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(54) **Title:** BENCH REVERSIBLY TRANSFORMABLE INTO AN EXTENSIBLE TABLE WITH EXTENSIBLE SEATS

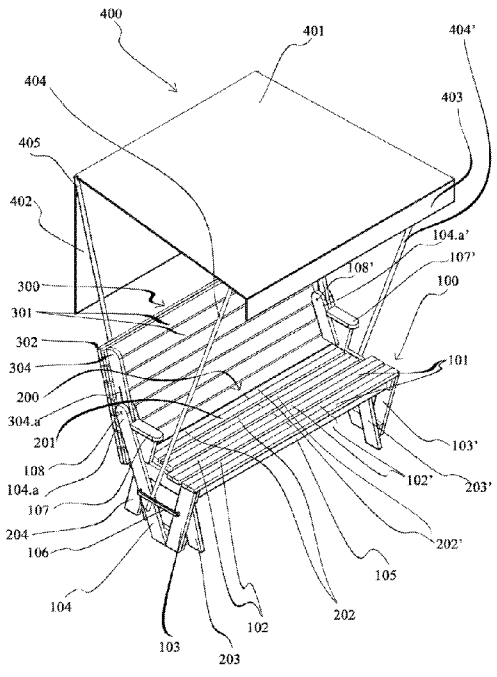

Fig. 1

(57) **Abstract:** Bench reversibly transformable into a table constituted by: A) front seat (100), provided with: • abutment plane, with fixed portion (101) and slidable portions (102-102'); • reinforcement (105); • front legs (103-103 ') and rear legs (104-104'); · joints (108-108') on the upper ends (104.a-104.a') of the rear legs (104-104'), adapted to be inserted in the slots (304. a) of the perimeter element (304) of the back/table (300); • brackets (106), for the front rods (404/404') of the awning (400); • support elements (107-107') for supporting the back/table (300) when the bench is in open configuration; B) rear seat (200) provided with : • an abutment plane, with fixed portion (201) and slidable portions (202-202'); • reinforcement (205); • front legs (203-203 ') and rear legs (204-204'); • joints (208) for being engaged with the arm (305) of the back/table (300); · brackets, for the rear rods (405/405') of the awning (400); C) back/table (300) provided with: • an abutment plane, with fixed portion (301) and overturnable portions (302-302'); • slidable guides (303-303') for supporting said overturnable portions (202-202'); • perimeter elements (304) provided with a slot (304. a); D) awning (400).

"Bench reversibly transformable into an extensible table with extensible seats"

Description

Field of the art

The present invention operates in the field of outdoor and garden furniture, also usable as urban furnishing for public parks and gardens, or for public places in general, both outdoor and indoor, such as restaurants or taverns; in detail, the present invention regards a particular bench or couch which, through simple movements, can be reversibly transformed into a table provided with seats and, possibly, also provided with other types of comfort such as cushions or parasol awnings.

Prior art

At the state of the art, various types of benches are known for public places or for furnishing gardens, also private gardens. Tables are also known, which are usually wooden, provided with benches at the long sides having means for connecting to the structure of the table such that, in order to be seated, the user must step over the bench in order to bring the front part of his/her body before the table plane. This type of tables with connected benches are frequently used at restaurants having outdoor spaces.

The patent WO 2015004161 with title "Convertible bench and table combination furniture" describes a furnishing piece composed of a table and two sitting benches connected to the table itself by means of extensions of the legs of the table and of the legs of the benches. This furnishing piece is provided with mechanical means that allow the mutual rotation of the various elements up to the new configuration which is in every respect usable as a bench.

A similar mechanism is claimed by the patent GB 2504146, which transforms a bench into a picnic table where the seats are represented by parallelepipeds instead of by actual benches.

The problems tied to these convertible furnishing pieces, already known in the art, regard the comfort of use both of the bench and of the table with the seats. Indeed, they have been

designed for a brief permanency and do not consider the comfort of the user who intends to rest on the bench or eat while using the table and the lateral benches. Another critical point is represented by the fact that in order to be accommodated at the table, being seated on one of the lateral benches, the user will be obliged to step over said bench, given that the latter is connected to the table by means of extensions of the legs. In the case of a person with motor problems, this characteristic could make it impossible for such person to sit at the table. In addition, given the necessary vicinity of the lateral benches to the plane of the table, in some cases it could be difficult to be seated at as well as get up from said benches when the present furnishing piece is in table configuration. For such purpose, sliding systems are already known at the state of the art which allow moving the benches away from the table, in a manner such that the user can easily move himself/herself in order to be seated at or get up from the table.

Object of the present invention is to overcome the above-described critical points by means of a bench convertible into a table with seats, provided with parasol awning and cushions, in which both the table and the lateral benches are extensible, in order to also allow use by people who are unable to step over the lateral bench. Such invention also claims a system for opening said convertible bench that resolves the problems of mobility of the seated users without using common sliding systems.

Description of the invention

According to the present invention, a bench is achieved that is transformable into a table characterized in that it can pass from a first closed configuration, in which the object has the shape of a common bench, to a second open configuration in which it assumes the shape of an extensible rectangular table, provided with seats at the long sides of said rectangular table which are also extensible.

This characteristic advantageously solves the problem of having to step over the lateral benches, typical of most of the outdoor tables of this type.

Advantageously, said bench is constituted by four main elements, adapted to rotate and/or

slide with respect to each other, in a reversible manner, in order to assume said first closed configuration or said second open configuration. In particular, said elements are constituted by a front seat 100, a rear seat 200, a back/table 300 and an awning 400.

Advantageously said front seat 100 is provided with an abutment plane, constituted by a fixed portion 101 and at least two slidable portions 102-102' adapted to be extended by reversibly sliding in horizontal sense, one towards the right 102' and the other towards the left 102.

Below said abutment plane, at least one reinforcement element 105 is advantageously placed, preferably constituted by a common wood board, arranged perpendicular with respect to said abutment plane in a manner so as to sustain the weight of the seated users.

Said front seat 100 is advantageously maintained at a pre-established distance from the ground by means of at least one pair of front legs 103-103' and one pair of rear legs 104-104'. In particular, the latter can advantageously be adapted to be connected, in a rotatable manner or rotatable and slidable manner, with a perimeter element 304 of the back/table 300.

If the connection is simply rotatable, said rear legs 104-104' of said front seat 100 are constituted by a lower portion 119, adapted to stably support said abutment plane at a predetermined height from the ground, and by an upper portion 120 adapted to establish said rotatable connection with the corresponding perimeter element 304 of said back/table 300. If the connection is rotatable and slidable, this is allowed by the presence, on the upper ends 104.a-104.a' of said rear legs 104-104', of at least one pair of joints 108-108', adapted to be inserted in the corresponding slots 304.a of said perimeter element 304 of said back/table 300.

Advantageously, said front seat 100 is also provided with at least one pair of brackets 106, placed at said front legs 103-103' and/or at said rear legs 104-104', each of which adapted to be engaged, in an irreversible manner, with a corresponding front rod 404/404' for supporting said awning 400.

Advantageously, said front seat 100 is provided with at least one pair of support elements 107-107', placed laterally with respect to said abutment plane in said first closed

configuration; they are adapted to act as abutment surfaces of the lower face of the back/table 300 when said bench is situated in said second open configuration.

Said rear seat 200 has characteristics analogous to said front seat 100, in particular it is advantageously provided with an abutment plane, constituted by a fixed portion 201 and at least two slidable portions 202-202', adapted to be extended by reversibly sliding in horizontal sense, one towards the right 202' and other towards the left 202.

In a position below said abutment plane, at least one reinforcement element 205 is advantageously placed, preferably constituted by a common wood board, arranged perpendicular in a manner so as to sustain the weight of the seated users.

Said abutment plane is advantageously supported at a predetermined height from the ground, equivalent to the height of said front seat 100, by means of at least one pair of front legs 203-203' and one pair of rear legs 204-204', of which the latter are adapted to be connected, in a rotatable manner, each with at least one corresponding arm 305 belonging to the element of the back/table 300.

Such rotatable connection is advantageously ensured by at least one pair of joints 208, constituted by common metal pins, placed on the two upper ends 203.a-203.a' of each of said front legs 203-203'.

Advantageously, said rear seat 200 is also provided with at least one pair of brackets, placed at said front legs 203-203' and/or at said rear legs 204-204', each of which adapted to be engaged, in an irreversible manner, with a corresponding rear rod 405/405' for supporting said awning 400.

The element of the back/table 300, thus named due to the functions carried out in said first closed configuration and in said second open configuration, is advantageously provided with an abutment plane, characterized by a fixed portion 301 and at least two overnturnable portions 302-302', superimposed with respect to said fixed portion 301 when in said first closed configuration, each of which provided with a side 302.a-302.a' connected in a rotatable manner to said fixed portion 301. In said second open configuration, said overnturnable portions 302-302' are adapted to rotate as follows: one towards the right 302'

and the other towards the left 302 until reaching a coplanar position with respect to said fixed portion 301.

Advantageously, said back/table 300 is also provided with at least one pair of slidable guides 303-303' that are laterally extensible, in a reversible manner, starting from said fixed portion 301 of said abutment plane, when said bench is in said second open configuration. Said slidable guides 303-303' are advantageously adapted to provide a surface for the abutment and stop of the rotation of said overnturnable portions 202-202' with respect to said fixed portion 301.

As already described, the stable, slidable and rotatable connection between said back/table 300 and said front bench 100 is ensured by the presence of a slot 304.a placed on each of the at least two perimeter elements 304, placed at the lower surface of said abutment plane. Said slots 304.a are advantageously adapted to be engaged with one of the joints 108-108' of said front seat 100.

The stable and rotatable connection between said back/table 300 and said rear seat 200 is instead ensured by the presence of said arm 305, adapted to be engaged with the joint 208 placed at the front legs 203-203' of said rear seat 200.

Advantageously, said bench is provided with at least one common awning 400 made of any one flexible material, preferably a common impermeable fabric, adapted to protect users from the sun and possibly from the rain.

Said awning 400 is advantageously provided with at least one upper portion 401, adapted to cover said bench from above, both if it is situated in said first closed configuration, and if it is situated in said second open configuration. Said awning 400 is also advantageously provided with at least one front portion 403, contiguous with said upper portion 401, vertically arranged, in front position with respect to the front rods 404-404'.

Advantageously, said awning 400 is also provided with at least one rear portion 402, contiguous with said upper portion 401, vertically arranged, in rear position with respect to said rear rods 405-405', when said bench is in said first closed configuration and adapted to slide with respect to the rear rods 405-405' until reaching adjacent to said upper portion 401,

when said bench is in said second open configuration.

As a support of said awning 400, at least one pair of front rods 404-404' and at least one pair of rear rods 405-405' are advantageously placed, connected in a stable and irreversible manner to said brackets 106 of said front seat 100 and of said rear seat 200, adapted to support said awning 400 at a predetermined distance from the ground.

In one of the possible embodiments of said bench transformable into a table, the upper surface of the abutment plane of said front seat 100, the fixed portion 101 and the slidable portions 102-102' and the upper surface of the abutment plane of the rear seat 200, the fixed portion 201 and the slidable portions 202-202', are advantageously provided with a padding adapted to act as a cushion for the sitting of the users.

Advantageously, the abutment plane of the front seat 100 and the abutment plane of the rear seat 200 are constituted by a plurality of linear elements, arranged in the longitudinal direction, among which at least two elements are irremovable and constitute the fixed portion 101, 201 of said front seat 100 and of said rear seat 200, at least two further elements are slidable towards the right 102', 202' and at least two further element are slidable towards the left 102, 202, said fixed elements and said slidable elements being arranged in an alternated manner on the abutment plane of said front seat 100 and on the abutment plane of said rear seat 200.

Advantageously, said bench reversibly transformable into a table can be provided with at least two laterally extractable drawers 309-309', placed at the lower surface of said back/table 300, in a manner so as to be below the fixed portion 301 of the abutment plane, when the bench is situated in second open configuration.

Possibly, the abutment plane of the back/table 300 can advantageously have circular or oval shape.

In another possible embodiment of the bench reversibly transformable into a table, object of the present invention, it can advantageously be characterized in that it is provided with a covering layer, adapted to cover at least the lower surface of the abutment plane of said back/table 300 and adapted to also cover said support elements 107-107', said front legs

103-103' and said rear legs 104-104' of said front seat 100 constituting a pair of joint lateral elements 109-109', adapted to laterally delimit, on the right and left, said front seat 100.

Advantageously, said bench can be characterized in that it is provided with a pair of separators 310-310', placed parallel to said perimeter elements 304 on the lower surface of the abutment plane of said back/table 300, each connected to a corresponding support element 107-107', said front seat 100 being provided with at least one pair of additional legs 110-110' and said rear seat 200 being provided with at least one pair of additional legs 210-210', in a manner so as to divide the sitting space into at least two sectors A, B in said first closed configuration and in said second open configuration.

Possibly, said sectors A, B may be advantageously reversibly transformable from said first closed configuration to said second open configuration and vice versa, in a manner independent from each other.

In the preferred embodiment of said bench, the awning 400 is advantageously of photovoltaic type and supplies electrical energy to at least one light suitably positioned in order to illuminate the underlying space.

Possibly, said bench can be advantageously provided with a common electric motor, drivable by means of a suitable switch, adapted to govern the reversible opening and closing movement of said bench in an automatic manner.

Advantageously, said bench reversibly transformable into a table is characterized in that at least said front seat 100, said rear seat 200 and said back/table 300 can be made of any material adapted to provide the necessary mechanical strength, preferably in boards of wooden material.

Description of the figures

The invention will be described hereinbelow in at least one preferred embodiment, as a non-limiting example with the aid of the enclosed figures in which:

- FIGURE 1 shows a three-dimensional view of the bench in closed configuration in which

one sees the front seat 100 whose abutment plane is constituted by linear wooden elements spaced like a comb which form the fixed portion 101 and the two slidable portions 102-102'; one also sees a reinforcement element 105, the front legs 103-103' and the rear legs 104-104' provided with joints 108-108' at the upper ends 104.a-104.a'; one also sees, of said front seat 100, the support elements 107-107' which in closed configuration act as arms, and one of the metal brackets 106 which sustain the front rods 404-404' of the awning 400; of the rear seat 200, one sees the abutment plane, it too constituted by linear wooden elements spaced like a comb which form the fixed portion 201 and the two slidable portions 202-202'; one also sees the front legs 203-203' and the rear legs 204-204' but the metal brackets that sustain the rear rods 404-404' of the awning 400 are not visible; of the back/table 300, one sees the rectangular abutment plane constituted by a plurality of linear wooden elements that are parallel to each other and which constitute the fixed portion 301; and one sees the elements superimposed on each other that constitute the portion overnturnable to the left 302; one also sees one of the perimeter elements 304 provided with the slot 304.a; of the awning 400, in addition to the abovementioned rods, one sees the upper portion 401, the front portion 403 and the rear portion 402.

- FIGURE 2 shows a three-dimensional view of the bench during transformation from the first closed configuration to the second open configuration, and for the sake of improved visibility of the elements, the awning 400 was omitted with the relative support rods and brackets, even if this element is constantly fixed to the bench in any configuration thereof; one sees the front seat 100 with the abutment plane constituted by a plurality of linear wooden elements including an irremovable part that constitutes the fixed portion 101, a part adapted to slide towards the left 102 in the direction indicated by the arrows and a part adapted to slide towards the right 102', in the direction indicated by the arrows; one also sees the front legs 103-103' and the rear legs 104-104', whose upper end 104.a-104.a' is provided with a joint 108-108' that is inserted in the slot 304.a of the corresponding perimeter element 304 of the back table 300; below the abutment plane one also sees a reinforcement element

105 of the abutment plane; in addition, one sees the support elements 107-107' against which said perimeter elements 304 of the back/table 300 are abutted in second open configuration; of the latter, one sees the slidable guides 303-303' against which the overnturnable portions 302-302' are abutted once they have finished their rotation around the side 302.a-302.a' of connection with the fixed portion 301; of the rear seat 200, one sees only one of the irremovable linear elements of the fixed portion 201 and only one of the linear elements slidable towards the left which constitute the portion slidable towards the left 202; one also sees one of the front legs 203, with the joint 208 of connection with the arm 305 placed on the upper end 203.a of the leg 203; one also sees one of the rear legs 204.

- FIGURE 3 illustrates a three-dimensional view of the bench in second open configuration in which it has assumed rectangular table shape with sitting benches along the greater sides of the rectangle; in particular, one sees the front seat 100, with the fixed portion 101 of the abutment plane and the two slidable portions 102-102' completely open; one sees the reinforcement element 105, the pair of front legs 103-103' and the pair of rear legs 104-104', one sees the two support elements 107-107' and one of the two brackets 106 that support the front rods 404-404' of the awning 400; of the rear seat 200, only a part of the front legs 203-203' remain visible since the other components are hidden by the back/table 300; of the latter, one sees the fixed portion 301, both the overnturnable portions 302-302' connected to said fixed portion 301 by means of the side 302.a-302.a'; of the awning 400 one sees the abovementioned front rods 404-404', one of the two rear rods 405, the front portion 403 and the upper 401 and rear 402 portions which, in open configuration, are adjacent.

- FIGURE 4 shows one of the possible embodiments of the bench with a covering layer which covers the lower surface of the fixed portion 301 of the abutment plane of the back/table 300 and which covers the sides of the front seat 100, forming joint lateral elements 109-109' provided with the bracket 106 necessary for the support of the awning (not represented); in detail, FIG. 4A shows the bench in closed configuration where the

following are clearly visible: the fixed portion 101 of the front seat 100 and the reinforcement element 105, the fixed portion 201 of the rear seat 200 and its front legs 203-203', the back/table 300 with the fixed portion 301 and the two overturnable portions 302-302' and the perimeter elements 304; in FIG. 4B, which represents the bench in open configuration, in addition to the abovementioned items, one also sees the following: the rear legs 204-204' of the rear seat 200, the upper end 203.a of one of the front legs 203 provided with joints 208 of connection with the arm 305.

- FIGURE 5 shows a further possible embodiment of the bench of the present invention, provided with a pair of drawers 309-309' placed at the lower surface of the abutment plane of the back/table 300; in order to simplify the representation, the reference numbers have been reported only of the macro-elements that constitute the bench, i.e. the front seat 100, the rear seat 200, the back/table 300 and the awning 400, and the drawers 309-309' have been shown which in first closed configuration (FIG. 5A) are in a vertical position and in second open configuration (FIG. 5B) are in a horizontal position.

- FIGURE 6 shows, in closed configuration (FIG. 6A) and in open configuration (FIG. 6B), another possible embodiment of the bench provided with the front seat 100, the rear seat 200, the back/table 300 and the awning 400, with all the components already amply illustrated, as well as with a pair of separators 310-310', a pair of additional legs 110-110' of the front seat 100 and a pair of additional legs 210-210' of the rear seat 200 which identify the two sitting sectors A, B of the users.

- FIGURE 7 shows, first in closed configuration (FIG. 7A) and then in open configuration (FIG. 7B), a further possible embodiment of the bench provided with front seat 100, rear seat 200, awning (not represented) and back/table 300, the latter with the particular characteristic of having circular shape.

- FIGURE 8 illustrates the mechanism of passage from the first closed configuration (FIG. 8A) to the second open configuration (FIG. 8D) by using the sliding mechanism: one sees that the movement is driven by the lifting of the front seat 100 (FIG. 8B) and by its subsequent forward movement (FIG. 8C); its movement drives forward the element of the back/table 300, while the rear seat 200 is the only element that remains stopped; in particular FIG. 8D describes in detail which are the angles α, β and γ, whose preferred values are defined by the following description; such angles are configured so as to ensure a comfortable sitting when the bench is provided with said sliding mechanism.

- FIGURE 9, finally, shows the passage from the first closed configuration (FIG. 9A) to the second open configuration (FIG. 9D) without the use of the sliding mechanism: one sees that, analogous to that described for the preceding sequence of FIG. 8, the movement is driven by the lifting of the front seat 100 (FIG. 9B) and by its subsequent abutment against the ground (FIG. 9C), and due to the particular configuration of the angles α, β, γ and δ, represented in FIG. 9D, the bench does not require the sliding mechanism in order to ensure a comfortable sitting.

Detailed description of the invention

The present invention will now be illustrated as a merely exemplifying and non-limiting example with the aid of the figures, which illustrate several embodiments that are exemplifying but absolutely non-limiting or non-constraining relative to the present inventive concept.

The innovative principle of said bench consists of the fact that, when situated in second open configuration, it is provided with extensible seats and table, made in a manner such that it is not necessary for the user to step over the abutment plane of the seat in order to be able to make use of the table. Simply by being seated on the slidable portions of the seats, the user encounters no obstacle for his/her legs. Even sitting in the central part of said benches, which requires the user to step over the bench itself, is made more comfortable in both variants of

the bench opening mechanism.

Said mechanism can have simple opening or be provided with sliding system.

With reference to FIGS. 1, 2 and 3, the bench of the present invention is represented in a first closed configuration (FIG. 1) in which it has bench shape, in an intermediate configuration of passage from the first to the second configuration (FIG. 2) and in second open configuration (FIG. 3) in which the bench has assumed the shape of a rectangular extensible table with extensible lateral seats along the greater sides of the rectangle.

The elements forming the bench are essentially 4: a front seat 100, a rear seat 200, a back/table 300 and the awning 400. The passage movement from the first to the second configuration is represented in FIGS. 8 and 9 in which, in order to simplify the representation, the awning 400 was omitted which still constitutes an essential and irremovable element of the present invention. In detail, starting from the closed configuration (FIGS. 8A, 9A), in which the invention has bench shape where the user sits on both the front 100 and rear 200 seats and abuts his/her back against the back/table 300, it is necessary to lift the front seat 100 (FIGS. 8B, 9B) upward and move it forward (FIGS. 8C, 9C). In this manner, the front seat 100, which is rotatably and slidably connected to the back/table 300, causes the rotation of the latter until reaching horizontal position, in which it is used with the table (FIGS. 8D, 9D). During this mutual movement and rotation of the various elements, the rear seat 200 remains stopped and constitutes the single fixed element of the bench. It is observed that said transformation from the first closed configuration to the second open configuration is always reversible.

When the bench, in order to be transformed into a table with seats, makes use of a simple opening (FIG. 9), the rear legs 104-104' of the front seat 100 are constituted by a lower portion 119 and an upper portion 120, which must respect predetermined angles in order to allow a comfortable sitting for the user. In particular, the angle α comprised between the ground and the lower portion 119 of the rear legs 104-104' is preferably 75°, equal to the angle α comprised between the ground and the front legs 103-103'; the upper portion 120 of the rear legs 104-104' will instead have an acute incidence angle γ with respect to the

abutment plane of the front seat 100, preferably equal to 41°, complementary to the obtuse incidence angle δ, preferably equal to 49°. The angle α comprised between the lower surface of the abutment plane of the back/table 300 and the upper portion 120 of the rear legs 104-104' of the front seat 100 is preferably 75°, equal to the angle α comprised between the abutment plane of the back/table 300 and the arm 305, equal to the angle α comprised between the abutment plane of the rear seat 200 and the rear legs 204-204'. The angle β comprised between the front legs 203-203' of the rear seat 200 and the vertical to the ground is instead preferably 15°.

When the opening system instead makes use of the sliding mechanism constituted by a pin that slides within a slot 304.a (FIG. 8), which will be described more in detail hereinbelow, the open configuration of the present bench is preferably characterized by predetermined angles that ensure the ease of sitting, without the user having the sensation of being stuck between the bench and the table. More in detail, the angle α comprised between the abutment plane of the rear seat 200 and the rear legs 204-204' is preferably 75°, as is the angle α comprised between the abutment plane of the back/table 300 and the arm 305. The angle γ comprised between the ground and the rear legs 104-104' of the front seat 100 is instead preferably equal to 68° and is complementary to the angle β, 15°, comprised between the front legs 103-103' of the front seat 100 and the vertical with respect to the ground.

Now, the constituent elements of the preferred embodiment of the present invention will be discussed in detail. As is clear from FIGS. 1, 2 and 3, the front seat 100 is constituted by an abutment plane provided with a fixed portion 101 and at least two slidable portions 102-102', one slidable towards the right 102' and the other slidable towards the left 102. Preferably said abutment plane is constituted by a plurality of linear wooden elements of which those irremovable form said fixed portion 101, while those able to slide towards the left form the portion slidable to the left 102 and this which can slide towards the right form the portion slidable to the right 102'. The abutment plane is structurally enabled to sustain the presence of a plurality of seated users due to at least one reinforcement element 105, preferably constituted by a wood board arranged below and perpendicular to the abutment

plane.

The rear seat 200 has the same characteristics. The abutment plane of the rear seat 200 is provided with a fixed portion 201 and at least two slidable portions 202-202', one slidable towards the right 202' and the other slidable towards the left 202. Preferably said abutment plane is constituted by a plurality of linear wooden elements, analogous to those of said front seat 100; among these elements, those irremovable form said fixed portion 201, those which are able to slide towards the left form the portion slidable to the left 202 and those which can slide towards the right form the portion slidable to the right 202'. Also in this case, the abutment plane is structurally enabled to sustain the presence of a plurality of seated users due to at least one reinforcement element, preferably constituted by a wood board arranged below and perpendicular to the abutment plane.

Said abutment planes of said front 100 and rear 200 seats are maintained at the same distance from the ground, in a stable manner, each by at least one corresponding pair of front legs 103-103', 203-203' and a corresponding pair of rear legs 104-104', 204-204. In particular, the upper ends 104.a-104.a' of the rear legs 104-104' of the front seat 100 are provided with a joint 108-108' adapted to be engaged with the corresponding slot 304.a of a perimeter element 304 of the back/table 300. Said joint 108-108' is preferably constituted by a common metal pin able to rotate and slide within the slot 304.a; in this manner, the connection between the front seat 100 and the back/table 300 is of rotatable type and slidable type, and this allows the mutual movement necessary for the passage from the closed configuration to the open configuration and vice versa.

The back/table 300, when the bench is in closed configuration, is situated in vertical or slightly tilted position, and acts as an abutment surface for the back of the users seated on the bench. When the bench is brought into second open configuration, said back/table 300 is in horizontal position and its perimeter elements 304 rest on at least one pair of support elements 107-107' which in first closed configuration acted as arms.

The abutment plane of said back/table 300 is preferably constituted by a plurality of linear wooden elements of which one part is irremovable and forms the fixed portion 301, one part

superimposed on said fixed portion 301 is adapted to be overturned towards the right, by rotating around a side 302.a' connected to said fixed portion 301, forming the portion overnturnable to the right 302', and another part superimposed on said fixed portion 301 is adapted to be overturned towards the left, by rotating around a side 302.a connected to said fixed portion 301, forming the portion overnturnable to the left 302. Said back/table is also provided with at least one pair of slidable guides 303-303', clearly illustrated in FIG. 2, adapted to reversibly slide towards the right 303' and towards the left 303 when the bench is in said second open configuration, in order to stop the rotation of said overnturnable portions 302-302' and construct a stable abutment base for said extensible table.

The connection of rotatable type, present between said back/table 300 and said rear seat 200 in order to allow the change of configuration, is ensured by the presence of at least one pair of arms 305, of which at least one is clearly visible in FIGS. 2, 8, 9. Said arm 305 has one end fixed to the perimeter element 304 of the back/table 300 and the opposite end is connected to the rotatable joint 208 placed on the upper end 203.a of the front legs 203-203' of the rear seat 200.

Between the front legs 103-103' and rear legs 104-104' of the front seat 100 and between the front legs 203-203' and rear legs 204-204' of the rear seat 200, metal brackets 106 are placed which retain, in a fixed and stable manner, the front rods 404-404' and rear rods 405-405' for supporting the awning 400. In detail, said awning 400 is made of any one flexible material, preferably also impermeable so as to protect the users seated on said bench both from the sun and from the rain. As represented in FIG. 1, when the bench is in first closed configuration, the awning 400 is arranged with an upper portion 401, supported in a horizontal position by the front 404-404' and rear 405-405' rods, a front portion 403, which descends vertically in front of the front rods 404-404' and a rear portion 402 which descends vertically behind the rear rods 405-405'. When the bench is in second open configuration (FIG. 3), the rear portion 402 slides with respect to the rear rods 405-405' and reaches adjacent to the upper portion 401.

In one possible embodiment of the present invention, said awning 400 is made of

photovoltaic material, which can be adapted to supply energy to a common lamp, placed below said awning 400, adapted to illuminate the underlying space. This characteristic would make the bench of the present invention particularly comfortable for use, in any configuration, even during the evening/night hours.

As represented in detail in the enclosed figures, numerous variants of the bench, object of the present invention, can be attained without departing from the protective scope provided by the claims.

In particular, in FIG. 4A and 4B, the closed configuration and then the open configuration are represented of a bench provided with a covering layer that occupies at least the lower surface of the abutment plane of the back/table 300 and which constitutes lateral elements 109-109' that join together, in only one object, the support elements 107-107', the front legs 103-103' and the rear legs 104.104' of the front seat. Said covering also occupies the abutment plane of the front seat 100 and of the rear seat 200 in a manner such that when said bench is in closed configuration, it appears to be a single element that does not allow changing configuration – hence a surprise effect is generated for the user, when in fact such configuration is changed.

Possibly, in order to make the sitting more comfortable, the upper surface of the abutment planes of the front seat 100 and of the rear seat 200 can be padded.

With reference to FIGS. 5A and 5B, the closed configuration and then the open configuration are represented of a bench in which the back/table 300 is provided, by way of a non-limiting example, with a pair of drawers 309-309'. These are only made useful when the bench is situated in the second open configuration and they are positioned below the abutment plane of the back/table 300.

With reference to FIGS. 6A and 6B, the first closed and then open configuration are represented of one of the possible embodiments of the bench in which, by means of the positioning at the central board of the bench of at least one pair of separators 310-310' of the lower surface of the abutment plane of the back/table 300, of at least one pair of additional legs 110-110' of the front seat 100 and of at least one pair of additional legs 210-210' of the

rear seat 200, the seat of the users is divided into two sectors A, B which approximately delimit the space dedicated to each user.

Possibly, a bench made as just described above can be characterized in that each of the two sectors A, B is transformable from the first to the second configuration and vice versa, in a manner independent from each other.

In another possible variant, referable to the bench that is the object of the present invention, the shape of the abutment plane of the back/table 300 is different from the rectangular shape, in particular, in FIGS. 7A and 7B, said abutment plane has circular shape.

It is evident that the opening system, with or without sliding, can be indiscriminately applied to all the possible embodiment variants of the present invention.

Even if the preferred material for making all the components of the bench is wood – except for the necessary metal joints and except for the awning 400 – this does not rule out the possibility of producing the transformable bench of the present invention in any other natural or synthetic polymer that provides the necessary resistance to the stresses deriving from the use by the users.

A further possibility which would make the use of the bench even easier lies in the installation of a small electric motor that governs the reversible opening and closing movement, drivable by the user by means of a suitable switch.

Finally, it is clear that modifications, additions or variations that are obvious for a man skilled in the art can be made to the invention described up to now, without departing from the protective scope that is provided by the enclosed claims.

Claims

1. Bench reversibly transformable into a table, characterized in that said table is extensible and provided with seats that are in turn extensible, said bench being transformable from a first closed configuration, having bench shape, to a second open configuration having rectangular table shape provided with at least two extensible sitting benches, arranged at the greater sides of said rectangular table; said bench being constituted by:

   A) at least one front seat (100), provided with:

   - an abutment plane, characterized by a fixed portion (101) and at least two slidable portions (102-102') adapted to be extended by reversibly sliding in horizontal sense, towards the right (102') and towards the left (102);
   - at least one reinforcement element (105), preferably constituted by a common wood board, arranged below and perpendicular to said abutment plane, adapted to sustain the weight of the users seated on said front seat (100);
   - at least one pair of front legs (103-103') and one pair of rear legs (104-104'), adapted to stably support said abutment plane at a predetermined height from the ground; said rear legs (104-104') being adapted to be connected, in a rotatable and slidable manner, with a perimeter element (304) of a back/table (300);
   - at least one pair of joints (108-108'), constituted by common metal pins, placed on the two upper ends (104.a-104.a') of each of said rear legs (104-104'), said joints (108-108') being adapted to be inserted in the corresponding slots (304.a) of a perimeter element (304) of a back/table (300), in a manner so as to establish said rotatable and slidable connection;
   - at least one pair of brackets (106), placed at said front legs (103-103') and/or at said rear legs (104-104'), each of which adapted to be engaged, in an irreversible manner, with a corresponding front rod (404/404') adapted to support a common awning (400);

- at least one pair of support elements (107-107'), placed laterally with respect to said abutment plane, in said first closed configuration, adapted to act as abutment surfaces of the lower face of the back/table (300) when said bench is situated in said second open configuration;

B) at least one rear seat (200) provided with:

- an abutment plane, characterized by a fixed portion (201) and at least two slidable portions (202-202') adapted to be extended by reversibly sliding in horizontal sense, towards the right (202') and towards the left (202);
- at least one reinforcement element (205), preferably constituted by a common wood board, arranged below and perpendicular to said abutment plane, adapted to sustain the weight of the users seated on said rear seat (200);
- at least one pair of front legs (203-203') and one pair of rear legs (204-204'), adapted to stably support said abutment plane at a predetermined height from the ground; said front legs (203-203') being adapted to be connected, in a rotatable manner, each with at least one corresponding arm (305) of a back/table (300);
- at least one pair of joints (208), constituted by common metal pins, placed on the two upper ends (203.a-203.a') of each of said front legs (203-203'), said joints (208) being adapted to be engaged with the joint (305.a) of the corresponding arm (305) of said back/table (300), in a manner so as to establish said rotatable connection;
- at least one pair of brackets, placed at said front legs (203-203') and/or at said rear legs (204-204'), each of which adapted to be engaged, in an irreversible manner, with a corresponding rear rod (405/405') adapted to support a common awning (400);

C) at least one back/table (300) provided with:

- an abutment plane, characterized by a fixed portion (301) and at least two overnturnable portions (302-302'), superimposed with respect to said fixed portion (301), each of which provided with one side (302.a-302.a') rotatably

connected to said fixed portion (301) and said overnturnable portions (302-302') being adapted to rotate towards the right (302') and towards the left (302) until reaching a coplanar position with respect to said fixed portion (301);

- at least one pair of slidable guides (303-303') that are laterally extensible, in a reversible manner, starting from said fixed portion (301) of said abutment plane, when said bench is in said second open configuration, adapted to provide an abutment and stop surface for the rotation of said overnturnable portions (202-202') with respect to said fixed portion (301);
- at least one pair of perimeter elements (304), placed at the lower surface of said abutment plane, adapted to allow the stable and rotatable and/or slidable connection of said back/table with said front seat (100) and with said rear seat (200), said perimeter elements (304) each being provided with a slot (304.a) adapted to be engaged with the corresponding joint (108) of said front seat (100) and to allow the sliding thereof;
- at least one pair of arms (305), laterally placed with respect to the fixed portion (301) of said abutment plane, provided with one end fixed to said abutment plane and the opposite end provided with a joint (305.a) adapted for establishing a stable and rotatable connection with the corresponding joint (208) placed on said upper end (203.a) of said front legs (203-203') of said rear seat (200);

D) at least one common awning (400) made of any one flexible material, preferably a common impermeable fabric, adapted to protect users from the sun and, possible, from the rain, provided with:

- at least one upper portion (401) adapted to cover said bench from above, both if it is situated in said first closed configuration, and if it is situated in said second open configuration;
- at least one front portion (403) contiguous with said upper portion (401), vertically arranged, in front position with respect to the front rods (404-404');
- at least one rear portion (402) contiguous with said upper portion (401),

vertically arranged, in rear position with respect to said rear rods (405-405') when said bench is in said first closed configuration and adapted to slide with respect to the rear rods (405-405') until reaching adjacent to said upper portion (401) when said bench is in said second open configuration;

- at least one pair of front rods (404-404') and at least one pair of rear rods (405-405'), connected in a stable and irreversible manner to said brackets (106) of said front seat (100) and of said rear seat (200), adapted to support said upper portion (401) of said awning (400) at a predetermined distance from the ground.

2. Bench reversibly transformable into a table, according to claim 1, characterized in that said rear legs (104-104') of said front seat (100) are constituted by a lower portion (119), adapted to stably support said abutment plane at a predetermined height from the ground, and by an upper portion (120) adapted to be rotatably connected with the corresponding perimeter element (304) of said back/table (300).

3. Bench reversibly transformable into a table, according to any one of the preceding claims, characterized in that at least the upper surface of the abutment plane of said front seat (100), the fixed portion (101), the slidable portions (102-102') and the upper surface of the abutment plane of the rear seat (200), the fixed portion (201) and the slidable portions (202-202') are provided with a padding adapted to act as a cushion for the sitting of the users.

4. Bench reversibly transformable into a table, according to any one of the preceding claims, characterized in that the abutment plane of the front seat (100) and the abutment plane of said rear seat (200) are constituted by a plurality of linear elements, arranged in the longitudinal direction with respect to said front seat (100) and to said rear seat (200), among which at least two elements are irremovable and constitute the fixed portion (101, 201) of said front seat (100) and of said rear seat

(200), at least two further elements are slidable towards the right and at least two further elements are slidable towards the left, said further slidable elements constituting the slidable portion (102-102', 202-202') of said front seat (100) and of said rear seat (200), said fixed elements and said slidable elements being arranged in an alternated manner on the abutment plane of said front seat (100) and on the abutment plane of said rear seat (200).

5. Bench reversibly transformable into a table, according to any one of the preceding claims, characterized in that it is provided with at least two laterally extractable drawers (309-309'), placed at the lower surface of said back/table (300), so as to be below the fixed portion (301) of the abutment plane, when said bench is situated in said second open configuration.

6. Bench reversibly transformable into a table, according to any one of the preceding claims, characterized in that the abutment plane of said back/table (300) has circular or oval shape.

7. Bench reversibly transformable into a table, according to any one of the preceding claims, characterized in that it is provided with a covering layer adapted to cover at least the lower surface of the abutment plane of said back/table (300) and also adapted to cover said arms (107-107'), said front legs (103-103') and said rear legs (104-104') constituting a pair of joint lateral elements (109-109') adapted to laterally delimit, on the right and left, said front seat (100).

8. Bench reversibly transformable into a table, according to any one of the preceding claims, characterized in that it is provided with a pair of separators (310-310') placed parallel to said perimeter elements (304) on the lower surface of the abutment plane of said back/table (300) and each connected to a corresponding arm (107-

107'), said front seat (100) being provided with at least one pair of additional legs (110-110') and said rear seat (200) being provided with at least one pair of additional legs (210-210'), said bench being characterized in that the sitting space in said first closed configuration and in said second open configuration is divided into at least two sectors (A, B).

9. Bench reversibly transformable into a table, according to the preceding claim 7, characterized in that said sectors (A, B) are reversibly transformable from said first closed configuration to said second open configuration and vice versa, in a manner independent from each other.

10. Bench reversibly transformable into a table, according to any one of the preceding claims, characterized in that said awning (400) is made of photovoltaic fabric adapted to supply electrical energy to at least one light suitably positioned below said awning (400), in order to illuminate said bench.

11. Bench reversibly transformable into a table, according to any one of the preceding claims, characterized in that it is provided with a common electric motor, drivable by means of a suitable switch, adapted to govern the passage from said first closed configuration to said second open configuration and vice versa.

12. Bench reversibly transformable into a table, according to any one of the preceding claims, characterized in that said front seat (100), said rear seat (200) and said back/table (300) are made of any natural or synthetic polymer adapted to provide the necessary resistance to the stresses deriving from the simultaneous use by a plurality of users, and preferably said front seat (100), said rear seat (200) and said back/table (300) are made of boards of wooden material.

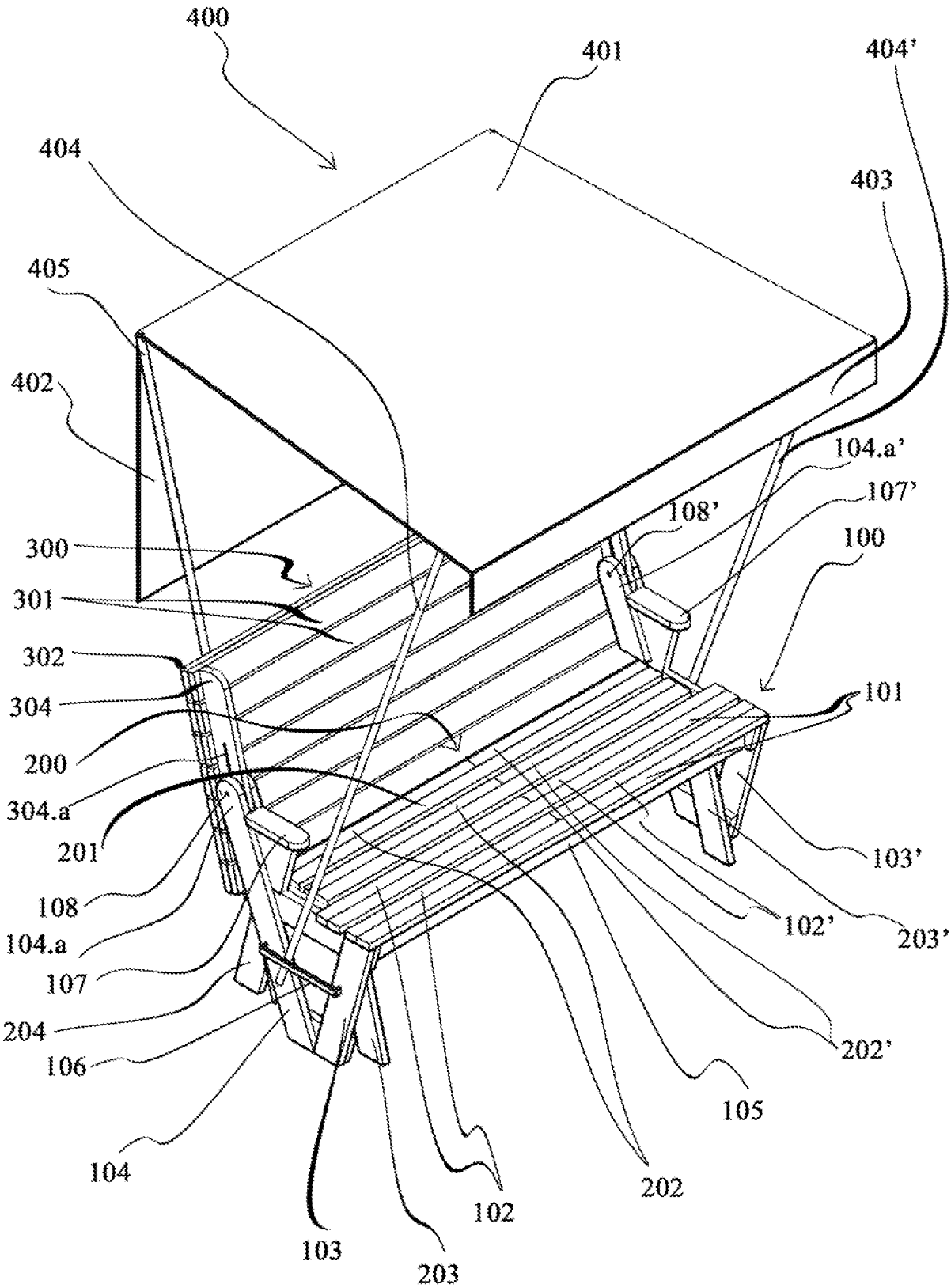
400
401
404'
404
403
405
402
104.a'
107'
108'
100
300
301
302
304
200
304.a
201
108
104.a
107
204
106
104
103
203
102
202
105
202'
102'
203'
103'
101

Fig. 1

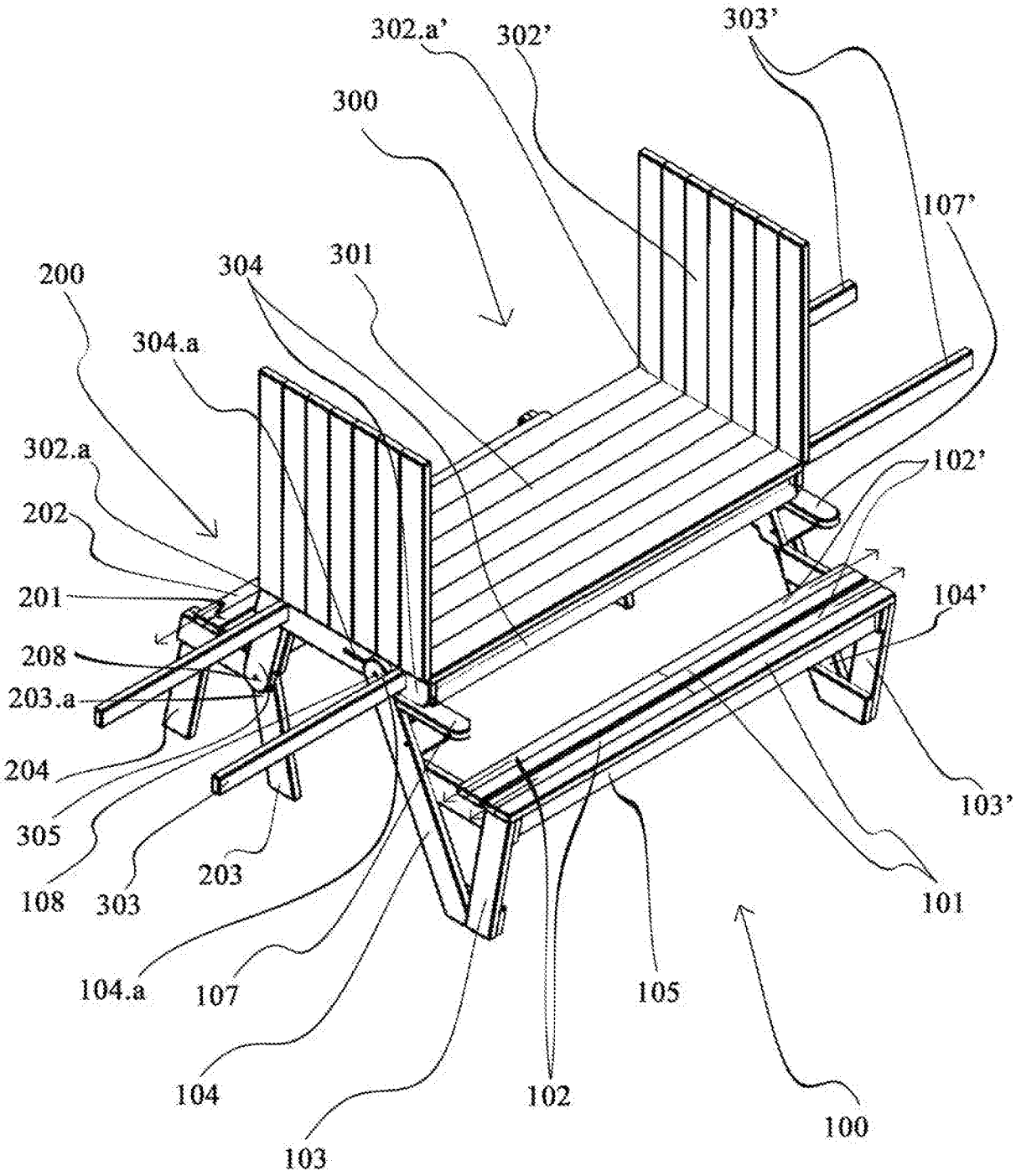
302.a'
302'
303'
300
107'
200
304
301
304.a
302.a
202
102'
201
104'
208
203.a
204
305
103'
108
303
203
101
104.a
107
105
104
102
100
103

Fig. 2

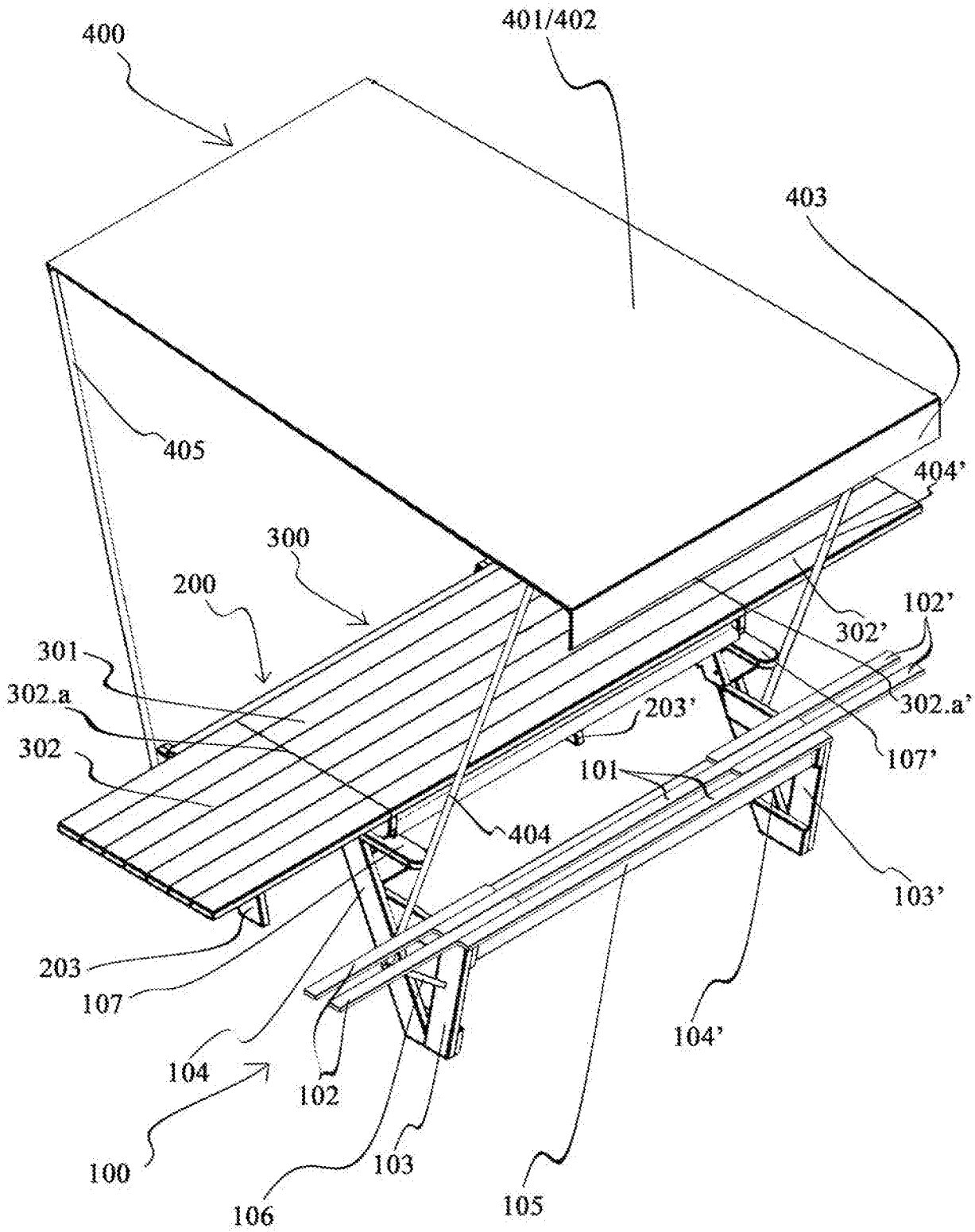
400
401/402
403
405
404'
300
200
102'
302'
301
302.a
203'
302.a'
302
107'
101
404
103'
203
107
104'
104
102
100
103
106
105

Fig. 3

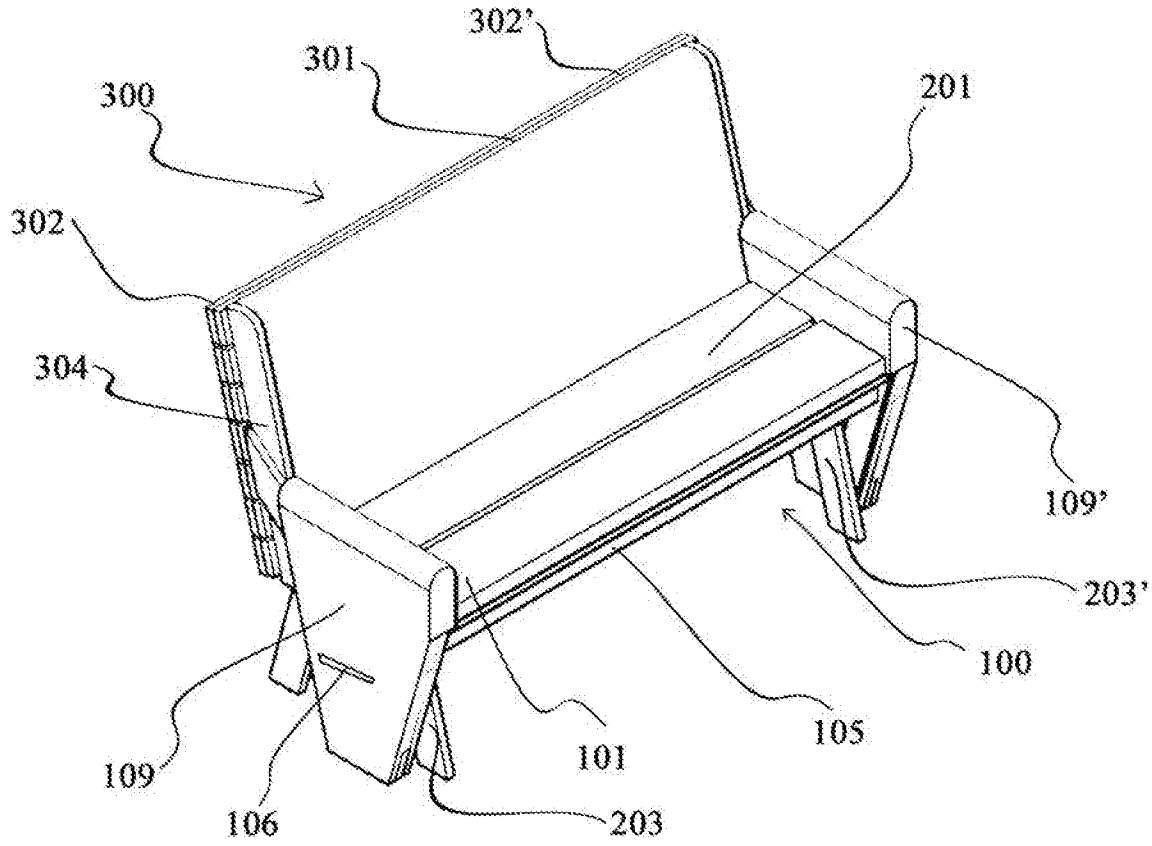
302'
301
300
201
302
304
109'
203'
100
105
109
101
106
203

Fig. 4A

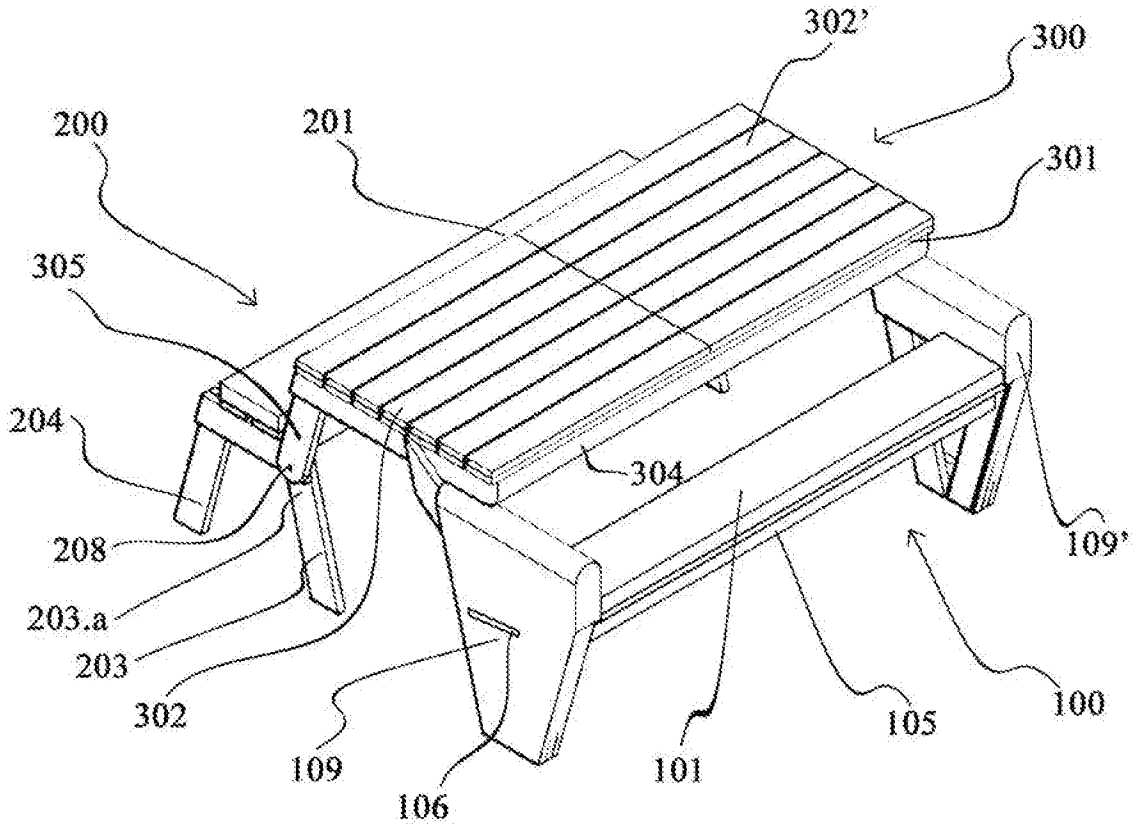
302'
300
200
201
301
305
204
304
208
109'
203.a
203
302
105
100
109
101
106

Fig. 4B

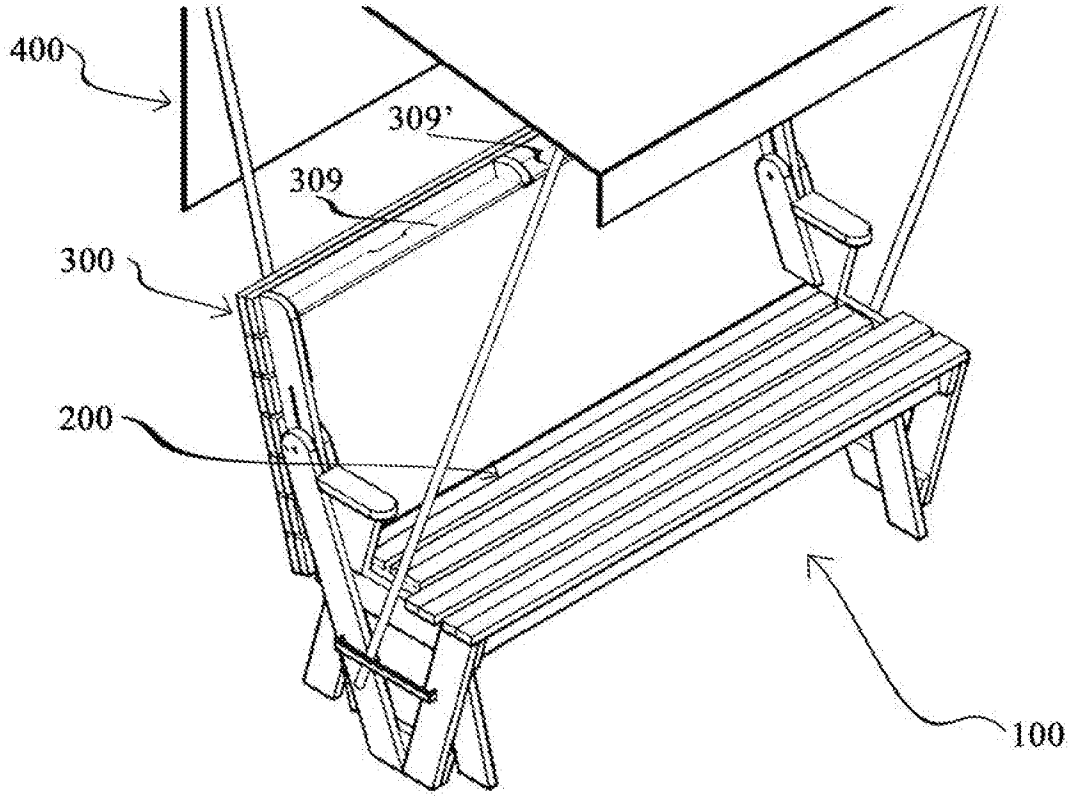

Fig. 5A

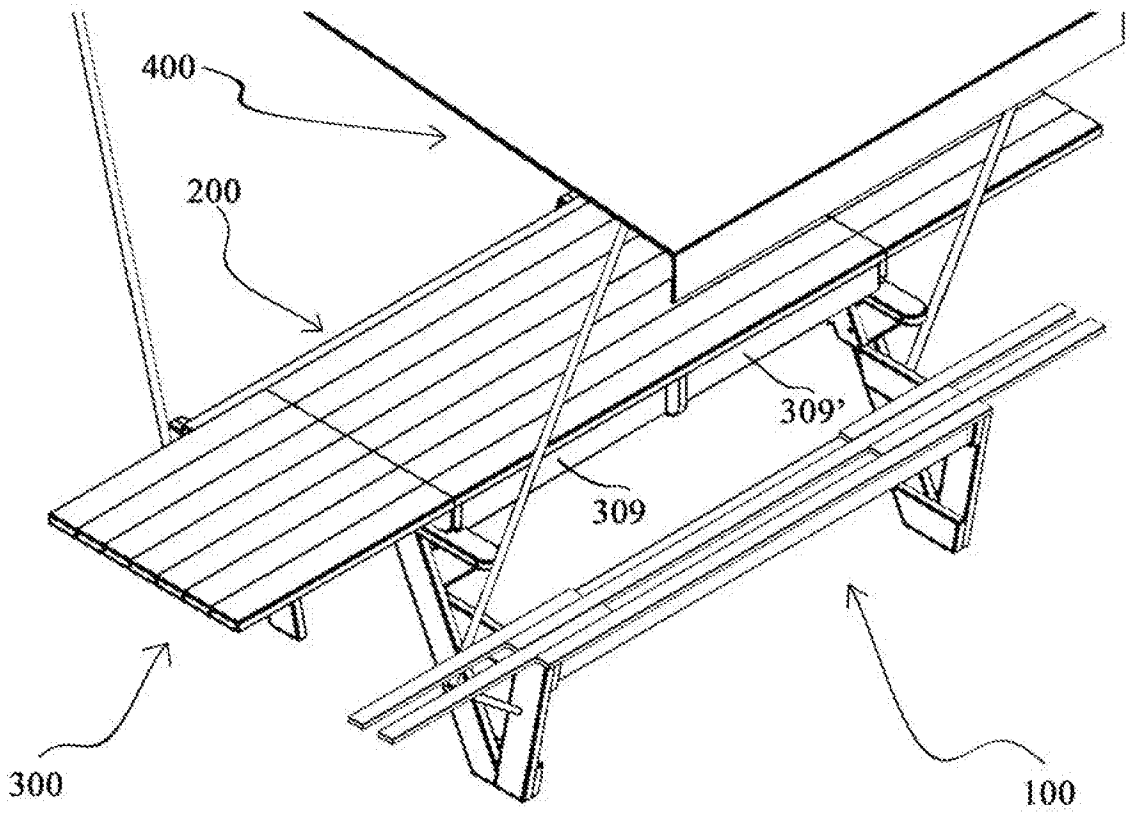

Fig. 5B

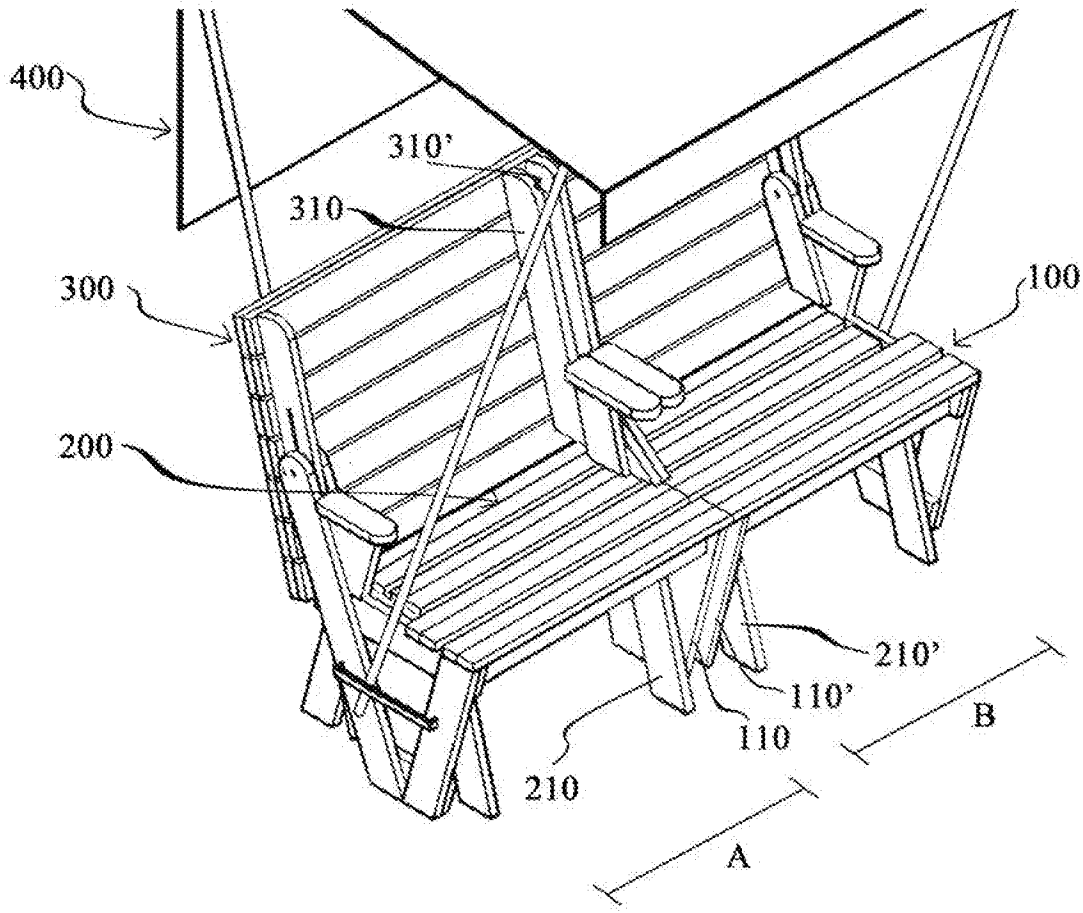
400
310'
310
300
100
200
210'
110'
110
B
210
A

Fig. 6A

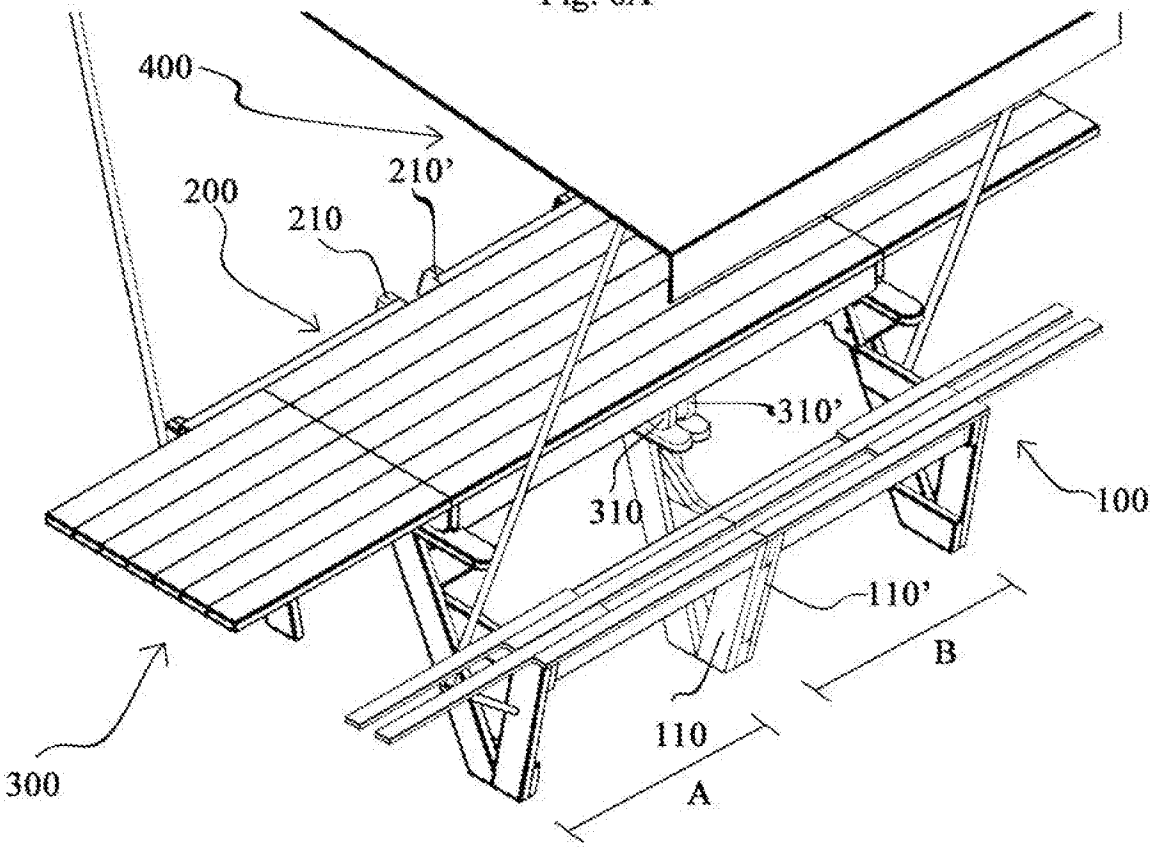
400
210'
200
210
310'
310
100
110'
B
110
A
300

Fig. 6B

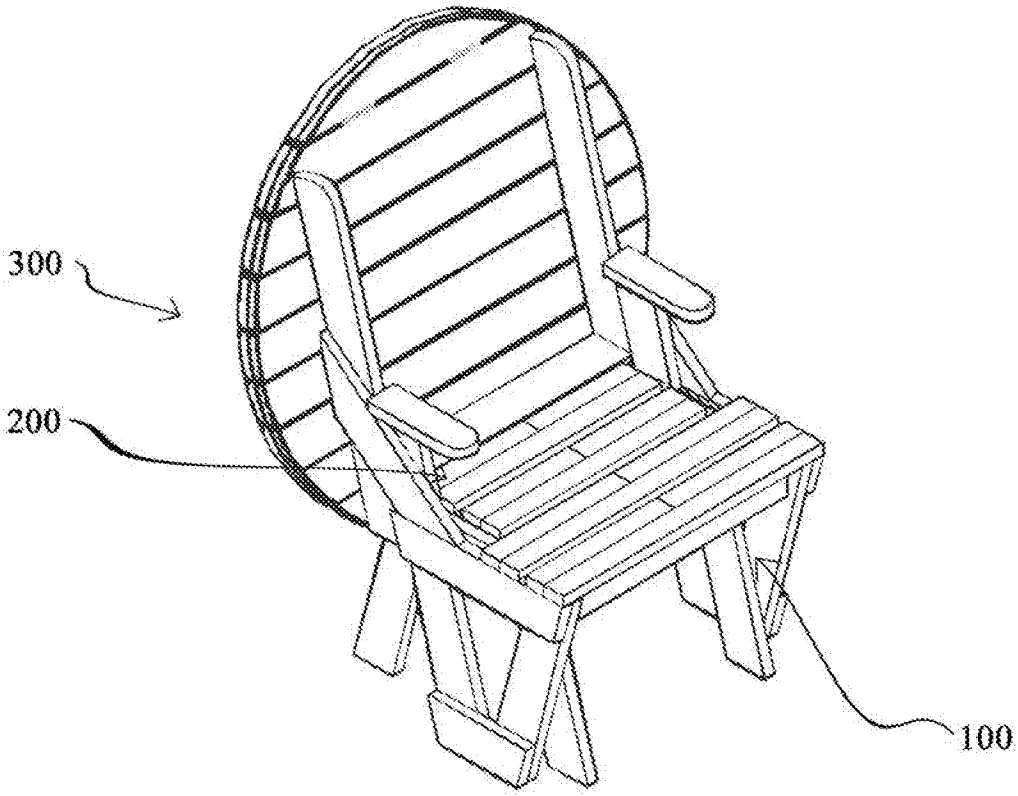

Fig. 7A

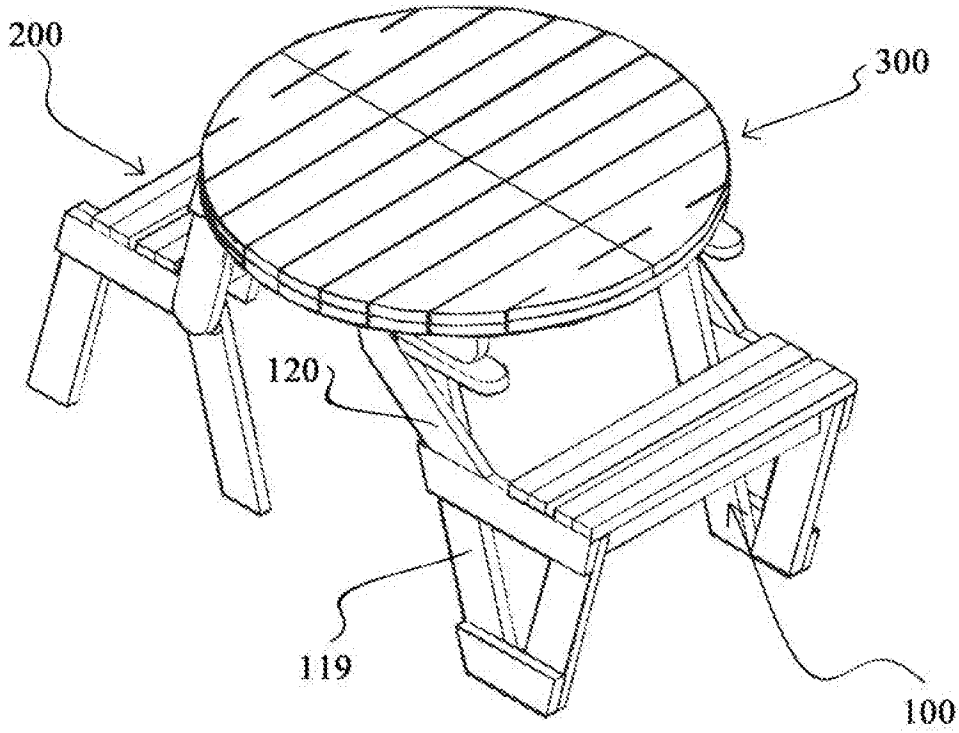

Fig. 7B

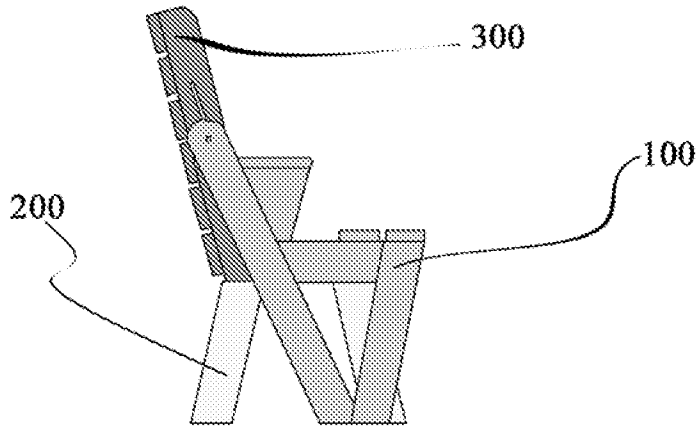

Fig. 8A

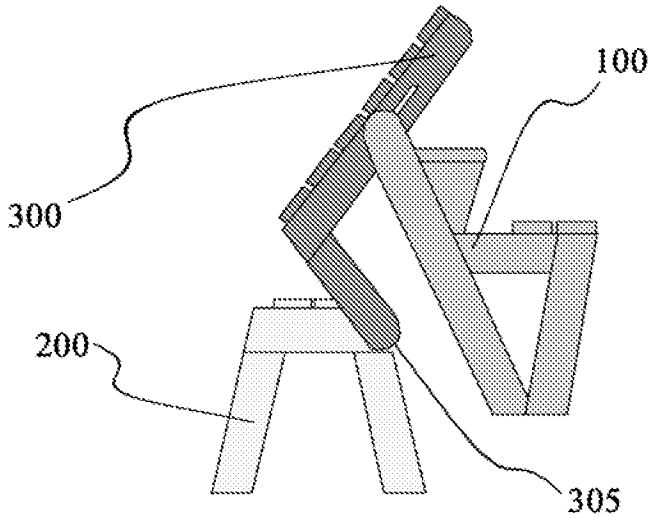

Fig. 8B

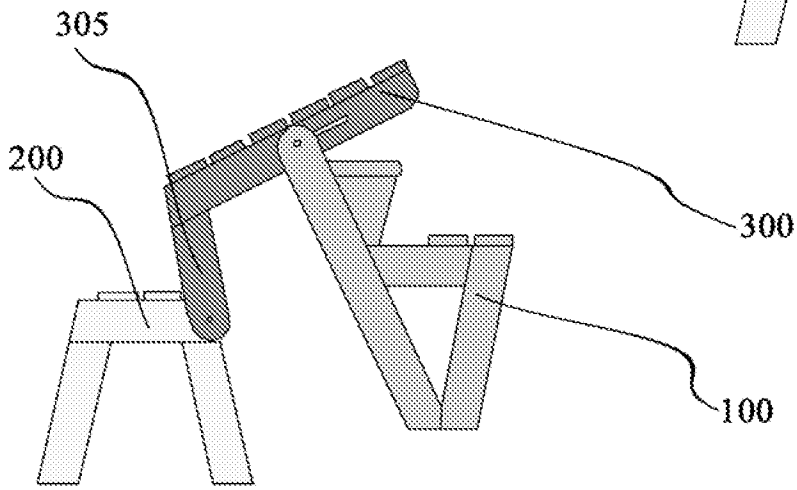

Fig. 8C

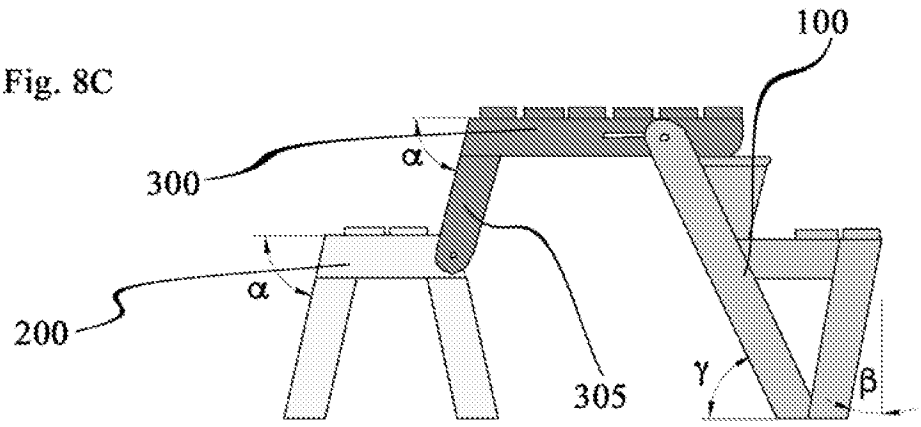

Fig. 8D

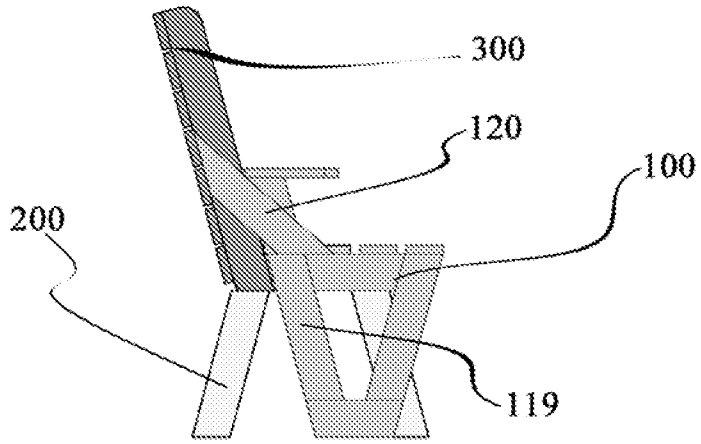

Fig. 9A

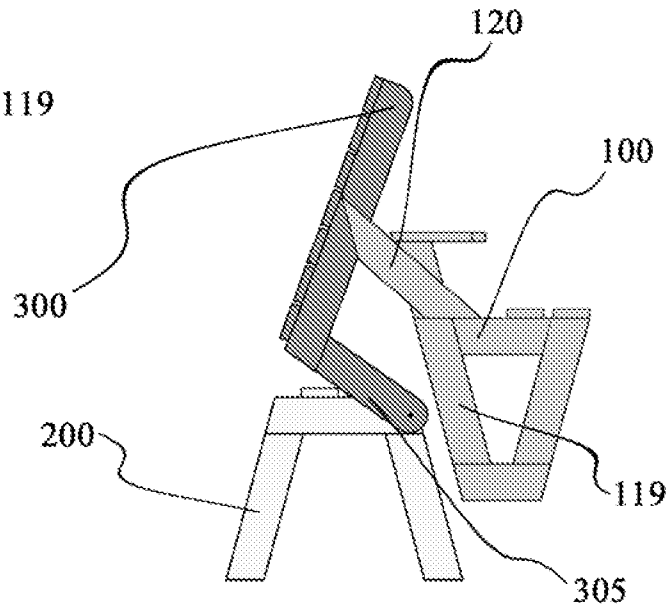

Fig. 9B

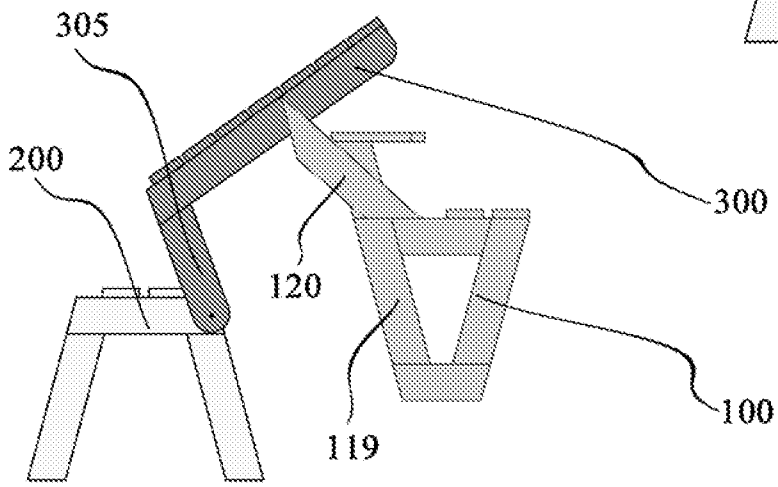

Fig. 9C

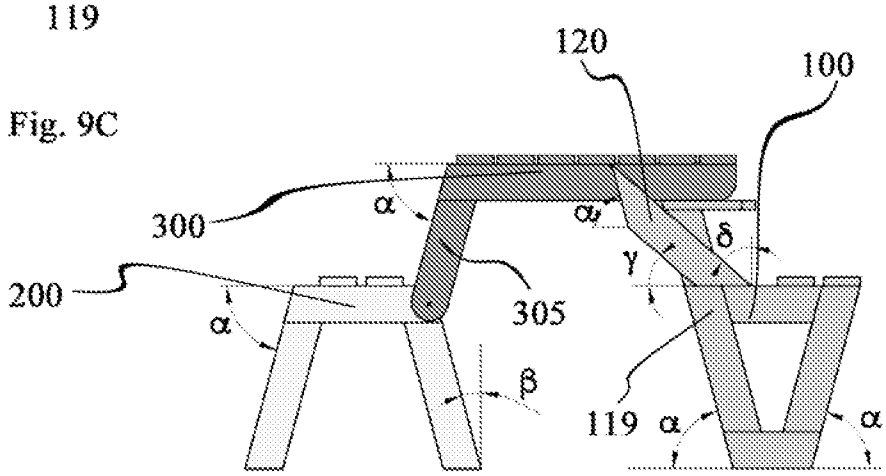

Fig. 9D