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(54) **FOLDABLE WORKSTATION**

(57) The object of the present invention is a foldable box 1, or booth, or cubicle, which has a storage position, flattened, and an operating position, where said box in the operating position is a workstation, said box comprising:

- two front elements 3 which each comprise two front panels 9;
- two lateral elements 4 which each comprise a lateral panel 6;

where said lateral elements 4 are constrained to said front elements 3 by means of at least a first joint device 11 which allows rotation around a first junction axis 12, where said joint device 11 is inside said box;

where said front panels 9 are linked together by at least one second joint device 14 so as to be able to rotate around a second junction axis 13, where said at least one joint device 14 is external to said box;

- at least one horizontal surface 7, constrained to an internal face of one of said lateral elements 4 with at least a third joint device 17 which allows it to rotate around a third junction axis 18, where said at least one horizontal surface 7 has two front profiles 21, at least a portion of said front profiles 21 being parallel to said third junction axis 18 and two side profiles 20, at least a portion of said side profiles 20 being perpendicular to said third junction axis 18;

where at least one of said front panels 9, preferably two, comprises an open or opening portion, characterized in that said front panels 9 comprise, on the internal face, at least one shaped support shims 16 on which said side profiles 20 of said at least one horizontal surface 7 rest at least partially, in the operating position; the height of the surfaces 7 being variable and adjustable to adapt to the different needs of use of the workstation.

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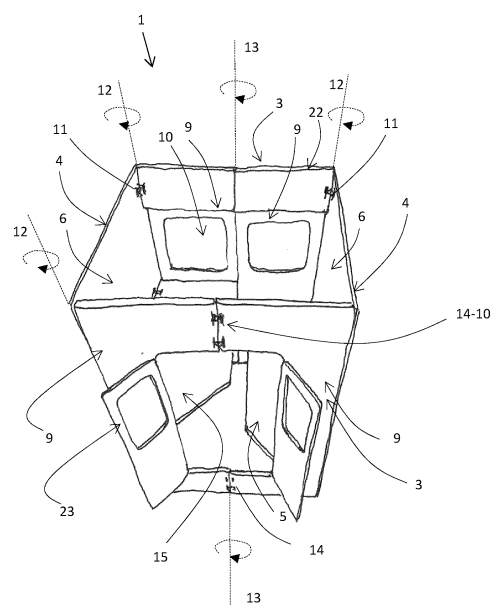


Fig. 1

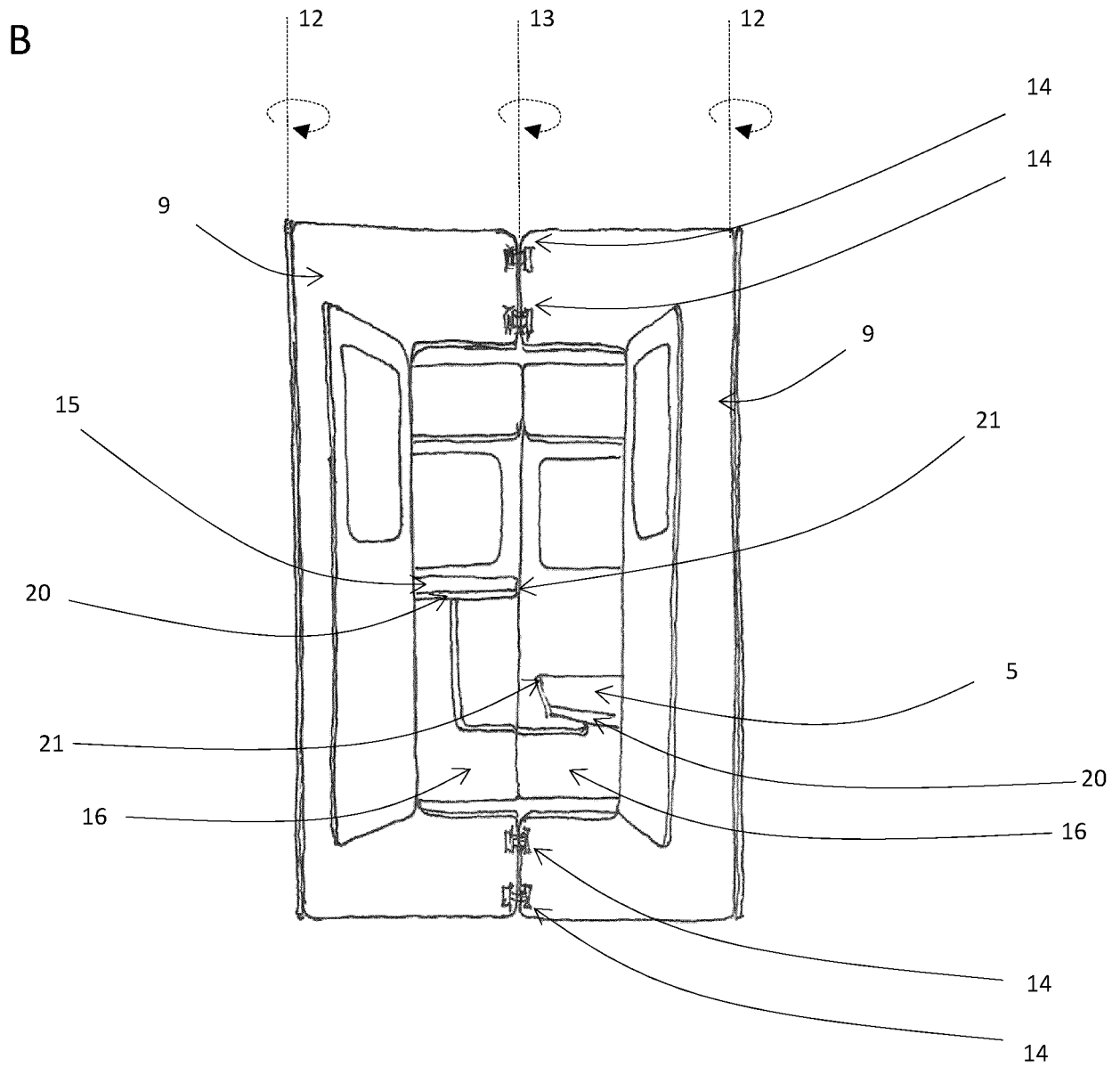


Fig. 1

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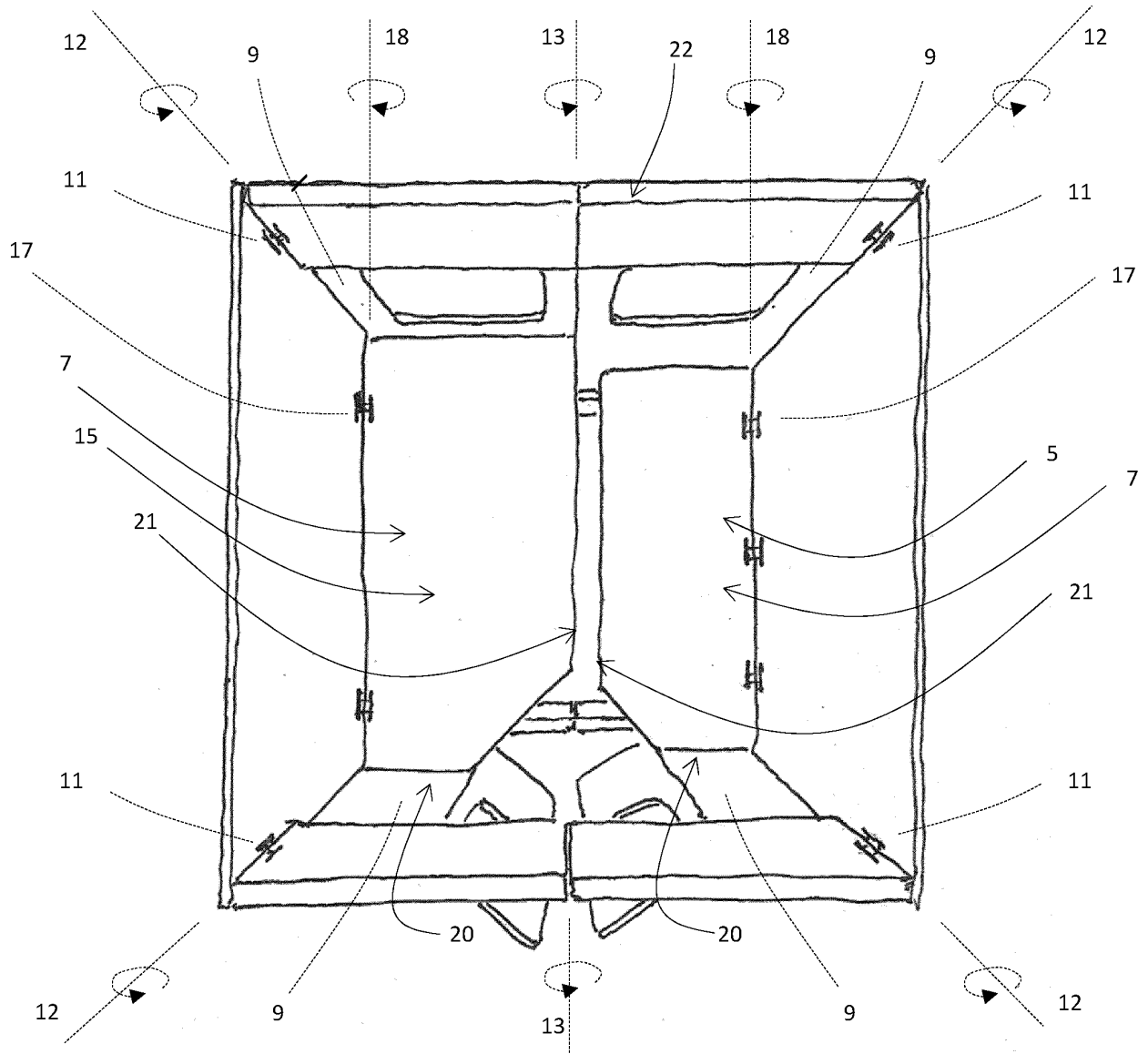


Fig. 1

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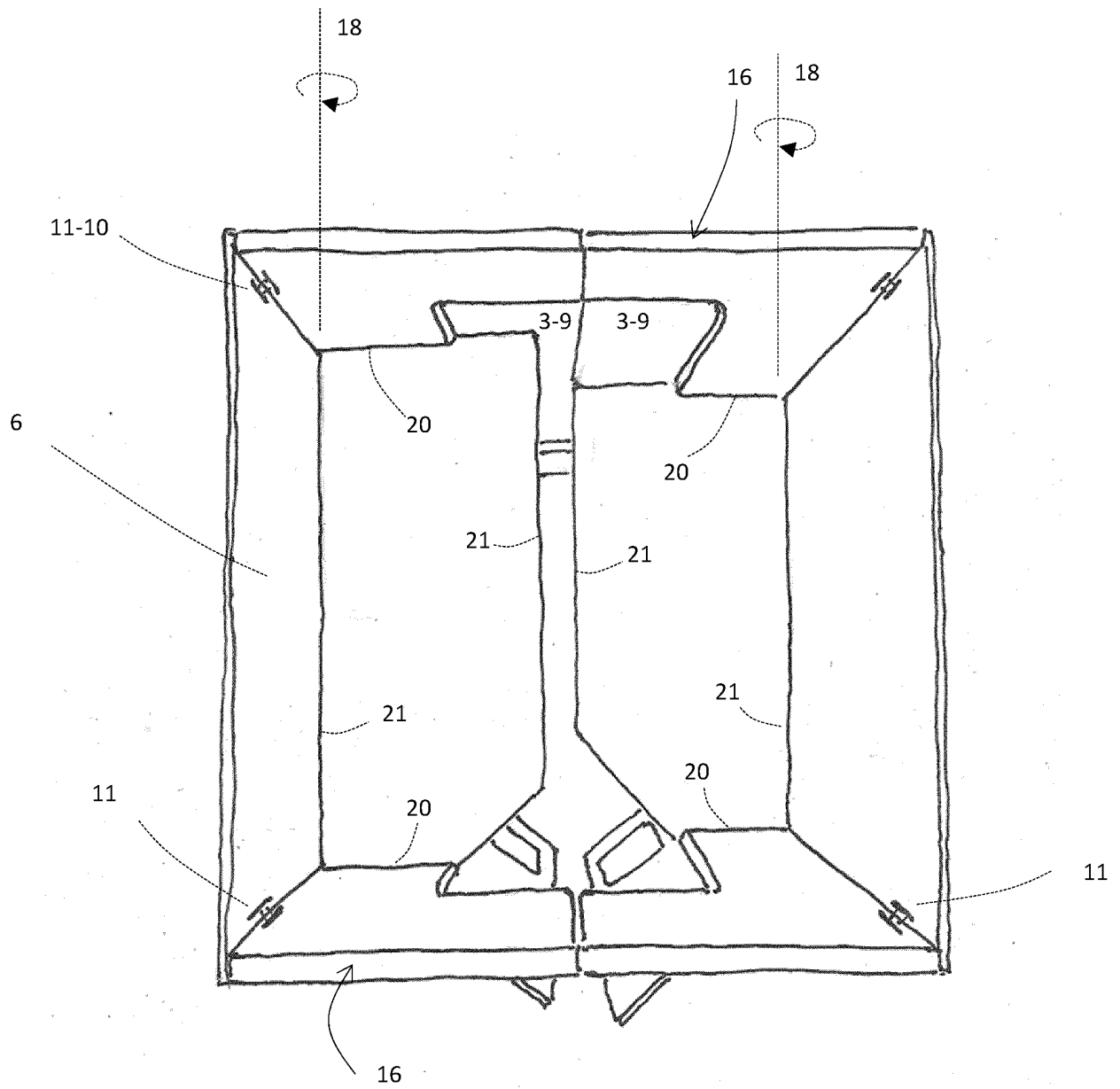


Fig. 1

Description

[0001] The present invention relates to a foldable box (or booth or cubicle) which, in the position of use, comprises a seat and a workstation suitable for hosting a person, and which has three main characteristics:

- convenience and safety of use in the operating position;
- minimum encumbrance in the closed, folded, storage position;
- ease and safety in opening and closing

State of the art

[0002] Numerous foldable boxes are known in the art which have vertical elements (lateral elements) which support one or more horizontal surfaces. However, the boxes according to the known art cannot be loaded or they can be loaded only by a small force acting on an essentially horizontal surface, such as the surface of a seat: in fact, the boxes according to the known art typically have horizontal folding axes, and the vertical load risks to close the structure, or it is the cause.

[0003] US4122638 discloses a collapsible structure for children's play. The four side elements are connected with hinges on the sides.

[0004] The object of the present invention is to provide a foldable box which comprises at least one horizontal surface which can be loaded on at least one of the horizontal surfaces by a force greater than a person sitting on said at least one horizontal surface, which can be closed with folding vertical axes which therefore oppose the loads and achieve their overall stability, and which can be easily transported in a storage position with a minimum encumbrance. This object is achieved with a foldable box, or booth, according to Claim 1.

Description of the invention

Description of the figures

[0005]

Figure 1: an embodiment of the box according to the invention in the operating position A) perspective view; B) front view; C) top view; D) bottom view.

Figure 2: an embodiment of the box according to the invention during two steps of the closing/opening operation A) lifting the table and seat; B) folding the walls.

Figure 3: the box in the embodiment of Figure 1, in the storage position.

[0006] The figures together with the following description are not intended in any way to limit the object of the present invention, the scope of which is defined by the claims.

[0007] The box, or cabin, according to the present invention has two positions: an open position, operating and a closed position, for storage. The volume occupied by the box in the storage position is less than the volume occupied by the box in the operating position.

[0008] Figure 1 shows an embodiment of the box 1 according to the invention, in the operating position. In this embodiment, the box 1 has the shape of a rectangular parallelepiped.

[0009] The box 1, figure 1A, comprises two front elements 3 and two lateral elements 4. In the operating position, the front elements 3 and the lateral elements 4 describe a rectangle in plan, the front elements 3 and the lateral elements 4 being arranged at a right angle with respect to each other.

[0010] The following elements of the box 1, i.e. the front elements 3, the lateral elements 4 and, where present, an optional cover element (not shown) arranged above the box 1 in the operating position, define an interior and an exterior of the box, forming a parallelepiped.

[0011] Said lateral elements 4 are constrained by means of at least a first joint device 11 to said front elements 3 so as to be able to rotate around a first junction axis 12. In one embodiment, said at least one first joint device 11 is a hinge. Said hinge is a hinge inside said box 1.

[0012] Said front elements 3 each comprise two front panels 9 stiff to bending.

[0013] Said front panels 9 are linked together by at least one second joint device 14 so as to be able to rotate around a second junction axis 13. In one embodiment, said second joint device 14 is a hinge. Said hinge is a hinge external to said box 1. In the operating position, said front panels 9 are arranged at an angle of 180 ° to each other, so that said front panels 9 describe a straight line in plan.

[0014] Said lateral elements 4 each comprise a single lateral panel 6 stiff to bending. The front panels 9 of the front elements 3 and the lateral panels 6 of the lateral elements 4 are designed as panels with the same rigidity.

[0015] In one embodiment said panels 6, 9 are optionally reinforced with ribs.

[0016] Said first joint device 11 is designed in such a way that said lateral and front elements can rotate only towards the inside of the box 1 around the first junction axis 12, as illustrated in Figure 2B, during the folding step of the box. Said first joint device 11 prevents the outward rotation of said lateral and front elements.

[0017] Said second joint device 14 is designed in such a way that said lateral panels 9 can rotate only towards the outside of the box 1 around the second junction axis 13, as shown in the same figure 2B. Said second joint device 14 prevents the inward rotation of said front panels 9.

[0018] Said lateral elements and said front elements have a height between about 80 cm and about 200 cm. As an example, about 170 cm. Alternatively, about 90 cm.

[0019] At least one of said front panels 9, preferably

two, comprise an open or opening portion of variable height and width and such as to allow access to the inside of the box by a user. In a particularly preferred form, shown in figure 1, two lateral panels 9, which constitute a front element 3, comprise a portion that in the position of use can be opened outwards, constituting a door 23.

[0020] Said lateral panels 6 and / or said front panels 9 optionally comprise further open portions, or portions made of different or transparent material, for example they are partially made of plexiglass or plastic or glass.

[0021] By way of example, in the embodiment of figure 1 said lateral panels 9 comprise open portions 10.

[0022] In one embodiment, said open portions 10 house gaskets with an "h" or "H" section. Conveniently, in said gaskets there are modules with different functions, for example, transparent modules, for example in plexiglass, sound-absorbing modules, filter modules, modules with electronic and / or digital devices, for example audio-video systems, decorative elements.

[0023] Said box 1 comprises at least one horizontal surface 7.

[0024] In one embodiment, said box comprises two horizontal surfaces 7, Figure 1C. Said horizontal surfaces 7 are constrained to the internal face of said lateral elements 4 with at least a third joint device 17 which allows them to rotate around a third junction axis 18.

[0025] Said horizontal surfaces 7 each comprise two side profiles 20 and two front profiles 21. At least a portion of said side profiles 20 is perpendicular to said third junction axis 18 and at least a portion of said front profiles 21 is parallel to said third junction axis 18.

[0026] In one embodiment, a first horizontal surface 7 forms the seat 5 and a second horizontal surface 7 forms the table 15.

[0027] When in use, a force essentially defined by a person seated on said seat 5 is exerted on said seat 5.

[0028] Said seat 5 is constrained to the internal face of one of said lateral elements 4 with at least a third articulation device 17 which allows it to rotate around said third junction axis 18, causing said seat to be tilted upwards. Said at least one third joint device 17 is preferably a hinge.

[0029] Said table 15 is constrained to the internal face of one of said lateral elements 4 with a third joint device 17 which allows it to rotate around said third junction axis 18, causing said table to be tilted upwards. Said third joint device 17 is preferably a hinge.

[0030] The box according to the present invention is characterized by the fact that on the internal face of said front panels 9 there is a support thickness 16 (Figure 1D). Said support thickness 16 is integral with said front panels, or is applied on them. Said support thickness 16 on the internal face of said front panels 9 is suitably shaped so that the side profiles 20 of said horizontal surfaces 7 rest at least partially on it.

[0031] In one embodiment, said front panels 9 also comprise on the internal face a reinforcing shim 22 (Figure 1A, 1C). Said reinforcement shim 22, integral or ap-

plied to said front panels 9, is preferably positioned on the upper portion of said front panels.

[0032] The horizontal surfaces 7 of the seat 5 and of the table 15 are designed to be made at different heights and adjustable heights from the ground, in order to adapt it to different needs and types of users, and to different regulations in terms of ergonomics and safety.

[0033] As depicted in figure 3, in the storage position said front panels 9 remain inside, and said box 1 flattens, leaving the external face of said lateral panels 6 on the outside.

[0034] Advantageously, said support shims 16 are shaped so as not to interfere, in the closed position, with said horizontal surfaces 7, thus to minimize the thickness of the box in the storage position.

[0035] The box according to the present invention passes from the storage position to the operating position with a few moves, which do not require any tools or experience. Specifically, the user who needs the workstation conveniently expands the box so that said at least one first joint device 11 and said at least one second joint device 14 reach the operating position and lowers the seat 5 and the table 15. The indicated steps allow you to get the box in the operating position. To close, the table 15 and the seat 5 are first raised (figure 2A), after which the structure is flattened (figure 2B).

[0036] In one embodiment, said box also comprises pins 19, visible in figure 2A, where said pins 19 fit said table 15 and / or said seat 5 to said support shims 16. Said pins 19, where present, increase stability and the sealing of said box when in the open position, since they prevent the possibility that the front panels 9 of said front elements 3 open outwards; preferably, said pins 19 are composed of a male element (19-m) and a female element (19-f). Advantageously, said male element (19-m) is integral with the support surface 16, and said female element (19-f) is integral with the horizontal surfaces 7. This ensures that, in the storage position, said male elements (19-m) do not interfere with the closure, remaining located in the empty volume that is formed inside said box in the storage position due to the presence of said support shims 16 and, where present, said reinforcement shims 22. Advantageously, said empty volume is also occupied by said seat 5 and said table 15, conveniently shaped so that in storage position they do not interfere with each other, or with said support shims, where present, or with said male elements. Optionally, the box according to the present invention also comprises a covering element.

[0037] Said covering element is, in one embodiment, made of fabric or non-rigid material, or in any case soft, or flexible or foldable, possibly with parts that can be opened to facilitate the adjustable ventilation of the internal space.

[0038] The cabin according to the present invention advantageously offers sufficient space for a work or study station, with a minimum encumbrance both in the operating position and in the storage position.

[0039] The solutions reached by the present invention guarantee to have a folding cabin, self-composing, which does not require assembly steps. In addition, the thickness of the support guarantees stability and strength.

[0040] In one embodiment, said box is made with sound-absorbing materials, so as to ensure soundproofing with respect to the external environment.

[0041] In one embodiment, said box also comprises further functionalities, such as, for example, electrical sockets, network sockets, lighting systems or hooks for lighting systems and openings for the passage of cables.

Numbering

[0042]

- 1 = box or cabin
- 3 = front element
- 4 = lateral element
- 5 = seat
- 6 = lateral panel
- 7 = horizontal surface
- 9 = front panel
- 10 = open portions
- 11 = first joint device
- 12 = first junction axis
- 13 = second junction axis
- 14 = second joint device
- 15 = table
- 16 = support shim
- 17 = third joint device
- 18 = third junction axis
- 19-m = pin, male element
- 19-f = pin, female element
- 20 = side profiles
- 21 = front profiles
- 22 = reinforcement shims
- 23 = door

Claims

1. A foldable box (1) which has a storage position, flattened, and an operating position, wherein said foldable box in the operating position is a work station, said foldable box comprising:

- two front elements (3), each comprising two front panels (9);
- two lateral elements (4), each comprising a lateral panel (6);

where said lateral elements (4) are bound to said front elements (3) by means of at least a first joint device (11) which allows rotation around a first junction axis (12), where said joint device (11) is inside said foldable box; where said front panels (9) are bound together by at least one second joint device (14) so as to be able to rotate

around a second junction axis (13), where said at least one joint device (14) is external to said box;

- at least one horizontal surface (7), bound to the internal face of one of said lateral elements (4) with at least a third joint device (17) which allows it to rotate around a third junction axis (18), where said at least one horizontal surface (7) has two front profiles (21), at least a portion of said front profiles (21) being parallel to said third junction axis (18) and two side profiles (20), at least a portion of said side profiles (20) being perpendicular to said third junction axis (18);

where at least one of said front panels (9), preferably two, comprises an open or opening portion,

where said front panels (9) comprise, on the internal face, at least one shaped support shim (16) on which said lateral profiles (20) of said at least one horizontal surface (7) rest at least partially, in the operating position; **characterized in that** at least one front panels (9), preferably two front panels (9), which constitute one of said front element (3), comprise a portion that in the operating position can be opened outwards, constituting a door (23).

2. The box according to claim 1, which comprises two horizontal surfaces (7), where one of said horizontal surfaces (7) is a seat (5) and one of said horizontal surfaces (7) is a table (15).

3. The box according to claim 1 or 2, which also comprises at least one interlocking connection between said support shim (16) and said horizontal surfaces (7).

4. The box according to one of claims 1 to 3, which also comprises reinforcing shims (22) in the upper portion of the inner face of said front panels (9).

5. The box according to one of claims 1 to 4, which also comprises a cover element, which is preferably a fabric element.

6. The box according to one of claims 1 to 5, which also comprises network connections, electrical connections, lighting systems or hooks for lighting systems and/or openings for the passage of cables and/or variable and adjustable height of surfaces (7).

7. The box according to one of claims 1 to 6, wherein said front elements and said lateral elements have a height between about 80 cm and about 200 cm, preferably about 170 cm.

8. The box according to one of claims 1 to 6, wherein said front elements and said lateral elements have a height of about 90 cm.

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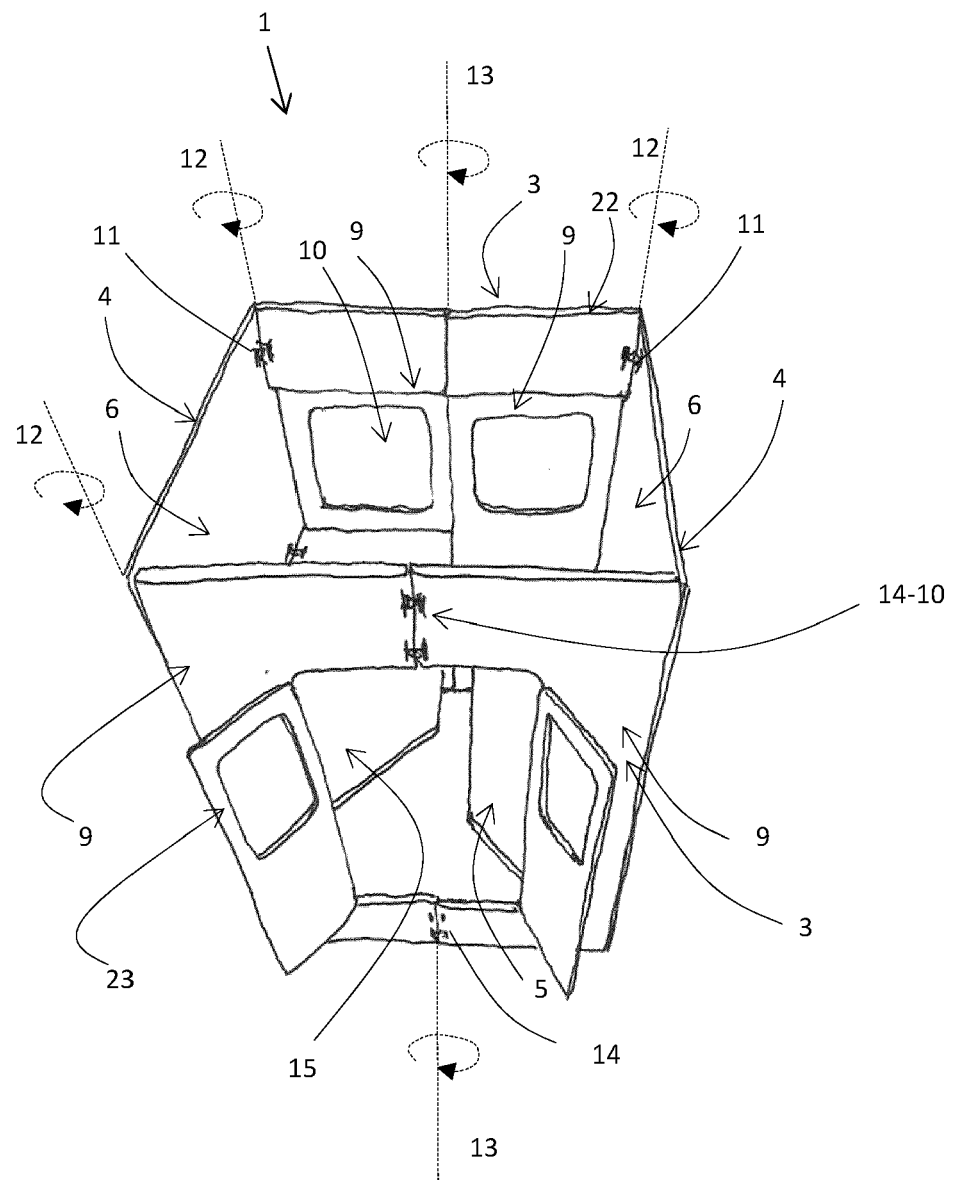


Fig. 1

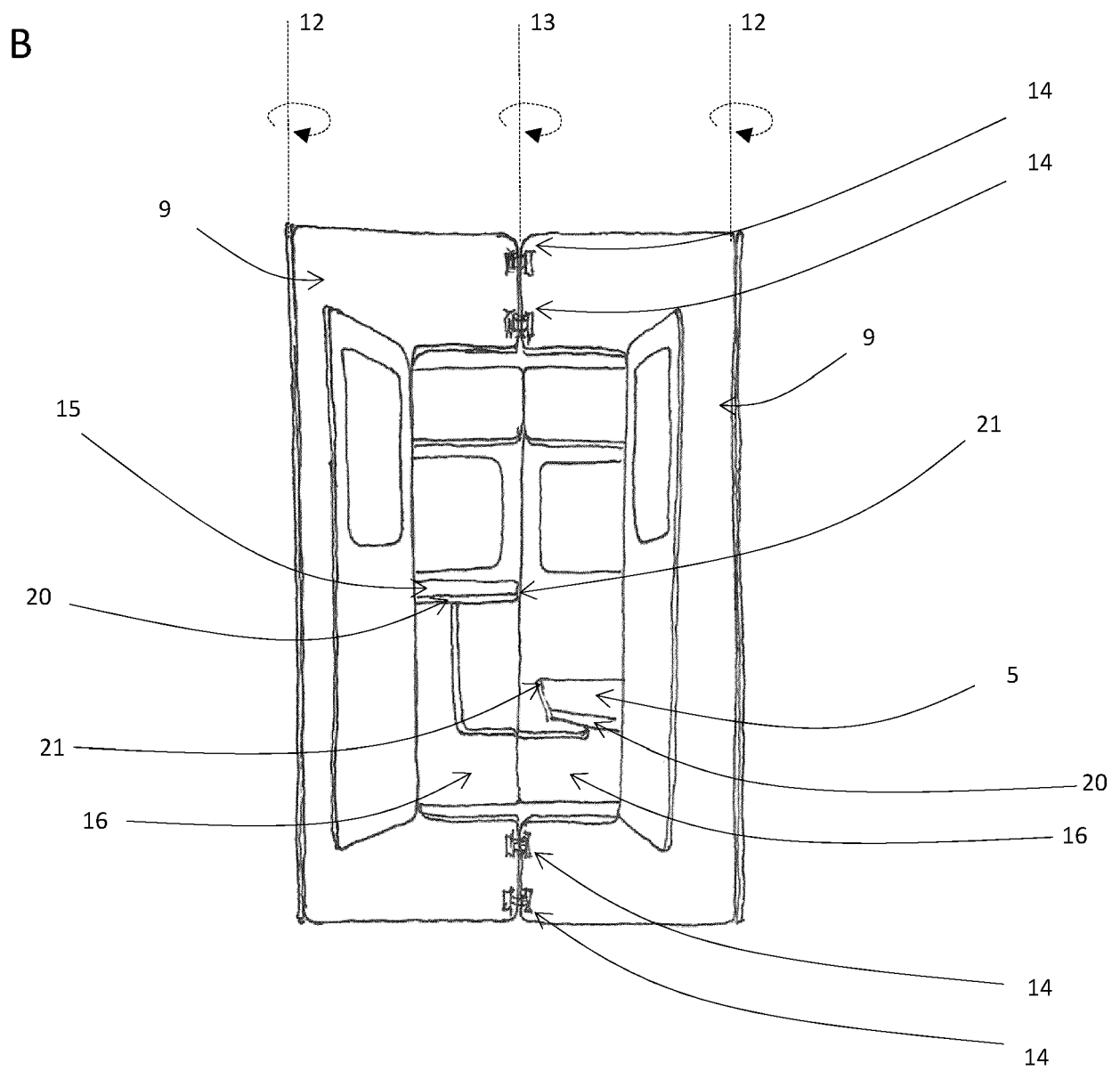


Fig. 1

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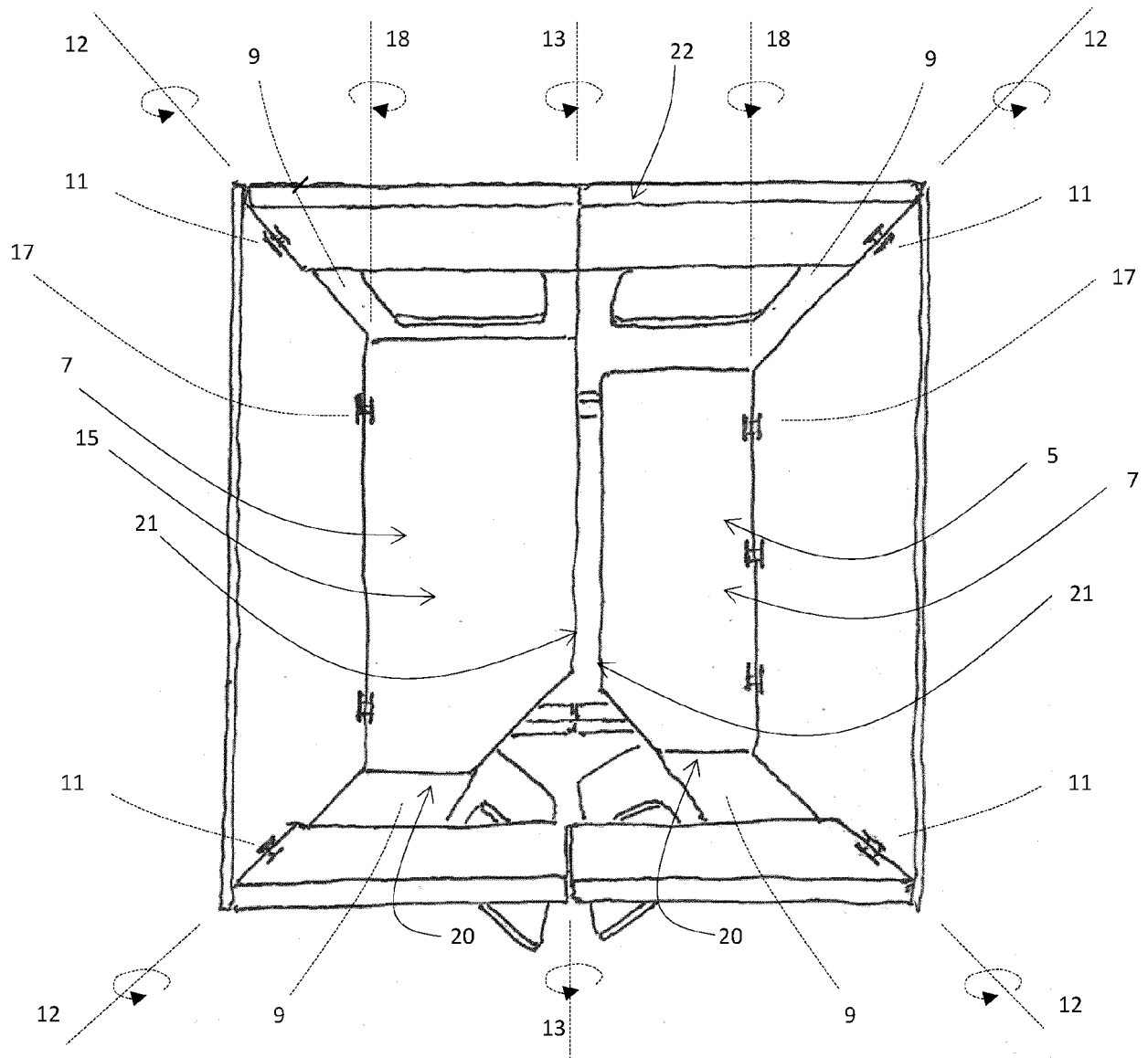


Fig. 1

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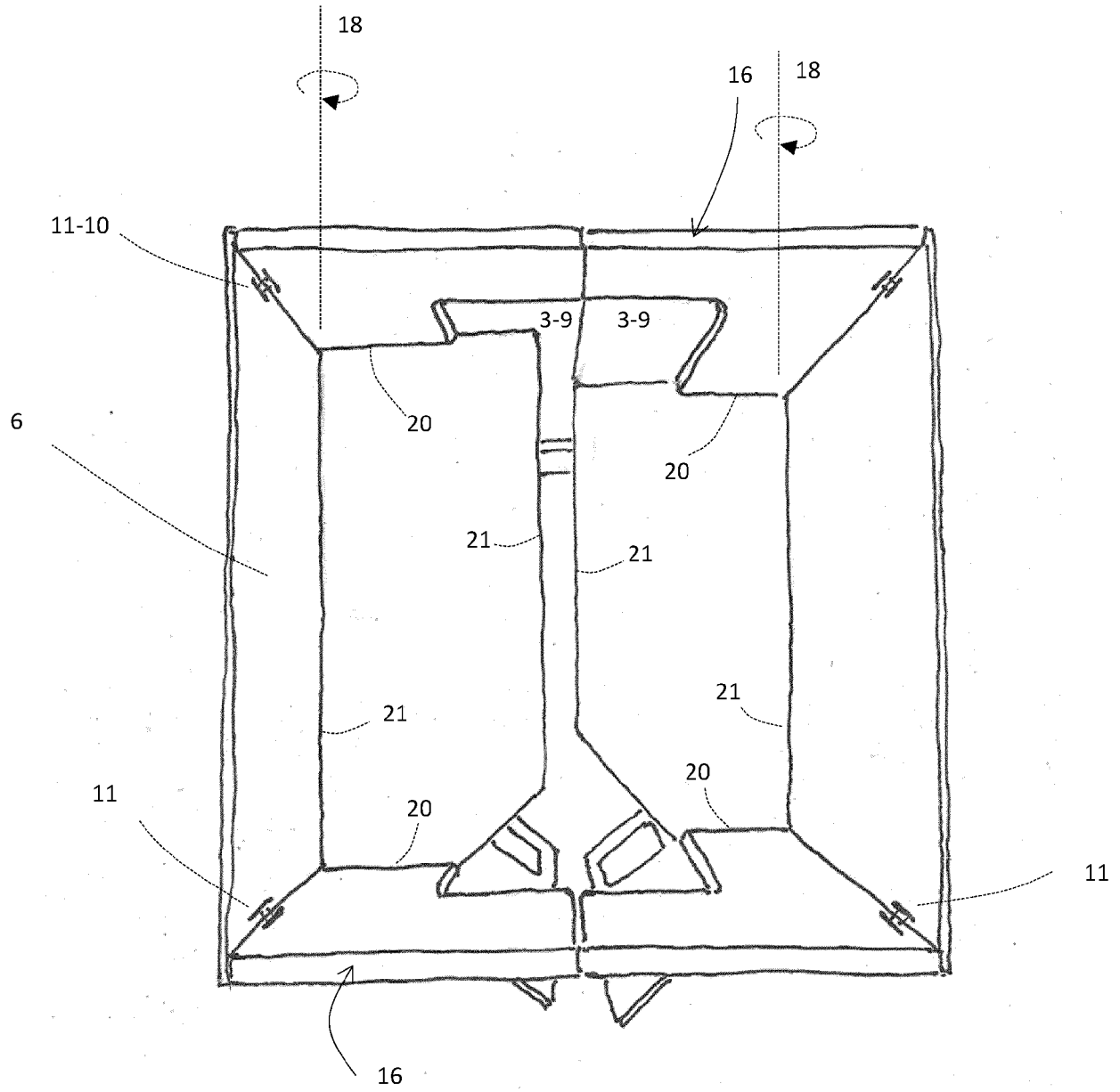


Fig. 1

A

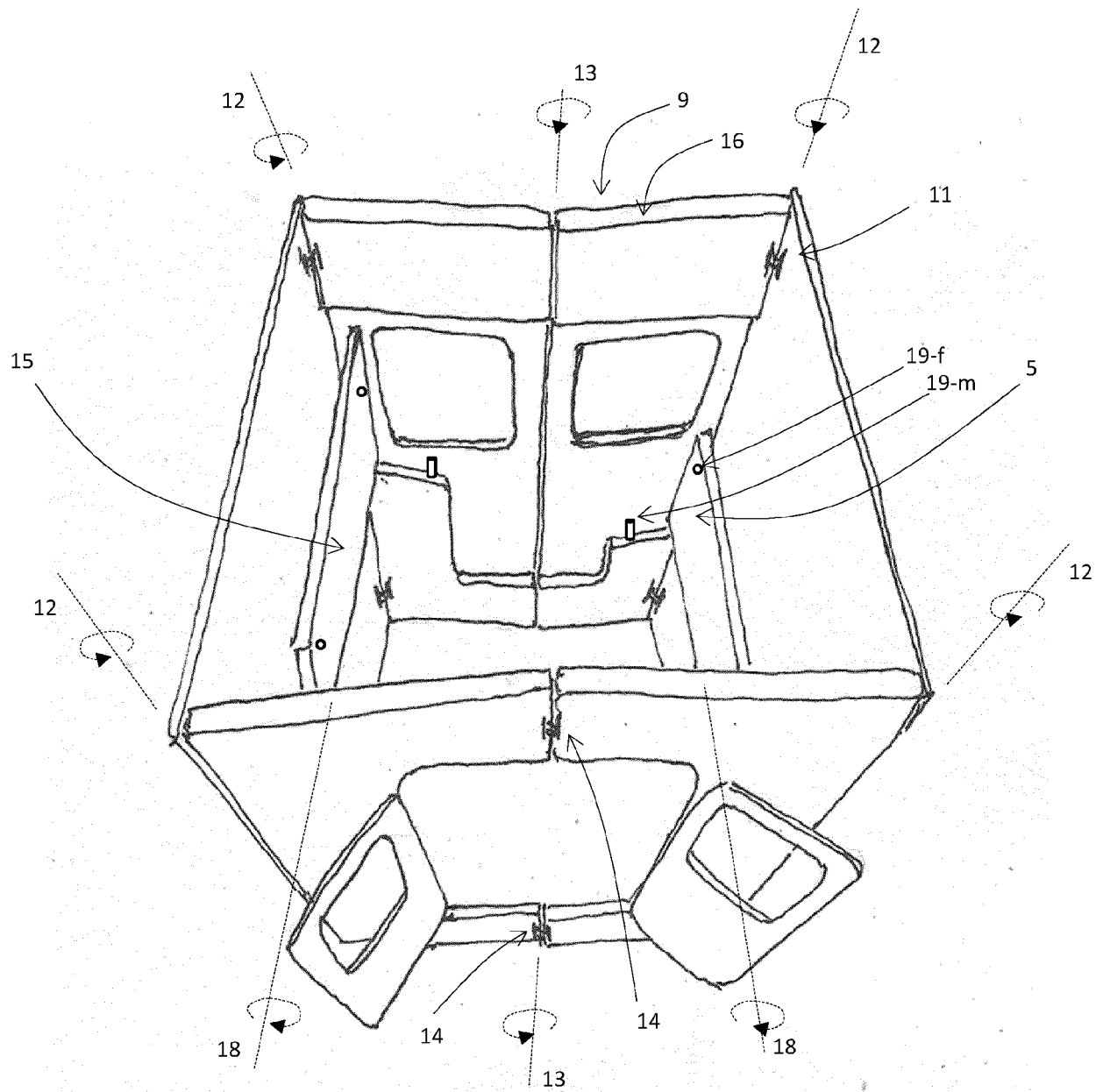


Fig. 2

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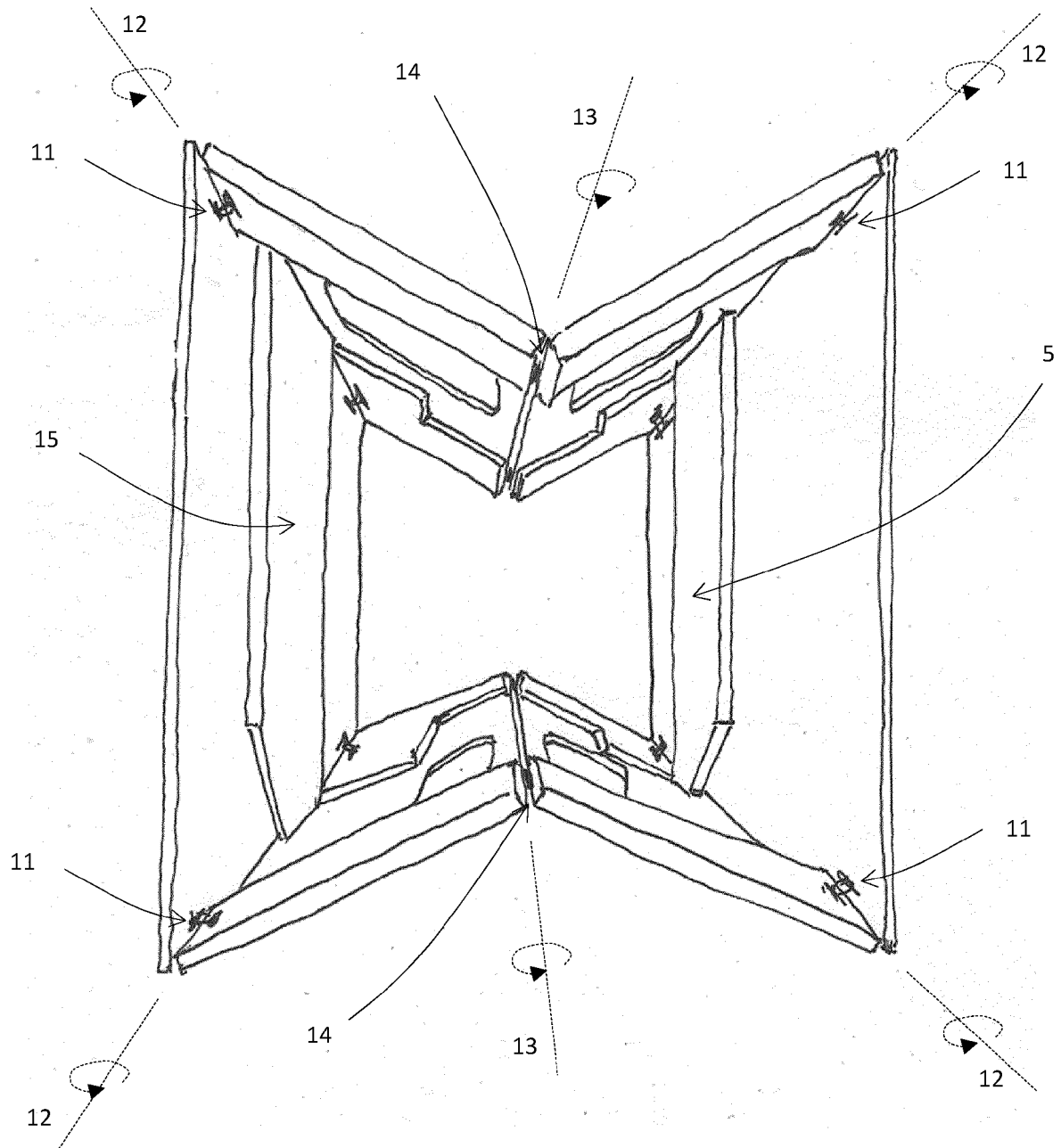


Fig. 2

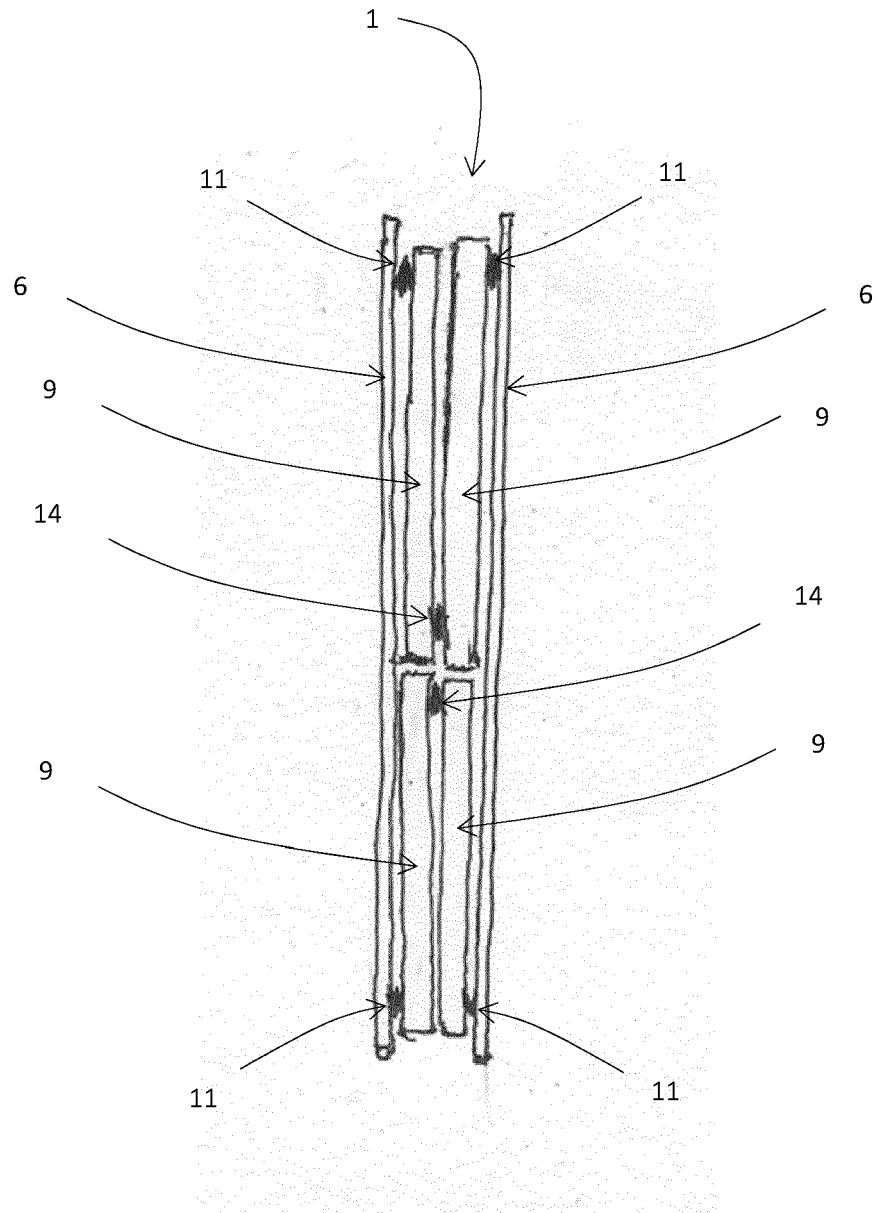


Fig. 3



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Application Number

EP 22 18 4314

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Place of search Munich		Date of completion of the search 30 November 2022	Examiner Brucksch, Carola
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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