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(54) **Foldable rack, especially for exhibition purposes**

(57) Foldable rack, especially for exhibition purposes, comprising structural support components and at least one shelf, which are detachably joined, characterised in that the side walls (1) are detachably joined by the component (3) having at least one lateral beam (4) with at least two tongues (5) on which the shelf top is detachably mounted, comprising two parts (6a, 6b) contacting each other by the grooves and tongues (7a, 7b) along the lateral beam (4), with each part of the shelf top (6a, 6b) having at least one hole (8) in which the respective tongue (5) of the horizontal beam (4) is fitted. Preferably, the foldable rack is made of plywood.

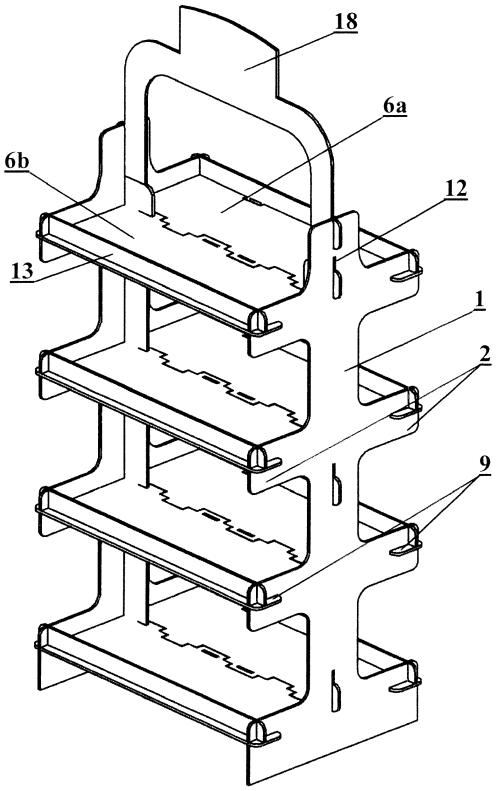

Fig. 11

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Description

[0001] The subject of the invention is a foldable rack designed especially for exhibition of a wide range of products.

[0002] From patent application P.375887, a foldable segment exhibition rack is known, comprising at least two rack rods, the vertical columns of which have, in the axis of symmetry, rectangular holes with tongues on the opposite shorter edges, with the tongues in the form of triangles facing each other with their apexes, and at the bottom of the column, they are provided with support sets comprising a horizontal beam, the upper and lower plane of which has two rows of double socket holes, in which the supports are detachably mounted with the top of a bottom shelf or other rack accessories placed on them, where the universal support is in a shape that resembles the letter T and comprises a vertical anchor component and horizontal support component with a rectangular socket in its middle part and a stop at the longer end, and, above, in the vertical holes of the columns, detachably mounted are double-grooved supports suspended together with the top of a two-rib shelf and/or smooth supports suspended together with the top of a no-rib shelf.

[0003] From patent description PL 212265 B 1, a foldable exhibition rack is also known, intended for advertising products, comprising a single-component support plate which, after bending along vertical bend lines, forms an enclosure with a back, sides and shelves.

[0004] To the back plane, shelves are fixed permanently and pivotally along their back edge of the shelf. To the inner side areas of the body, at the height of the front shelves, support components are permanently attached, and to the front shelve edges, at their sides, hooking components are attached to hold the shelf in place. The bend of the support plate along the horizontal bending lines, after straightening it along vertical bending lines in relation to the plane, results in compact dimensions of the rack prepared for transport.

[0005] The invention purports to develop a rack structure that will allow multiple and rapid assembly and disassembly operations without using connectors and will ensure high load bearing capacity.

[0006] The foldable rack, especially for exhibition purposes, comprising structural support components and at least one shelf, detachably joined, according to the invention, is characterised in that the side walls are detachably joined by a component having at least one lateral beam with at least two tongues on which the shelf top is detachably mounted, comprising two parts contacting each other by the grooves and tongues along the lateral beam, with each part of the shelf top having at least one hole in which the respective tongue of the horizontal beam is fitted.

[0007] The component joining the side walls is attached to those walls with hooks made on two opposing sides of said component in its plane, projecting to the outside of the adjoining side wall through holes made in that wall.

[0008] Parts of the shelf top are detachably joined to side walls with hooks made on two sides of that part of the shelf top in its plane, projecting to the outside of the adjoining side wall through openings made in that wall.

[0009] The side wall preferably has cross-shaped arms, to which parts of the shelf top are attached.

[0010] Parts of the shelf top, at the free sides, are preferably fitted with a guard strip to protect merchandise from slipping, connected with the side wall arms with hooks made on two sides of the strip in its plane, projecting to the outside of the adjoining side walls through openings made in the arms of said walls.

[0011] The hooks made on two sides of the guard strip to protect merchandise from slipping may protrude beyond the bottom edge of the strip, which improves the stability of the connection.

[0012] Furthermore, the guard strip is joined with the part of the shelf top with at least one tongue formed in the strip plane, fitted in the hole made in that part of the shelf top.

[0013] Moreover, the tongue formed in the plane of the guard strip protecting the merchandise from slipping has an opening, and the shape of the hole made in that part of the shelf top in which the tongue is fitted is close to horizontally positioned letter C.

[0014] Preferably, the holes resembling the letter C in shape in that part of the shelf top in which the tongues made in the plane of the guard strip protecting the merchandise from slipping are fitted are in reversed (180°) position to each other.

[0015] Preferably, the rack is made of plywood.

[0016] An advantage of the rack is its durable construction with high load bearing capacity and its suitability for multiple and rapid assembly and disassembly.

[0017] The invention will now be described by way of example and with reference to the accompanying drawings in which:

Fig. 1 shows a fragment of the component with the lateral beam and the part of the shelf top before assembly in an axonometric projection,

Fig. 2 - top view of the fragment of the component with the lateral beam and the part of the shelf top before assembly,

Fig. 3 - parts of the shelf top positioned on the beam in an axonometric projection,

Fig. 4 - top view of the parts of the shelf top positioned on the beam,

Fig. 5 - side view of the component joining the side walls,

Fig. 6 - side view of a side wall,

Fig. 7 to 10, 12, and 13 - the following stages of rack assembly in an axonometric projection in two embodiment variants,

Fig. 11 and Fig. 14 - the rack in an axonometric projection in two embodiment variants.

[0018] A sample rack has side walls 1 with four sets of cross-shaped arms 2, as shown in Fig. 6 to 11. The side walls 1 are detachably joined with the component 3 with four lateral beams 4. The component 3 is in a shape similar to a vertically multiplied letter H, as shown in Fig. 5. Each lateral beam 4 has tongues 5 in its middle part to mount the shelf top. The shelf top comprises two parts 6a and 6b, which, at the contact line, have shaped tongues 7a and 7b respective to each other, as shown in fig. 1 to 4. The tongues 7b situated in the middle of both parts 6a and 6b of the shelf have holes 8, in which the respective tongues 5 of the lateral beam 4 are fitted in such a manner that both parts 6a and 6b of the shelf top overlap on the tongues 7a and 7b, forming the shelf top, as shown in Fig. 3, 4, 10, 11, 13, and 14. Parts 6a and 6b of the shelf top are detachably joined with the side walls 1 with hooks 9 made on both sides near the outer corners of the parts 6a and 6b of the shelf top, in the shelf top plane, in a shape resembling the letter L. Such hooks are projected to the outside of the side wall 1 through the openings 10 made in the side wall 1, as shown in Fig. 8 to 14. The component 3, which joins the side walls 1, is connected to those walls 1 with the hooks 11 made on both sides of the component 3 in its plane, in a shape resembling the letter L. Such hooks are projected to the outside of the side wall 1 through the holes 12 made in the side wall 1, as shown in fig. 7 to 14. Parts 6a and 6b of the shelf top, at the side of the free sides, are provided with a guard strip 13 to protect merchandise from slipping, joined with the parts 6a and 6b of the shelf top with tongues 14 made in the strip 13 and holes 15 made in the parts 6a and 6b of the shelf top and the side walls 1, with hooks 16 made at shorter sides of the strip 13 in its plane, in a shape resembling the letter L, which are projected to the outside of the side walls 1 through the openings 17 made in the arms 2 of those walls, as shown in fig. 9 to 14. The tongues 14 formed in the plane of the guard strip 13 protecting the merchandise from slipping has an opening 20, and the shape of the hole 15 made in that part of the top of the shelf 6a, 6b, in which the tongue 14 is fitted is close to horizontally positioned letter C, where the holes 15 may either be identical, as shown on Fig 9, or in reversed (180°) position to each other, as shown on Fig. 13.

[0019] The hooks 16 made on both shorter sides of the guard strip 13 may either reach the bottom edge 19 of the strip 13, which is presented on Fig. 9 to 11, or protrude beyond that edge, which is shown on Fig. 13 and Fig. 14. Top of the rack can be ended with the component 18, as shown in Fig. 10, Fig. 11, and Fig. 14.

[0020] Assembly stages of the rack are shown in Fig. 7 to 10, Fig. 12, and Fig. 13.

[0021] Preferably the rack is made of plywood.

Claims

1. A foldable rack, especially for exhibition purposes, comprising structural support components and at least one shelf, detachably joined, **characterised in that** the side walls (1) are detachably joined by the component (3) having at least one lateral beam (4) with at least two tongues (5) on which the shelf top is detachably mounted, comprising two parts (6a, 6b) contacting each other by the grooves and tongues (7a, 7b) along the lateral beam (4), with each part of the shelf top (6a, 6b) having at least one hole (8) in which the respective tongue (5) of the horizontal beam (4) is fitted.

2. The rack, according to claim 1, **characterised in that** the component (3) joining the side walls (1) is attached to those walls with hooks (11) made on two opposing sides of the component (3) in its plane, projecting to the outside of the adjoining side wall (1) through holes (12) made **in that** wall.

3. The rack, according to claim 1, **characterised in that** the parts (6a, 6b) of the shelf top are detachably joined to side walls (1) with hooks (9) made on two sides of the parts (6a, 6b) of the shelf top in its plane, projecting to the outside of the adjoining side wall (1) through openings (10) made **in that** wall.

4. The rack, according to claims 1 to 3, **characterised in that** the side wall (1) has cross-shaped arms (2), to which parts (6a, 6b) of the shelf top are joined.

5. The rack, according to claim 4, **characterised in that** the parts (6a, 6b) of the shelf top, at the free sides, are preferably fitted with a guard strip (13) to protect merchandise from slipping, connected with the side wall arms (1) with hooks (16) made on two sides of the strip in its plane, projecting to the outside of the adjoining side walls (1) through openings (17) made in the arms (2) of those walls.

6. The rack according to Claim 5, **characterised in that** the hooks (16) are formed on two sides of the guard strip (13) protecting the merchandise from slipping protrude beyond the bottom edge (19) of the strip (13).

7. The rack, according to Claims 5 or 6, **characterised in that** the guard strip (13) to protect merchandise from slipping is connected with the parts (6a, 6b) of the shelf top with tongues (14) shaped in the plane of the guard strip (13), fitted in the holes (15) made **in that** part of the shelf top.

8. The rack according to Claim 7, **characterised in that** the tongue (14) formed in the plane of the guard strip (13) protecting the merchandise from slipping has an opening (20), and the shape of the hole (15) made **in that** part of the shelf top (6a, 6b), in which the tongue (14) is fitted is close to horizontally positioned

letter C.

9. Rack according to Claim 8, **characterised in that** the holes (15) made **in that** part of the shelf top (6a, 6b) in which tongues (14) are fitted, formed in the plane of the guard strip (13) protecting the merchandise from slipping, where the shape of the holes resembles horizontally positioned letter C, are in reversed (180 °) position to each other.

10. Rack according to Claims 1 to 9, **characterized in that** it is made of plywood.

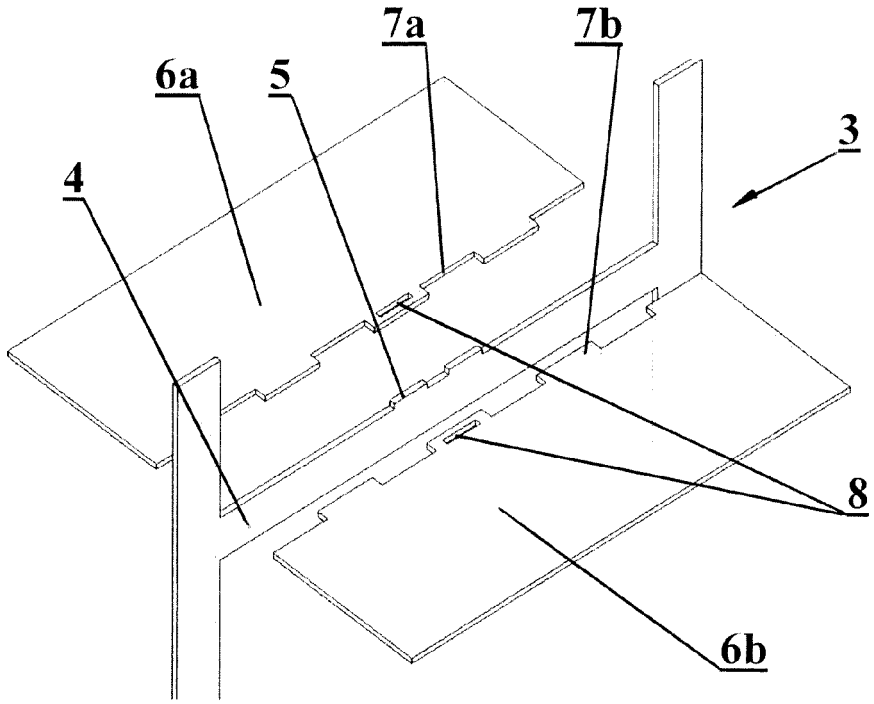


Fig. 1

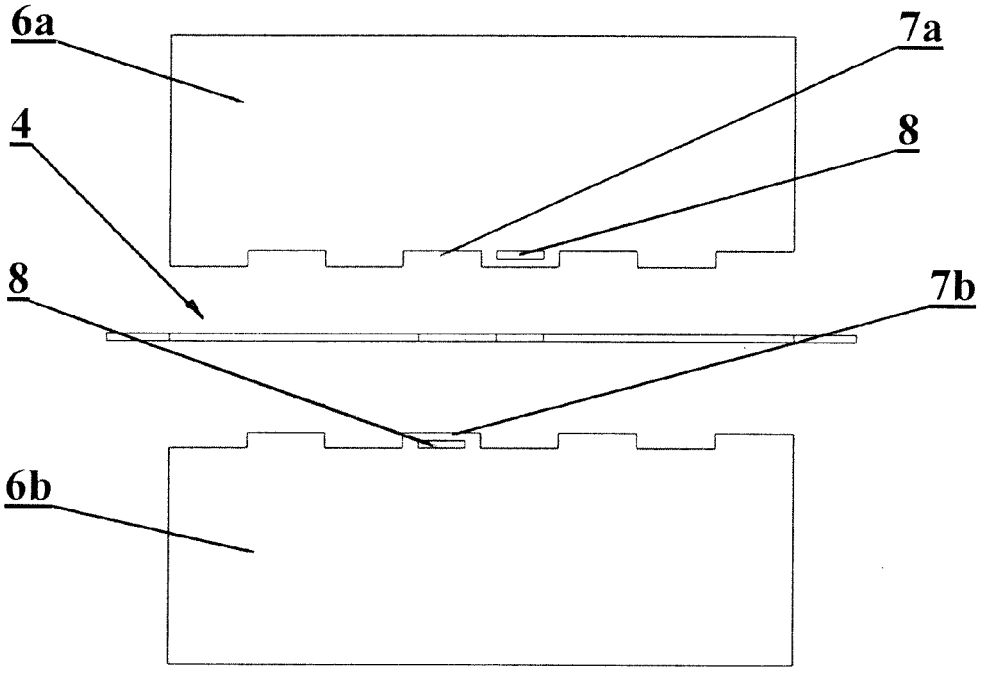


Fig. 2

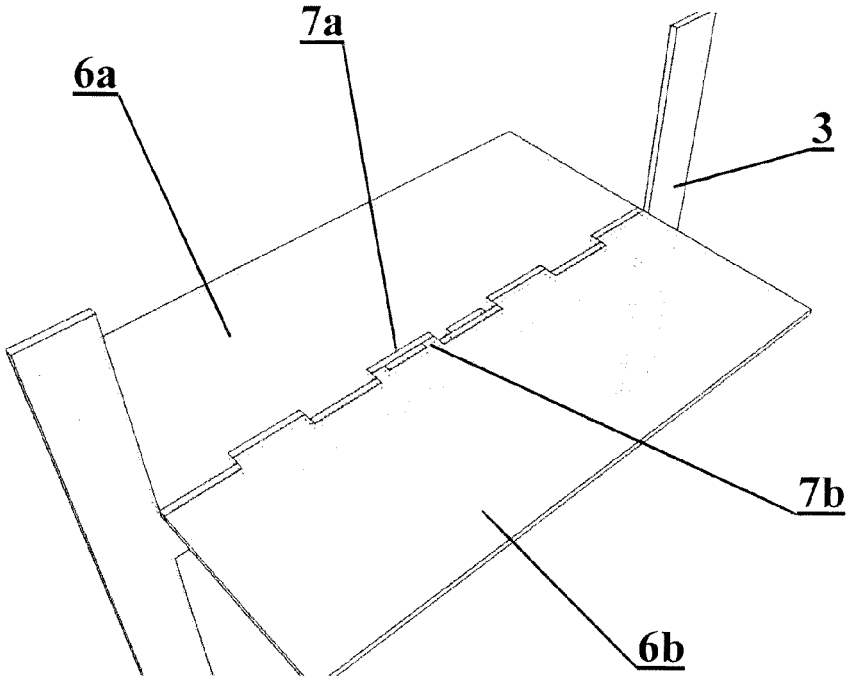


Fig. 3

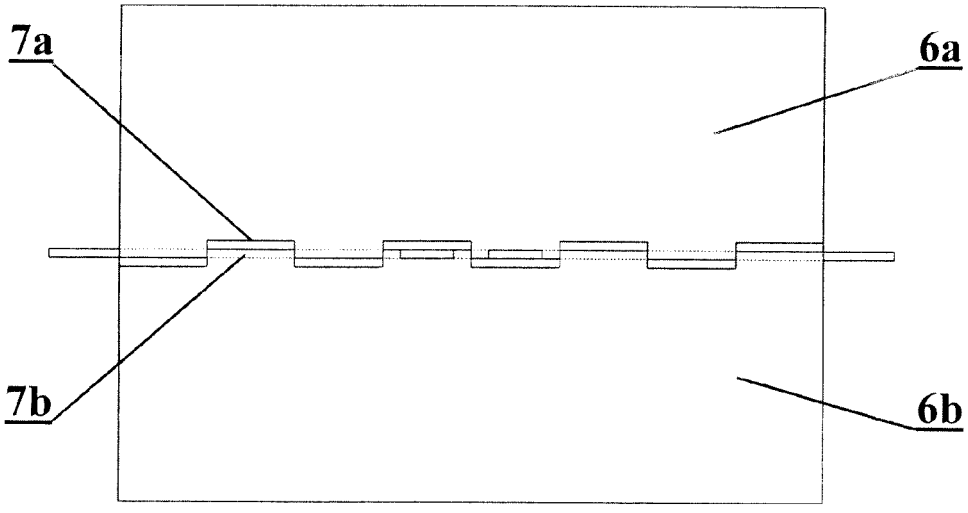


Fig. 4

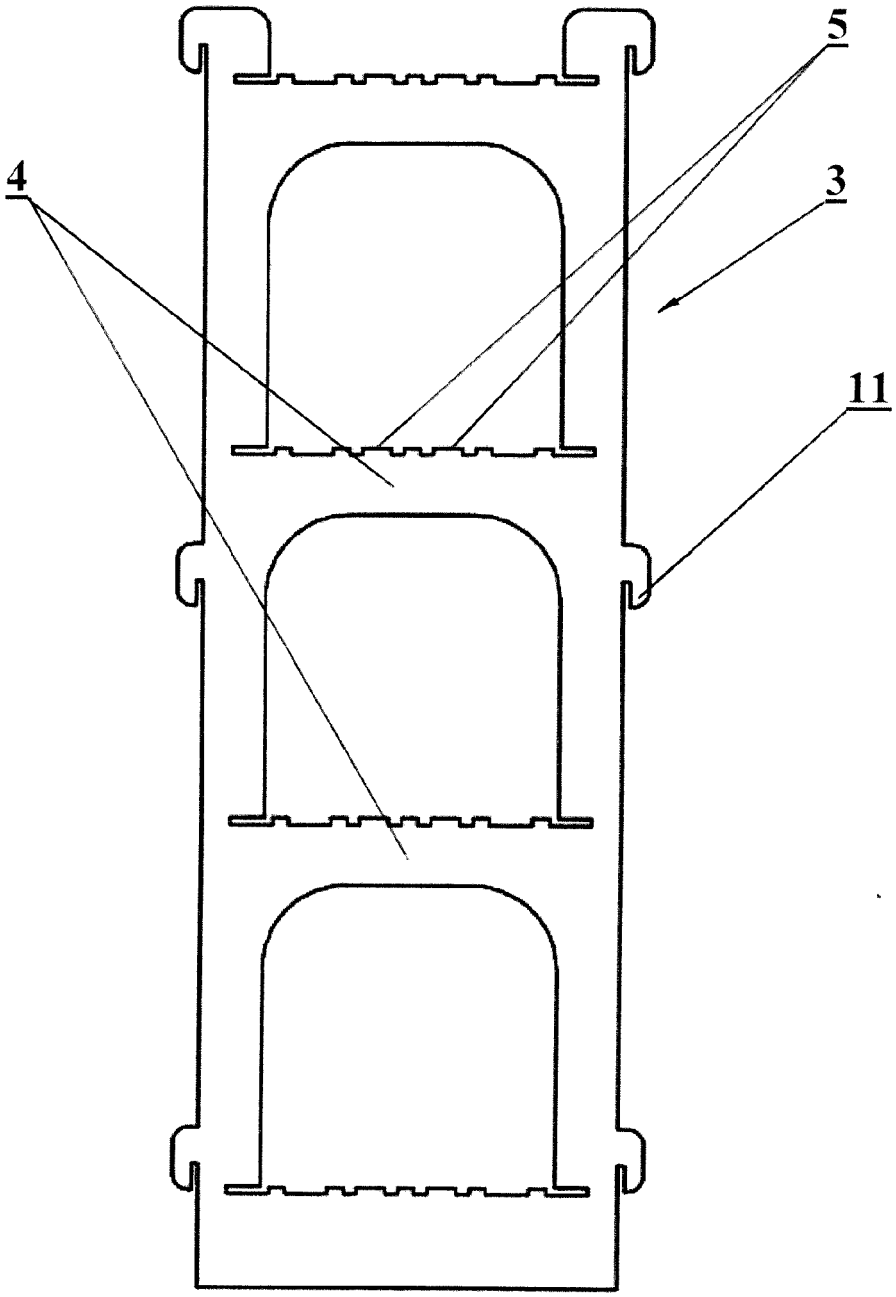
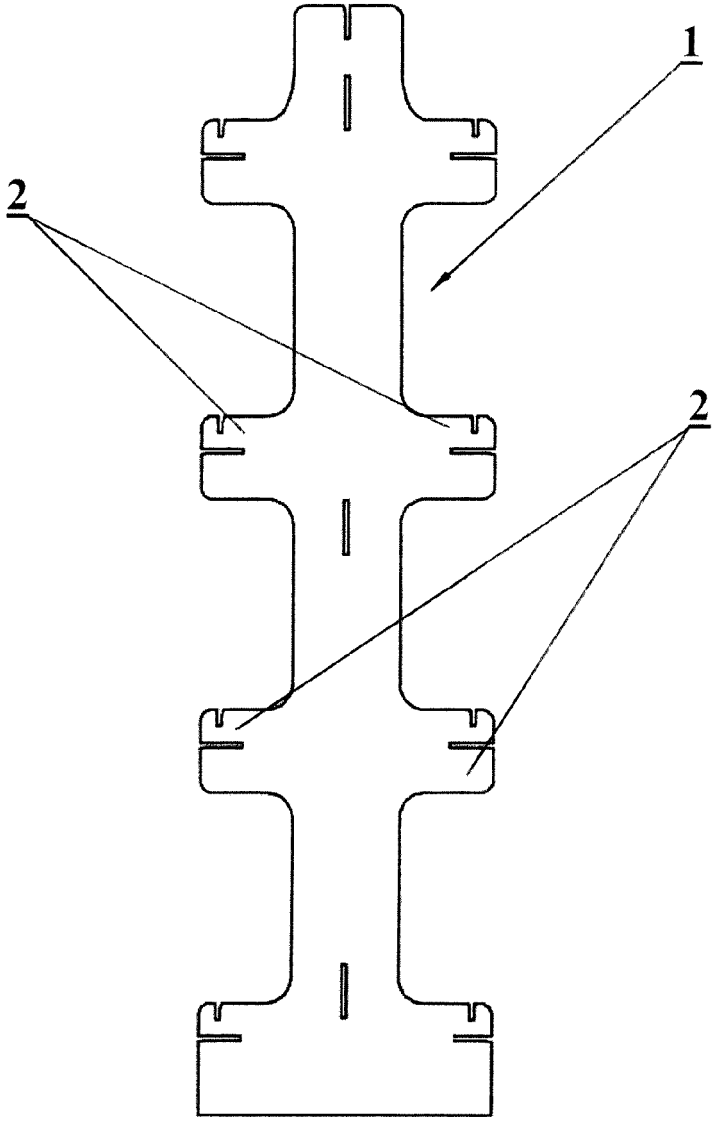


Fig. 5



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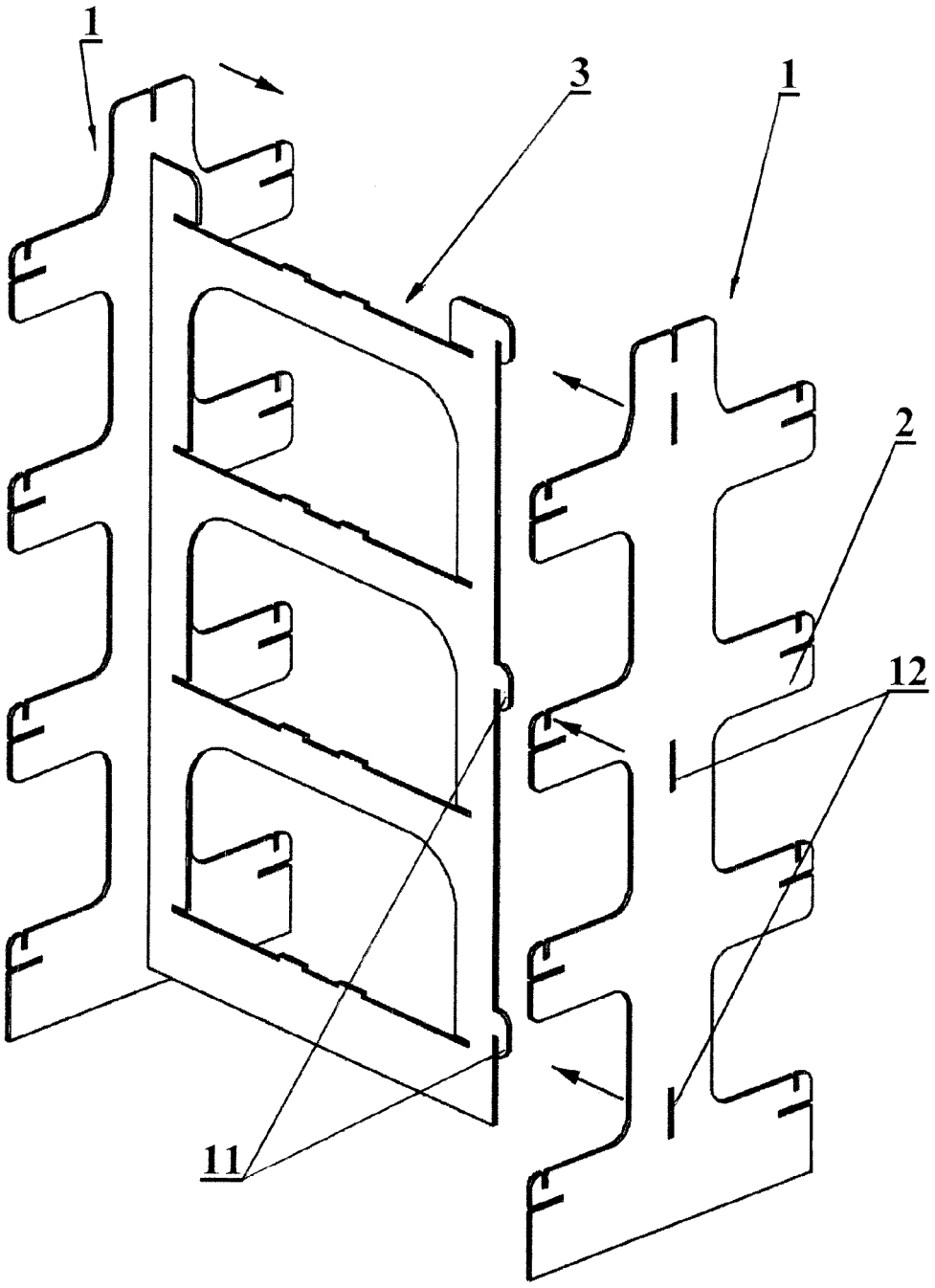

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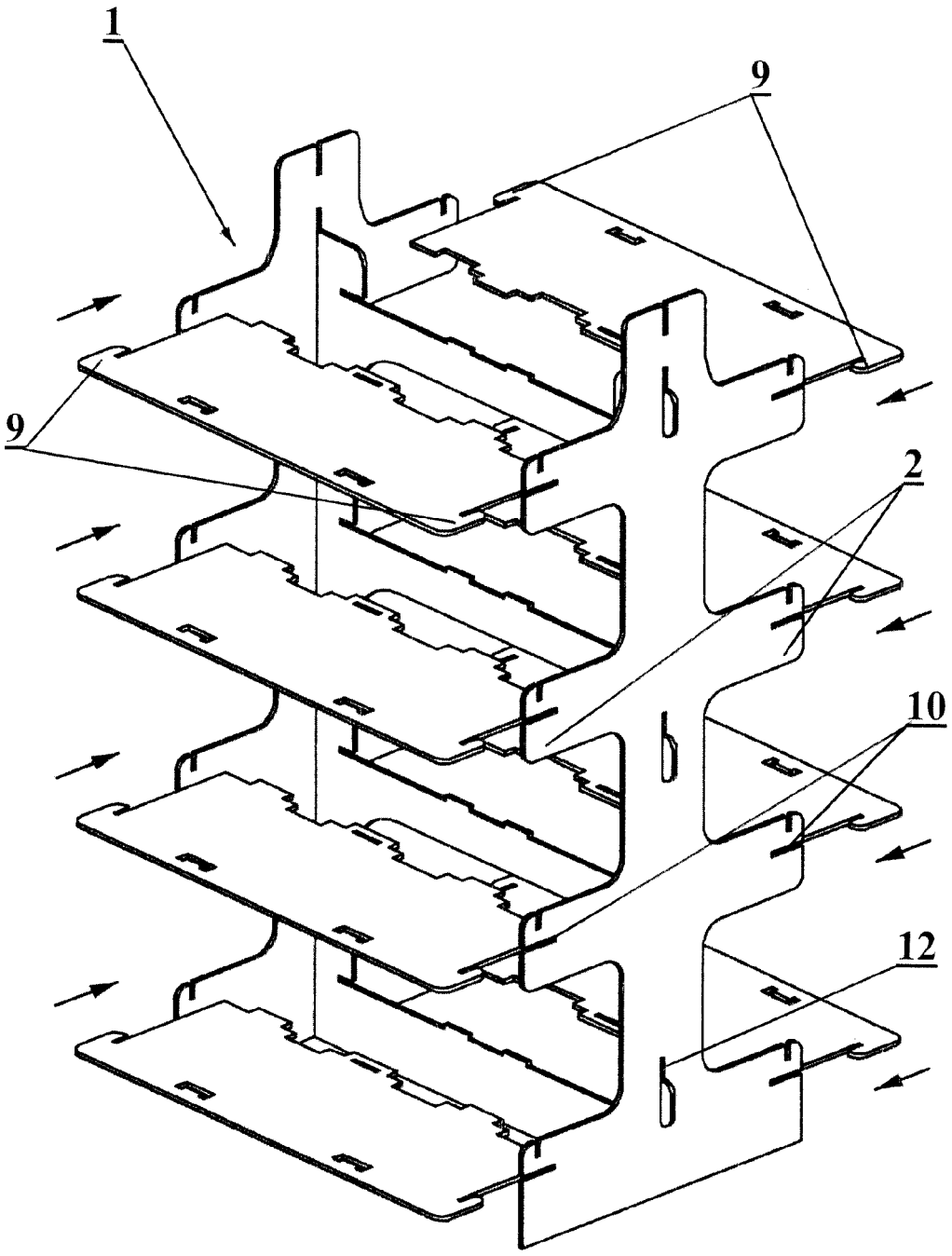

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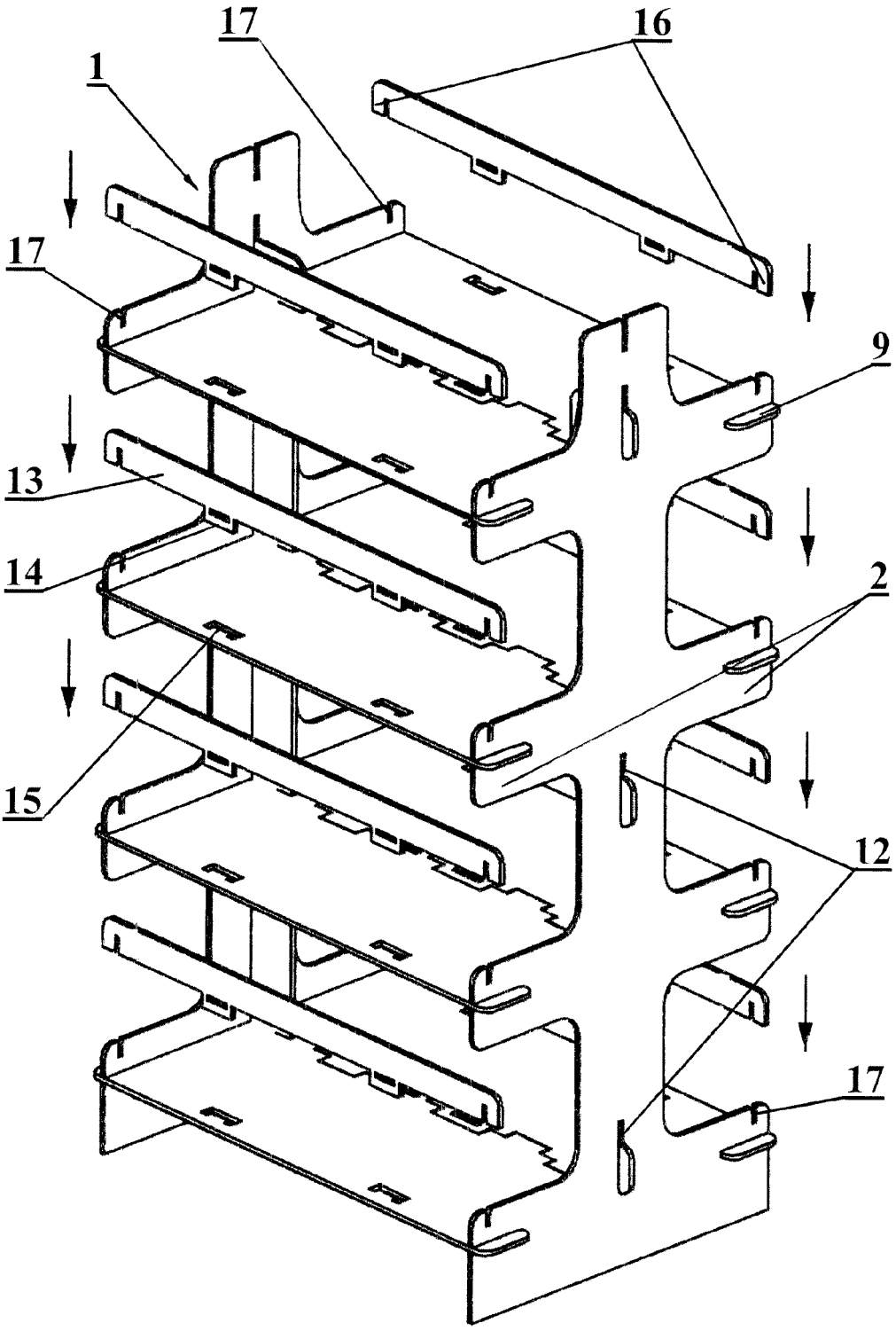

Fig. 9

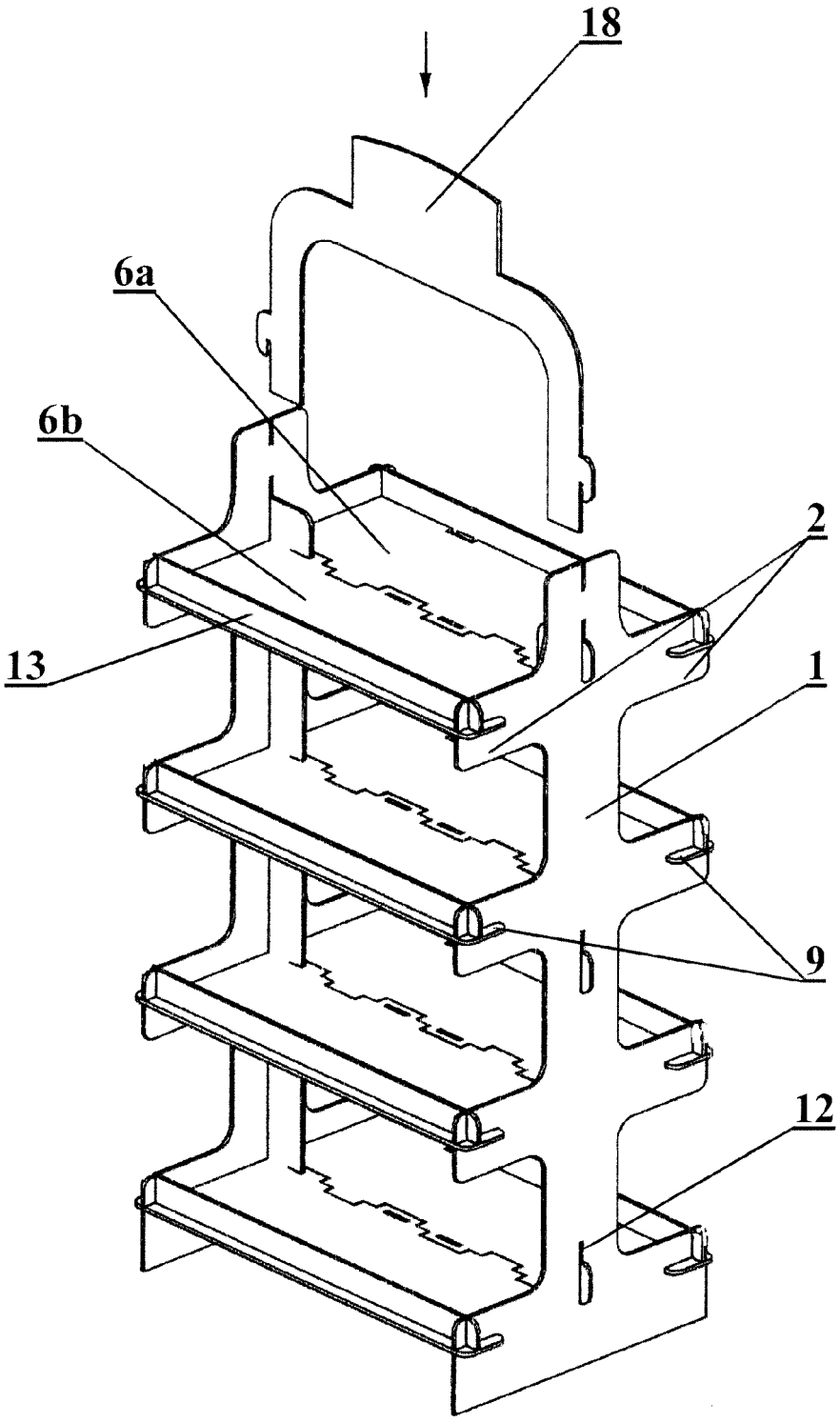

Fig. 10

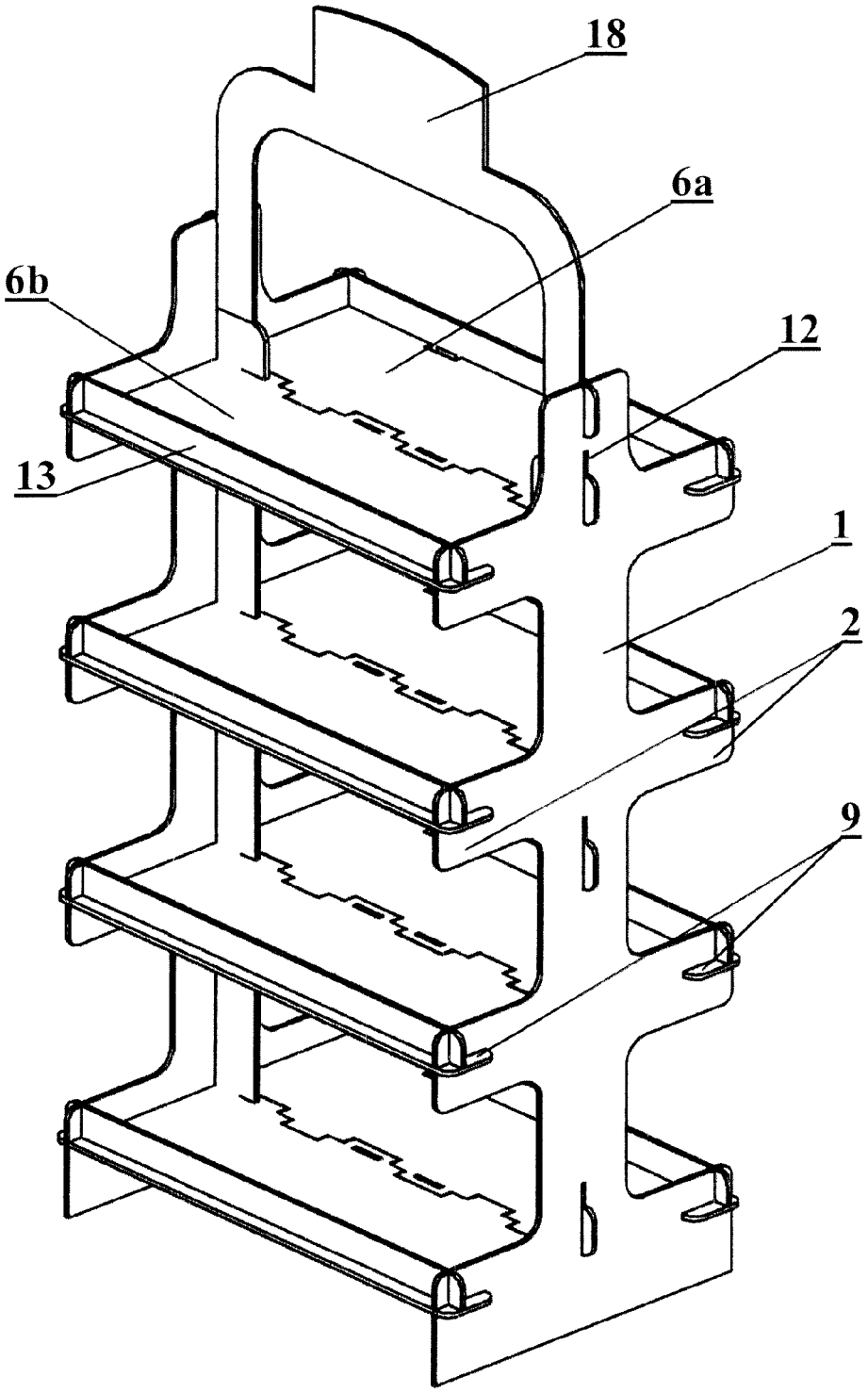

Fig. 11

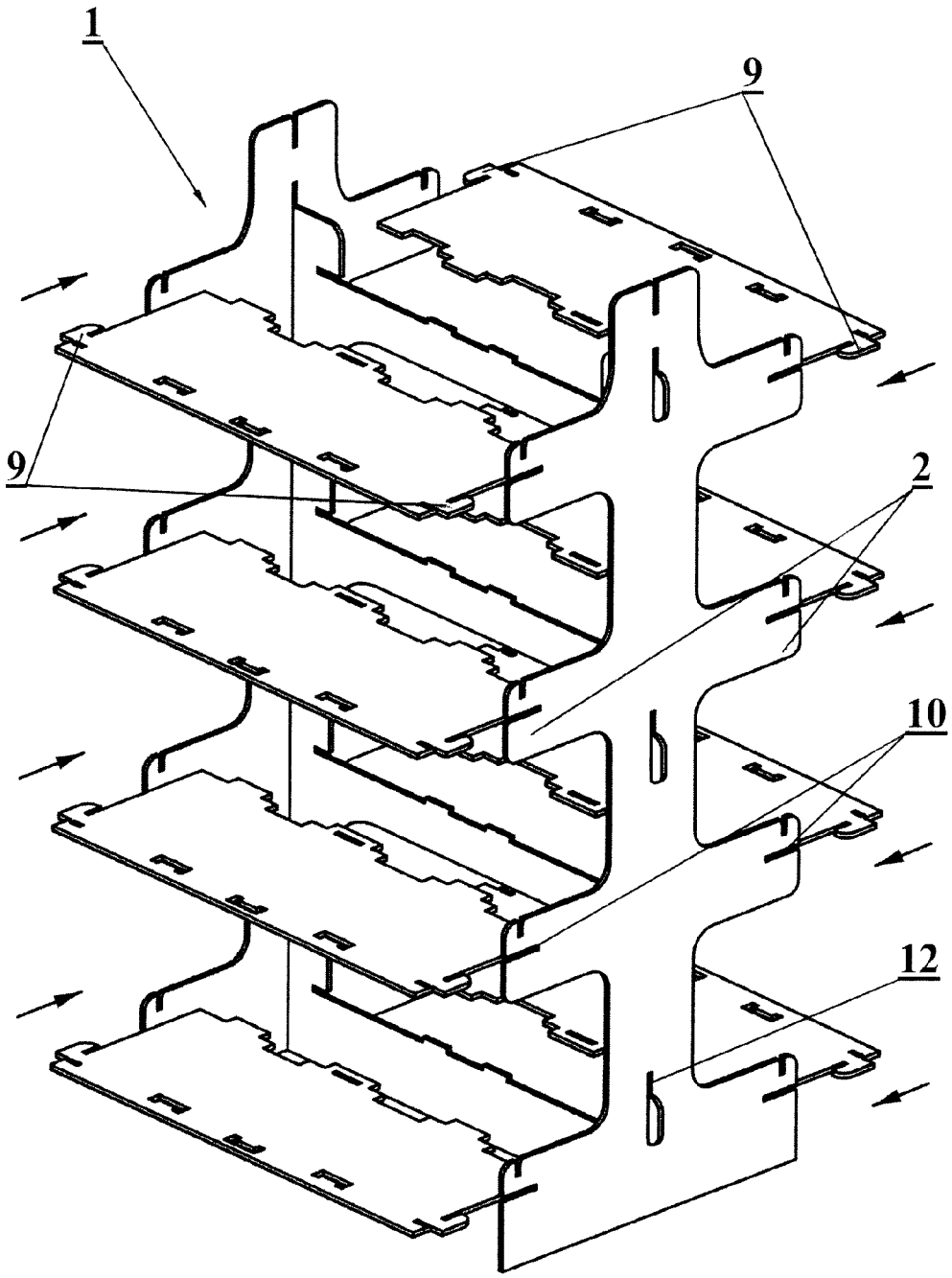

Fig. 12

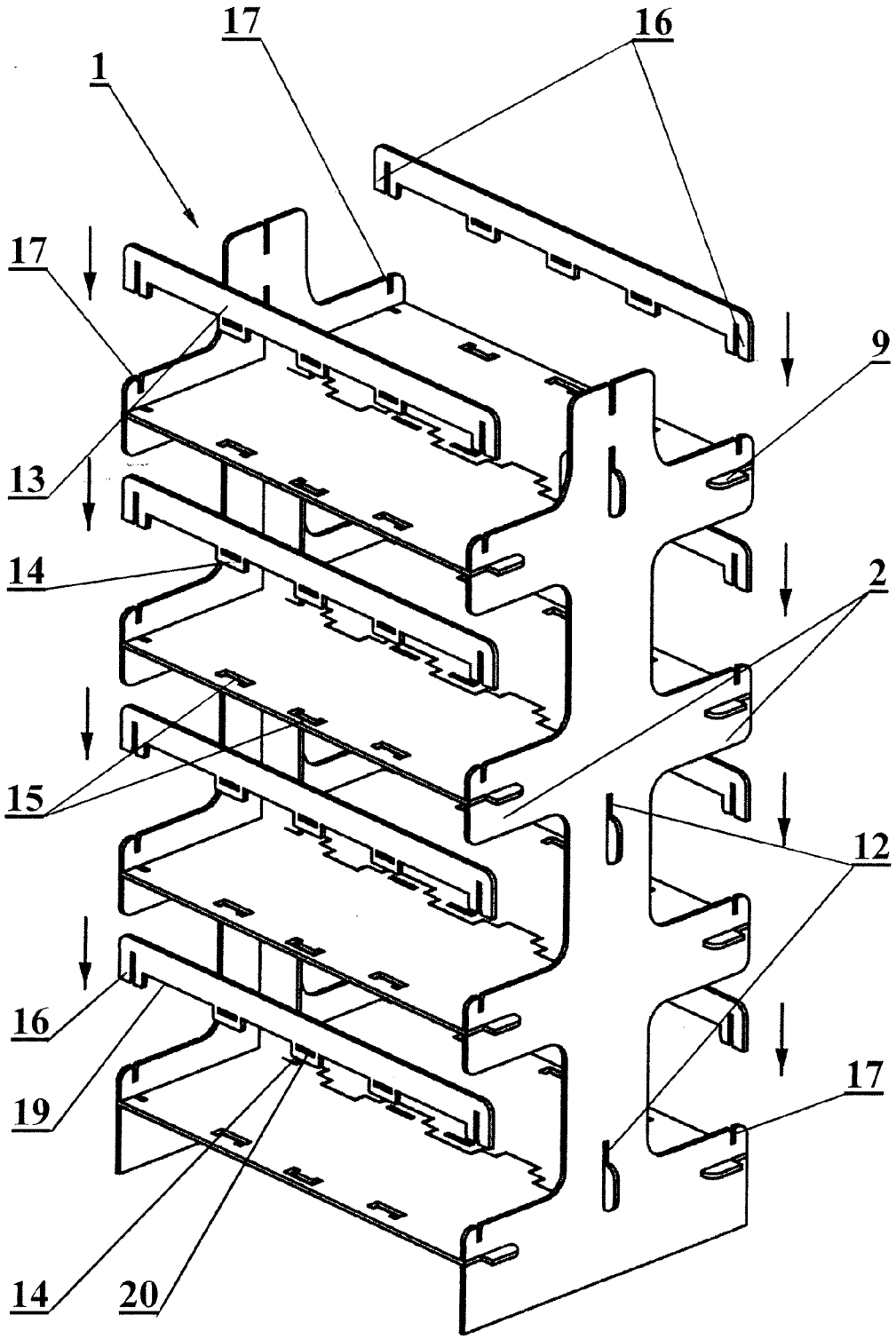

Fig. 13

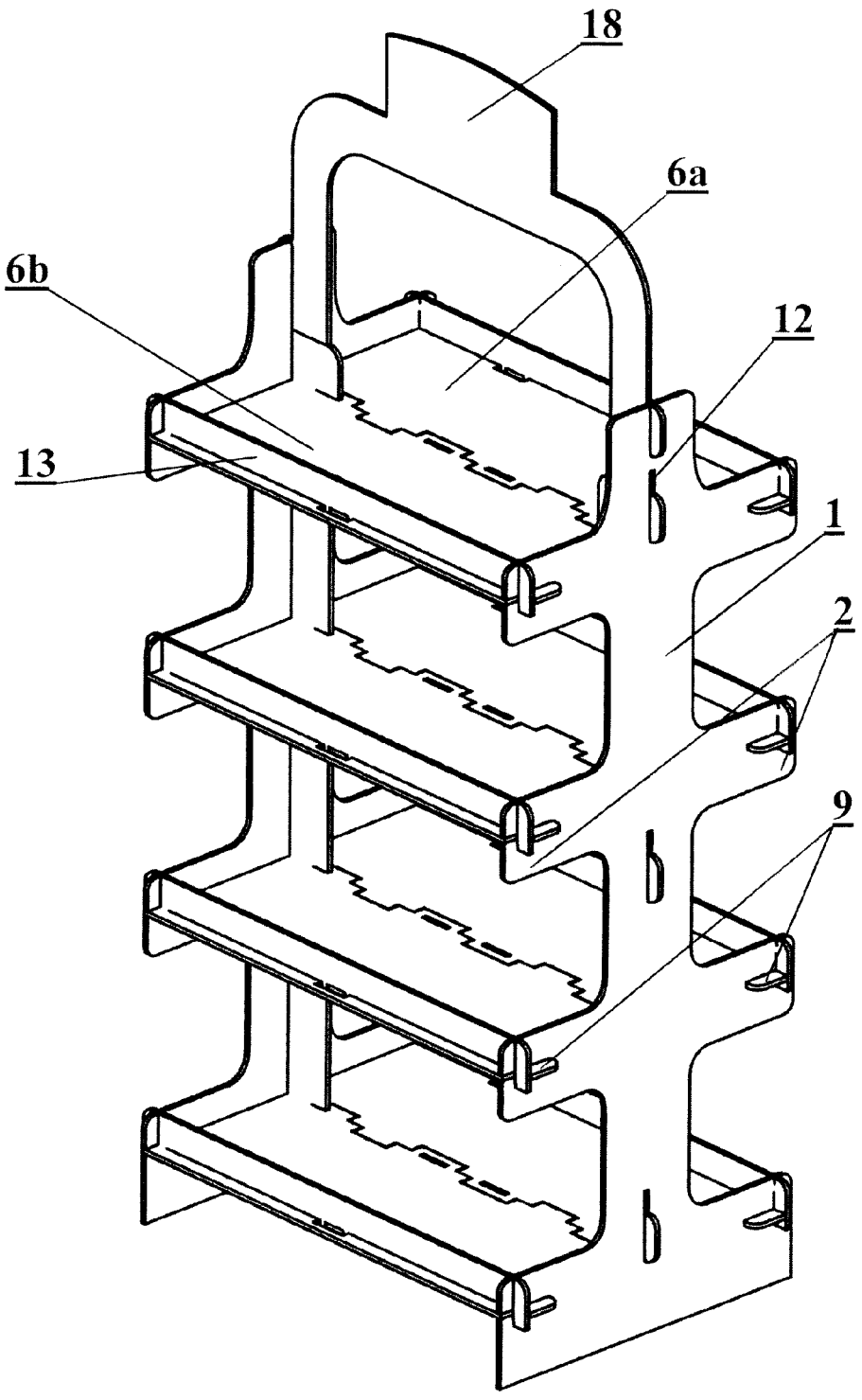

Fig.14

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- PL P375887 **[0002]**
- PL 212265 B1 **[0003]**