembly.

[0016] A further object of the present invention is to provide a folding display stand that has a stiff structure, suitable to support the articles on display.

[0017] Yet another object of the present invention is to provide a folding display stand of the aforementioned type that can be easily folded and stacked.

[0018] A further object the present invention is to provide a folding stand of the aforementioned type that provides stable support to the products on display.

[0019] The aforementioned objects, as well as others that will be more clearly explained hereinafter, are fulfilled by a folding display stand made of a sheet material as defined in claim 1, which comprises at least one substantially flat and vertical rear wall, at least a pair of substantially vertical side walls and a plurality of substantially horizontal shelves between the side walls.

[0020] The rear wall, the side walls and the shelves are simply formed from a pair of sheet elements derived from a single sheet of cardboard or similar material, i.e. a front sheet element and a rear sheet element respectively, which are coupled together to define a foldable structure that is able to alternate from an idle configuration with the sheet elements in mutually overlapping relationship to an operating configuration with the sheet elements in mutually spaced relationship and the shelves in vertical superimposed relationship.

[0021] Furthermore, the front element comprises a central portion and two lateral end portions defined by first fold lines and the rear element comprises a central portion and two lateral end portions defined by second fold lines.

[0022] In a peculiar aspect of the invention, the shelves are formed from the central portion of the front element which is cut out to form at least two flat panels and is folded along respective third fold lines substantially perpendicular to the first and the second fold lines.

[0023] Therefore, the display stand has the advantage of being particularly simple to form, assemble and collapse.

[0024] Furthermore, this structure is particularly stiff and sturdy, thereby providing stable support to the products on display.

[0025] In a further object, the invention relates to a method of assembling the aforementioned display stand, as defined in claim 10.

[0026] Advantageous embodiments of the invention are defined in accordance with the dependent claims.

Brief description of the drawings

[0027] Further characteristics and advantages of the invention will be more apparent from the detailed description of a few preferred, non-exclusive embodiments of a folding display stand according to the invention, which are described as non-limiting examples with the help of the following drawings, in which:

FIGS. 1 and 2 are perspective views, from the front and the rear respectively, of a folding display stand of the present invention in the operating state;
FIG. 3 is a front perspective view of the folding display stand of Fig. 1 in its idle state;
FIG. 4 is a front view of the front panel of Fig. 1 in the deployed state;
FIG. 5 is a perspective view of front panel of Fig. 4 in the collapsed state;
FIG. 6 is a front view of the rear panel of the display stand of Fig. 1 in the deployed state;
FIG. 7 is a perspective view of the rear panel of Fig. 6 in the collapsed state;
FIG. 8 is a perspective view of the display stand of Fig. 1 in a partially assembled state.

Detailed description of a preferred exemplary embodiment

[0028] Particularly referring to the figures, there is shown a folding display stand, generally referenced by numeral 1, which is made of a sheet material and comprises at least one substantially flat and vertical rear wall 2, at least a pair of substantially vertical side walls 3', 3" and a plurality of substantially horizontal shelves 4', 4" interposed between the side walls 3', 3".

[0029] The display stand 1 may be intended for use in shops or other points of sale for displaying of a multiplicity of products or articles for sale, such as cosmetics, pharmaceuticals, stationery articles, candies or other similar products.

[0030] The rear wall 2, the side walls 3', 3" and the shelves 4', 4" are simply formed from a pair of sheet elements derived from a single sheet of cardboard or similar material.

[0031] The pair of sheet elements, i.e. a front sheet element (6) and a rear sheet element (7) respectively, are coupled together to define a foldable structure that can be alternated from an idle configuration with the sheet elements 6, 7 in mutually overlapping relationship, as shown in FIG. 3, to an operating configuration with the elements 6, 7 in mutually spaced relationship and the shelves 4', 4" in vertically superimposed relationship, as shown in FIG. 1.

[0032] As used hereinafter, the term "idle configuration" is intended to designate a collapsed configuration in which the sheet elements 6, 7 overlap to form a collapsed and flattened structure during storage to minimize bulk.

[0033] In addition, as used hereinafter the term "operating configuration" is intended to designate a configuration in which the display stand 1 forms a deployed structure for display of the products or articles, which is vertically arranged, substantially orthogonal to a support surface.

[0034] In a well-known manner, the sheet material of the elements 6, 7 may be selected from the group comprising paper, cardboard, plastic or similar material, such as copper, as long as it has high ductility properties.

[0035] As shown in FIGS. 1 to 7, the front sheet element 6 is adapted to define the side walls 3', 3" and the shelves 4', 4" and the rear sheet element 7 is adapted to define the rear wall 2.

[0036] As best shown in FIGS. 4 and 5, the front element 6 has a central portion 8 and two lateral end portions 9A, 9B defined by first fold lines 10A, 10B.

[0037] Similarly, the rear element 7 comprises a central portion 11 and two lateral end portions 12A, 12B defined by second fold lines 13A, 13B, as best shown in FIGS. 6 and 7.

[0038] In a peculiar aspect of the invention, the shelves 4', 4" are formed from the central portion 8 of the front element 6, which is cut out to form at least two flat panels 14A, 14B and is folded along respective third fold lines 15A, 15B substantially perpendicular to the first fold lines 10A, 10B and the second fold lines 13A, 13B.

[0039] Furthermore, the lateral end portions 9A, 9B; 12A, 12B of the elements 6, 7 are mutually overlapped and coupled by fastening means to maintain the first fold lines 10A, 10B and the second fold lines 13A, 13B parallel to and spaced apart from each other to stiffen the foldable structure.

[0040] In a preferred embodiment of the invention, the flat panels 14A, 14B can be folded along their respective third fold lines 15A, 15B into the operating configuration and, once folded, are coupled to the central portion 11 of the rear element 7.

[0041] By this arrangement the flat panels 14A, 14B are also substantially perpendicular to the first fold lines 10A, 10B and the second fold lines 13A, 13B to further stiffen the structure in the operating configuration.

[0042] Preferably, each foldable flat panel 14A, 14B of the front element 6 has a free edge 16A, 16B located on the side opposite to that of the third fold lines 15A, 15B and adapted to be coupled to the central portion 11 of the rear element 7.

[0043] Conveniently, as shown in FIGS. 1 to 7, the front panel 6 has a pair of projections 17A, 17B formed along the free edge 16A, 16B, that can fit into corresponding aligned slits 18A, 18B formed in the central portion 11 of the rear element 7, as further discussed below.

[0044] As shown in the figures, the front element 6 is equipped with a bottom edge 19 which usually rests on the ground or a shelf or counter when the display stand 1 is in the operating state.

[0045] It shall be noted that one of the third fold lines 15A belonging to the first foldable panel 14A is spaced

apart from the bottom edge 19 of the front panel 6 to thereby define a first crosspiece 20A that stiffens the foldable structure when the latter is in the operating state.

[0046] Furthermore, the other third fold line 15B belonging to the second foldable panel 14B is spaced apart from the free edge 16A of the first panel 14A to thereby define a second crosspiece 20B that further stiffens the structure of the display stand 1.

[0047] The rear element 7 also has a bottom edge 21 that usually rests on the ground, a shelf or a counter when the structure of the display stand 1 is in the operating state, like the bottom edge 19 of the front element 6.

[0048] Preferably, the first pair of aligned slits 18A formed in the central portion 11 of the rear element 7 are parallel to the bottom edge 21 and spaced apart therefrom at a short distance, equal to the height of the first crosspiece 20A.

[0049] The central portion 11 of the rear element 7 further comprises a second pair of slits 18B substantially aligned and parallel to the bottom edge 21 of the element 7 and spaced apart from the first pair of slits 18A.

[0050] The first and second pairs of slits 18A, 18B are formed in such a manner that, when the display stand 1 is being assembled, the first pair of projections 17A of the first panel 14A fit into the first pair of slits 18A of the central portion 11 of the rear element 7 respectively, and the second pair of projections 17B of the second panel 14B fit into the second pair of slits 18B of the central portion 11 of the rear element 7.

[0051] As best shown in FIGS. 1 and 2, the lateral end portions 12A, 12B of the rear element 7 are formed in such a manner that their width is smaller than the width of the lateral end portions 9A, 9B of the front element 6.

[0052] By this arrangement, when the lateral end portions 9A, 9B of the front element 6 are folded along the first fold lines 10A, 10B, they overlap the two lateral end portions 12A, 12B of the rear element 7 from the side facing out of the display stand 1 to stiffen the foldable structure in the operating configuration.

[0053] In a further aspect, the invention relates to a method of assembling a display stand 1 made of sheet material as described above.

[0054] First, the two lateral end portions 9A, 9B in the front element 6 are folded along the first fold lines 10A, 10B respectively, such that they will be substantially perpendicular to the central portion 8 of the same front panel 6.

[0055] Then, the first flat panel 14A is folded along the third fold line 15A and the second flat panel 14B is folded along the third fold line 15B, such that they will be substantially perpendicular to the central portion 8 of the front element 6, as shown in FIG. 5.

[0056] The first lateral end portion 12A in the rear element 7 is folded along its second fold line 13A and the second lateral end portion 12B is folded along its second fold line 13B, such that the two lateral end portions 12A, 12B are arranged substantially perpendicular to the central portion 11 of the rear element 7, as shown in FIG. 6.

[0057] Now the rear element 7 may be simply coupled to the front element 6, so that:

- their respective bottom edges 21, 19 are coplanar;
- the central portion 11 of the rear element 7 is vertically arranged between the two lateral end portions 9A, 9B of the front element 6 and substantially perpendicular thereto;
- the first pair of projections 17A of the first flat panel 14A fit into the corresponding first pair of slits 18A of the central portion 11 of the rear element 7 so that the panel 14A will be horizontal and substantially parallel to the bottom edge 19 of the front element 6;
- the second pair of projections 17B of the second flat panel 14B fit into the corresponding second pair of slits 18B of the central portion 11 of the rear panel 7, also to be horizontal and substantially parallel to the bottom edge 19 of the front element 6;
- the two lateral end portions 9A, 9B of the front element 6 overlap and are coupled by fastening means to the two lateral end portions 12A, 12B of the rear element 7 respectively.

[0058] It will be appreciated that the first flat panel 14A has been folded to form the lower shelf 4', the second flat panel 14B has been used to form the upper shelf 4", the central portion 11 of the real element 7 has been used to form the rear wall 2 and the lateral end portions 9A, 9B of the front element 6 have been used to form the respective side walls 3', 3" of the display stand 1.

[0059] Advantageously, the two lateral end portions 9A, 9B of the front element 6 and the two lateral end portions 12A, 12B of the rear element 7 are fixed to each other in the opposite direction, for example by bonding, stapling, or with other fastening means.

[0060] Alternatively, a different assembly sequence may be also used, without departure from the scope of the present invention.

[0061] For example, the lateral end portions 9A, 9B; 12A, 12B of the sheet elements 6, 7 may be first folded, the rear element 7 may be later moved close to the front element 6, as shown in FIG. 8 and the respective lateral end portions 9A, 9B; 12A, 12B may be later bonded together by fastening means.

[0062] Then, the display stand 1 so assembled may be collapsed into the idle configuration, as shown in FIG. 3 and packaged for sale, not shown.

[0063] The alternation from the idle configuration to the operating configuration may be performed by a user once he/she has pulled the display stand 1 out of the package and has folded the flat panels 14A, 14B to fit the respective projections 17A, 17B into the corresponding aligned slits 18A, 18B, as discussed above.

[0064] A folding display stand 1 may be also provided, which has more than two shelves 4', 4", for example three or more.

[0065] Here, three or more panels 14 may be derived from the front element 6, i.e. as many as the shelves 4

to be formed, and the rear element 7 will have as many pairs of slits 18 as the shelves 4 to be formed.

[0066] Furthermore, instead of a pair of projections 17 for each panel 14, multiple projections 17 may be formed, with respective slits 18 in the central portion 11 of the rear element 7.

[0067] The display stand structure of the invention is susceptible of a number of changes and variants, within the inventive concept as disclosed in the appended claims.

[0068] While the folding display stand structure has been described with particular reference to the accompanying figures, the numerals referred to in the disclosure and claims are only used for the sake of a better understanding of the invention and shall not be intended to limit the claimed scope in any manner.

[0069] Reference herein to "one embodiment" or "the embodiment" or "some embodiments" indicates that a particular characteristic, structure or member that is being described is included in at least one embodiment of the inventive subject matter.

[0070] Furthermore, the particular characteristics, structures or members may be combined together in any suitable manner to provide one or more embodiments.

Industrial applicability

[0071] The present invention may find application in industry, because it can be produced on an industrial scale in the paperprocessing and advertising industries.

Claims

1. A folding display stand (1) made of sheet material, comprising:

   - at least one substantially flat and vertical rear wall (2);
   - at least a pair of substantially vertical side walls (3', 3");
   - a plurality of substantially horizontal shelves (4', 4") interposed between said side walls (3', 3");

   wherein said rear wall (2), said side walls (3', 3") and said shelves (4', 4") are simply formed from a pair of sheet elements derived from a single sheet of cardboard or similar material, i.e. a front sheet element (6) and a rear sheet element (7) respectively, said front sheet element (6) and rear sheet element (7) being coupled together to define a foldable structure that is able to alternate from an idle configuration with said sheet elements (6, 7) in mutually overlapping relationship to an operating configuration with said sheet elements (6, 7) in mutually spaced relationship and the shelves (4, 4") in vertical superimposed relationship;

   wherein said front element (6) comprises a central portion (8) and two lateral end portions (9A, 9B) defined by first fold lines (10A, 10B);

   wherein said rear element (7) comprises a central portion (11) and two lateral end portions (12A, 12B) defined by second fold lines (13A, 13B);

   characterized in that said shelves (4', 4") are formed from said central portion (8) of said front element (6), said central portion (8) being cut out to form at least two flat panels (14A, 14B) and being folded along respective third fold lines (15A, 15B) substantially perpendicular to said first fold lines (10A, 10B) and second fold lines (13A, 13B).

2. Display stand as claimed in claim 1, **characterized in that** said lateral end portions (9A, 9B; 12A, 12B) of said elements (6, 7) are mutually overlapped and coupled by fastening means to maintain said first fold lines (10A, 10B) and second fold lines (13A, 13B) parallel to and spaced apart from each other to stiffen said foldable structure.

3. Display stand as claimed in claim 1, **characterized in that** said flat panels (14A, 14B), once folded into said operating configuration, are coupled to the central portion (11) of said rear element (7) such that said panels (14A, 14B) will be substantially perpendicular to said first fold lines (10A, 10B) and second fold lines (13A, 13B) to further stiffen said structure in the operating configuration.

4. Display stand as claimed in claim 3, **characterized in that** each foldable flat panel (14A, 14B) of said front element (6) has a free edge (16A, 16B) that is designed to be coupled to the central portion (11) of said rear element (7) via at least a pair of projections (17A, 17B) formed along said free edge (16A, 16B) and designed to fit into corresponding aligned slits (18A, 18B) formed in the central portion (11) of said rear element (7).

5. Display stand as claimed in claim 1, **characterized in that** said front element (6) has a bottom edge (19) and one of said third fold lines (15A) of the respective first panel (14A) is placed proximate to said edge (19) to thereby define a first crosspiece (20A) adapted to further stiffen said foldable structure when the latter is in the operating state.

6. Display stand as claimed in claim 5, **characterized in that** the other of said third fold lines (15B) of the respective second panel (14B) is spaced apart from the free edge (16A) of said first panel (14A) to thereby define a second crosspiece (20B) adapted to further stiffen said structure.

7. Display stand as claimed in claim 1, **characterized in that** said fastening means are bonding means.

8. Display stand as claimed in any of the preceding claims, **characterized in that** it comprises three or more panels (14A, 14B) that can be folded along respective third fold lines (15A, 15B) to form three or more shelves (4', 4").

9. Display stand as claimed in any of the preceding claims, **characterized in that** said sheet material is selected from the group comprising paper, cardboard and plastic.

10. A method of assembling a folding display stand (1) made of a sheet material as claimed in one or more of claims 1 to 9, comprising the steps of:

- folding said two lateral end portions (9A, 9B) along said respective first fold lines (10A, 10B), such that they will be substantially perpendicular to said central portion (8);
- folding said first flat panel (14A) along one of said third fold lines (15A), and said second flat panel (14B) along the other of said third fold lines (15B), such that they will be substantially perpendicular to said central portion (8);
- folding said first lateral end portion (12A) along its second fold line (13A) and folding said second lateral end portion (12B) along said second fold line (13B) such that said two lateral end portions (12A, 12B) are arranged substantially perpendicular to said central portion (11);
- coupling said rear element (7) to said front element (6) in such a manner that their respective bottom edges (21, 19) are coplanar, said central portion (11) is vertically arranged between said two lateral end portions (9A, 9B) and substantially perpendicular thereto, said first pair of projections (17A) fit into the corresponding first pair of slits (18A), said second pair of projections (17B) fit into the corresponding second pair of slits (18B);
- overlapping said two lateral end portions (9A, 9B) of said front element (6) one on top of the other and coupling them by means of said fastening means to said two lateral end portions (12A, 12B) of said rear element (7) to stiffen said foldable structure.

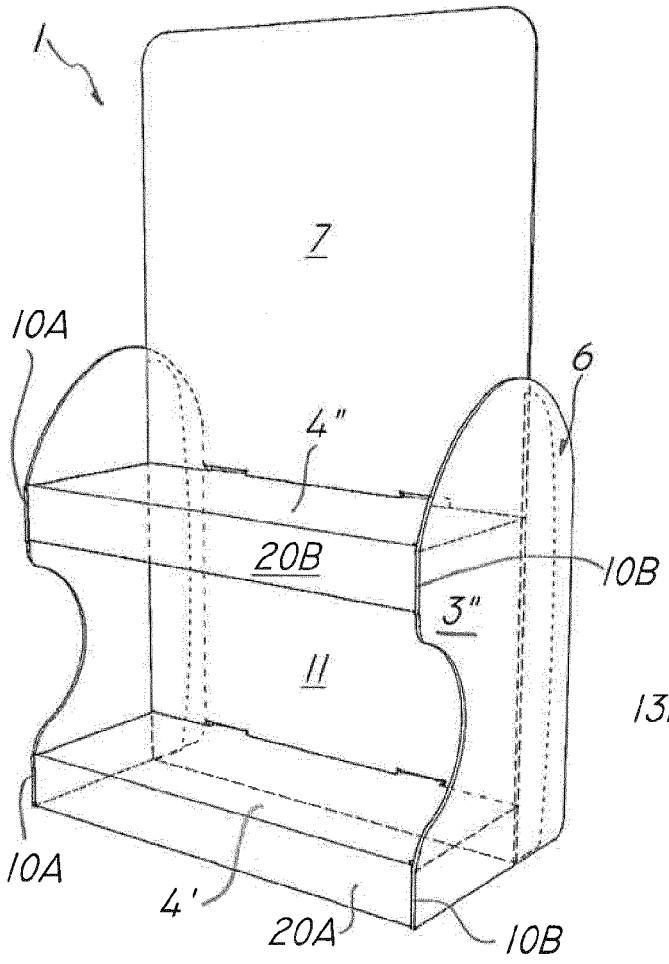


FIG. 1

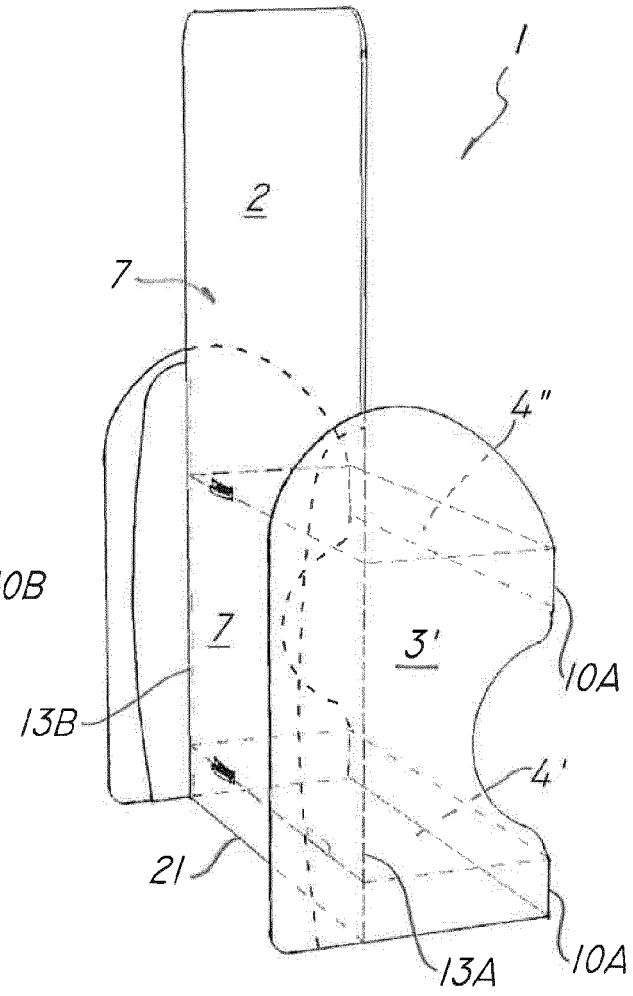


FIG. 2

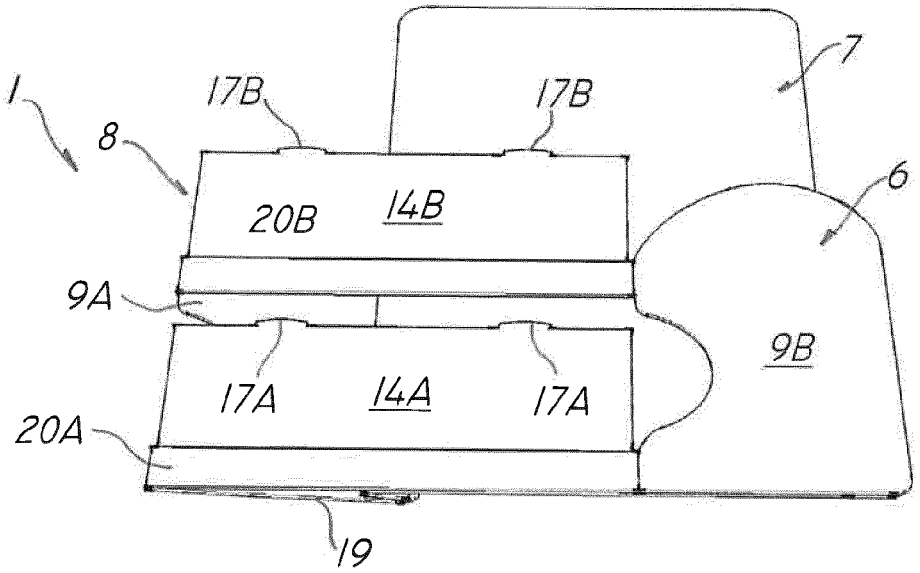


FIG. 3

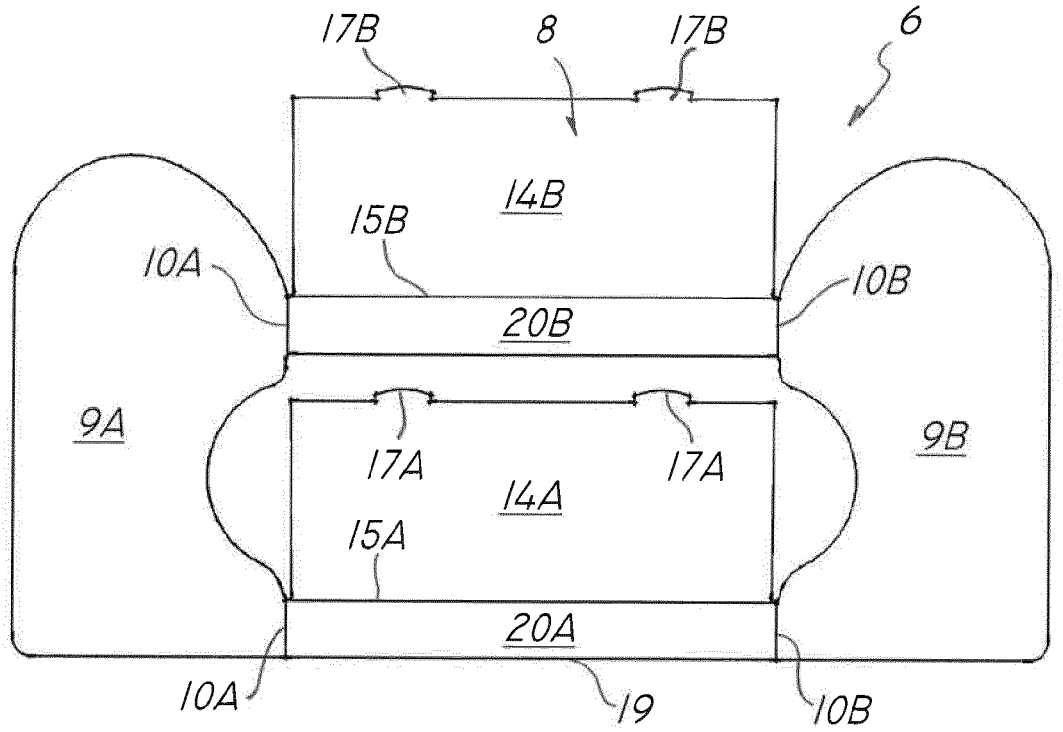
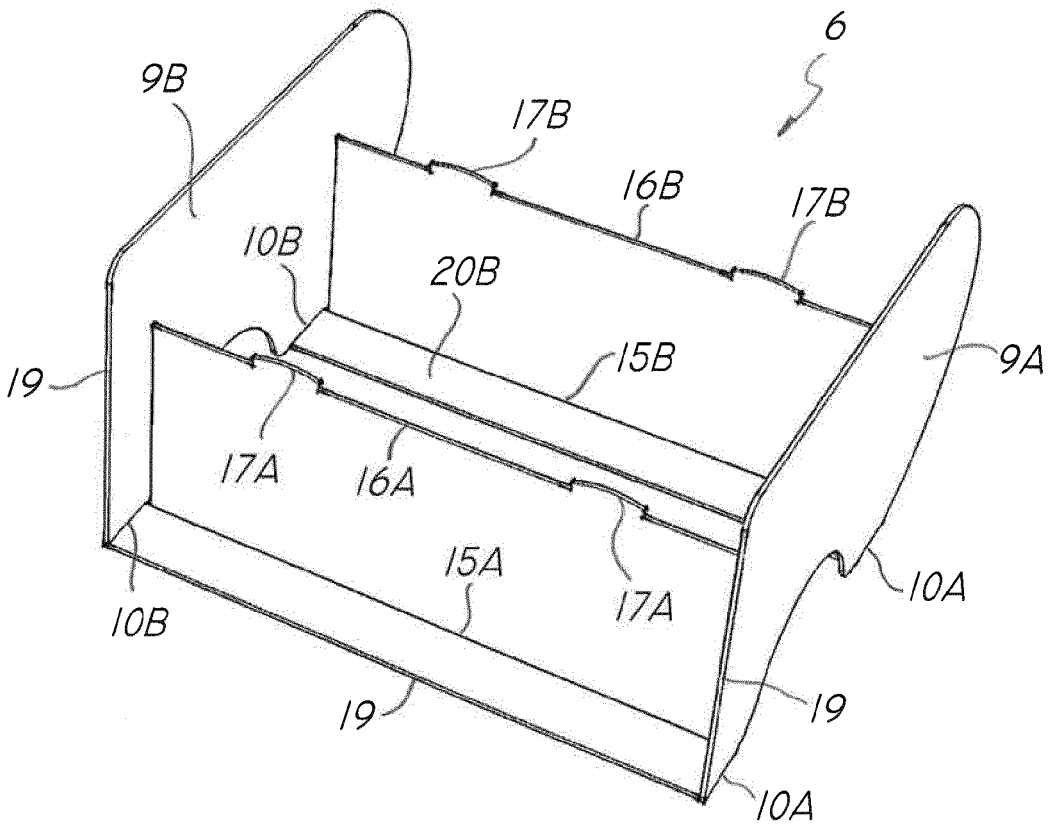

17B
8
17B
6
14B
15B
10A
10B
20B
9A
9B
17A
17A
14A
15A
20A
10A
19
10B

FIG. 4


6
9B
17B
16B
17B
10B
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9A
19
17A
16A
15A
17A
10A
10B
19
19
10A

FIG. 5

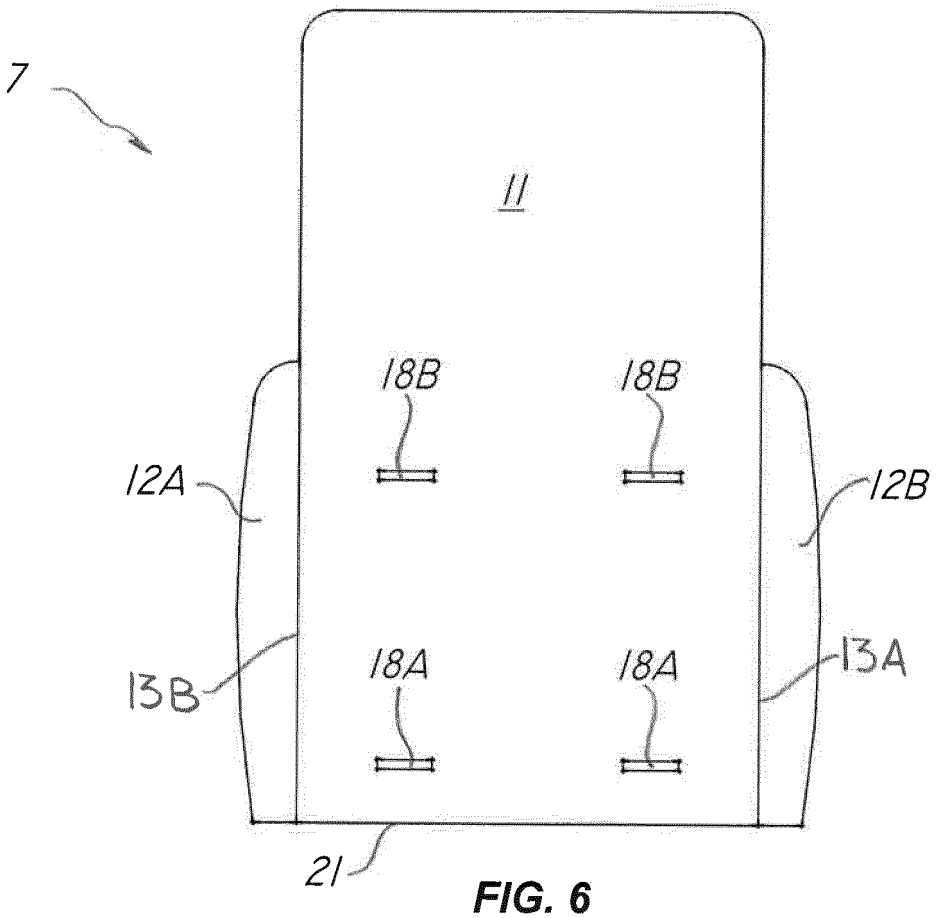
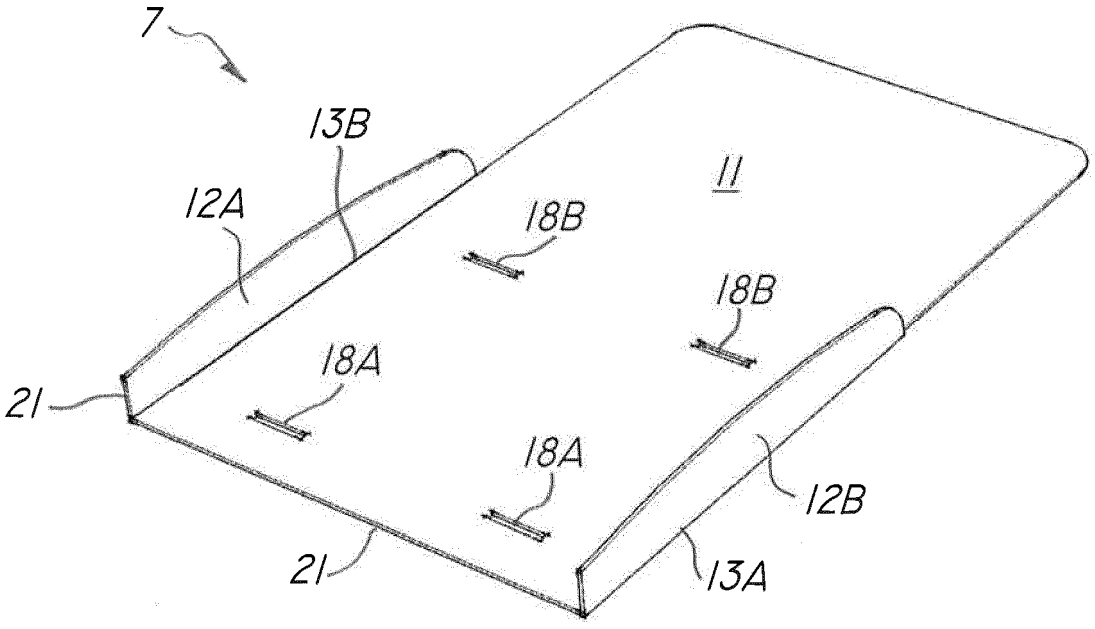

7
11
18B
18B
12A
12B
13B
18A
18A
13A
21

FIG. 6


7
13B
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18B
18B
18A
21
18A
12B
21
13A

FIG. 7

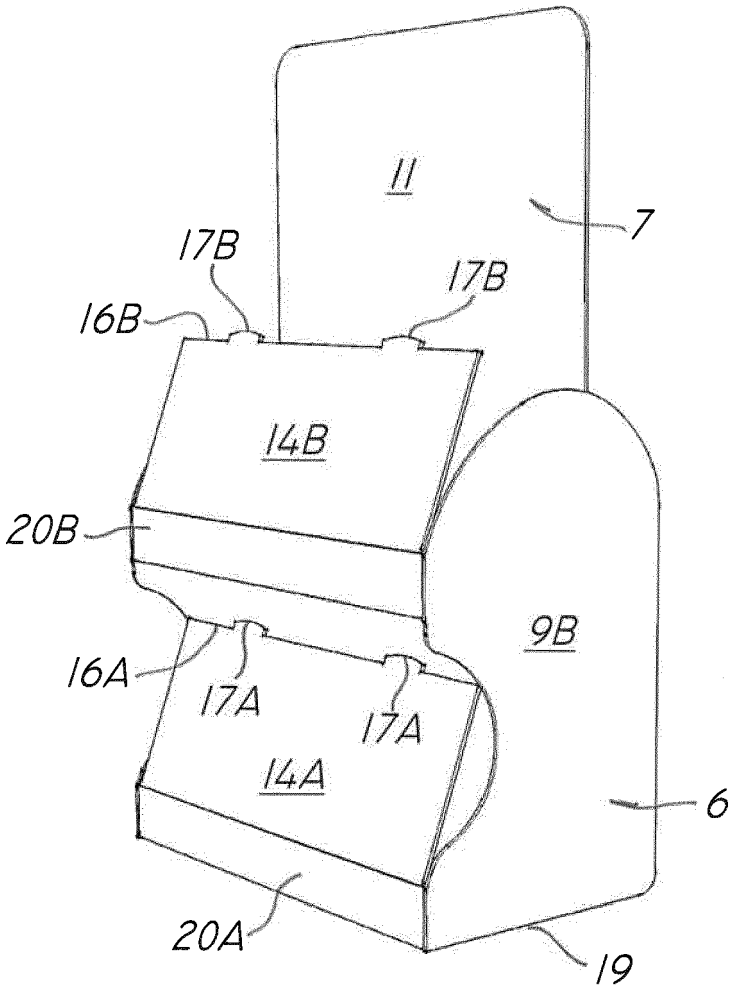

FIG. 8

Europäisches Patentamt
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EUROPEAN SEARCH REPORT

Application Number
EP 19 21 6671

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 10 2016 216129 A1 (STANGE HANS PETER [DE]) 1 March 2018 (2018-03-01) * paragraph [0005]; figures 1-9 *	1-10	INV. A47F5/11
X	CN 202 014 905 U (LIXIONG CHEN) 26 October 2011 (2011-10-26) * figures 7,8 *	1-10	
A	EP 3 213 660 A1 (SONOCO DEV INC [US]) 6 September 2017 (2017-09-06) * column 7, lines 19-29; figures 1-3,6-8 *	1	
A	US 2017/231404 A1 (PRATSCH JR JEFFREY P [US]) 17 August 2017 (2017-08-17) * paragraph [0048]; figures 1-3,13-15 *	1	
A	ES 2 393 026 A1 (TOT DISPLAY S A [ES]) 17 December 2012 (2012-12-17) * page 4, lines 16-17; figures 3-6 *	1	
			TECHNICAL FIELDS SEARCHED (IPC) A47F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	28 February 2020	Martinez Valero, J

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 19 21 6671

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28-02-2020

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