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(54) **A MULTIFUNCTIONAL CHAIR**

MULTIFUNKTIONALER STUHL

CHAISE MULTIFONCTIONS

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CH-A5- 604 627
CN-A- 103 211 429
CN-A- 104 856 485
CN-U- 202 666 293
US-A- 3 232 136

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Description

Technical field

[0001] The invention relates to the field of daily necessities, in particular to a multifunctional chair.

Background technique

[0002] A recliner is a chair with a long backrest and tilted backwards. People can lie on it to rest, with the improvement of people's living standards, recliners have become popular leisure products in many places such as homes, offices, public places, and outdoors. The existing recliners are mostly composed of a seat and a seat back that is inclined to the seat. Although it can be used for people to lie down and rest on it to meet people's daily needs, it has a single function and no fitness function.

[0003] The Chinese patent is authorized to announce a utility model patent for a folding fitness recliner (Announcement Number: CN202858399U), which includes a backing board, an armrest, a sitting board, a footrest, a foot board support, an X-shaped chair support and a connecting frame. Among them, the backing board Connected with the seat board, the stepping board and the seat board are movably and telescopically connected. There is a multi-position card slot plate in the card-position armrest. One end of the card slot plate extends out of the armrest and is connected to the side of the backing board. There is a movable support under the armrest. The rod is twisted with the connecting frame, and the upper end of the movable support rod is provided with clamping nails and the card slot; the rods on the two upper ends of the chair support are movably connected with the elongated slots provided on both sides of the connecting frame, and the foot board support and the step board Stranded connection; also includes pulley, presser foot bending rod, tension spring, pulley support rod; the upper end of the pulley support rod is twisted with the middle part of the back of the backing plate, and the lower end is fixedly connected with the middle point of the coupling shaft of a pair of pulleys; the lower part of the back of the backing plate is provided The tension spring is connected with the lower end of the pulley support rod; the two ends of the bending rod of the presser foot are movably connected with the two outer ends of the footboard.

[0004] The patent adds foldable and fitness functions to the traditional recliner chair, which is more effective in use, but still has the following shortcomings: (1) There are many components, the structure is complex, and the overall chair is relatively bulky and inconvenient to use, package, and Carrying and transportation; (2) The front and rear height of the chair seat is the same. When the chair is in the recliner state, only the hips fit the seat and the comfort is not high; the seat back and seat cannot be adjusted to the support range required for fitness. When using for fitness, it is inconvenient to use, and even affects the stretching of legs, waist, abdomen, back, shoulders, neck and other parts; (3) When switching the recliner to the fitness state, the foot support, X The chair supports are folded one by one, and the bending bar of the presser foot is bent upward. The operation is complicated, time-consuming and labor-intensive.

[0005] The utility model CN 202 666 293 U discloses a supine abdominal curl machine, which comprises a supine board bracket, a backrest, a cushion, front support feet and knee base collodion rollers.

[0006] CN 104 856 485 A relates to a connecting device of furniture products, and particularly to a folding and connecting device of a deck chair seat frame.

[0007] CH 604 627 A5 discloses a sun-bed supported by legs and roller comprising readily dismantled base frame, transverse slats and swivel backrest.

[0008] CN 103 211 429 discloses a multifunctional folding chair frame and a using method thereof.

Summary of the invention

[0009] Aiming at the deficiencies in the prior art, the present invention provides a multifunctional chair with multiple functions, which is also used for seats, recliners and fitness equipment, and has simple structure, simple and fast operation, convenient use, and easy to carry and transport.

[0010] The specific technical solutions are defined in the enclosed claims.

[0011] Through the above technical solutions, the present invention achieves the following beneficial effects:

(1) Multifunctional chair of the present invention, two using postures of the first posture as the inclining chair or the seat and the second posture as the fitness equipment can be obtained by adjusting an angular relation between the second frame body unit and the first frame body unit, and the chair is multipurpose. In particular, when the chair is adjusted to the second posture as the fitness equipment, it has the functions of fitness equipment, such as sit-up and push-up. In addition, the angle of the second frame body unit relative to the first frame body unit can be adjusted arbitrarily as needed, and the demands on fitness or inclining chair or seat can be selected or switched anytime. It is convenient to operate;

(2) Multifunctional chair of the present invention, a supporting frame is composed of the first frame body unit and the second frame body unit, the first frame body unit and the second frame body unit are provided with the first leaning unit and the second leaning unit, the second frame body unit is rotated relative to the first frame body unit, and the angle between the first leaning unit and the second leaning unit is adjusted therewith conveniently, so that fitness or

inclining chair or seat is switched by one key. Further, the structure of the multifunctional chair is simplified greatly, and it is simple and convenient to mount the chair and convenient to mount or detach the chair;

(3) Multifunctional chair of the present invention, the first frame body unit and the second frame body unit can be adjusted to an overlapped state. On the one hand, the integral structure of the multifunctional chair can be reduced, so that it is convenient to package, carry and transport the chair, on the other hand, when the first frame body unit and the second frame body unit serve as the fitness equipment for sit-up, push-up and the like when being adjusted to the overlapped state, it has a relatively great stretching range for parts such as a leg, a waist, an abdomen, a back, a shoulder and a neck, and the second frame body unit does not hinder the stretching action and various stretching actions can be performed freely, and the first supporting unit and the second supporting unit can be folded relative to the first frame body, so as to further reduce the overall structure of the multifunctional chair, so that it is convenient to package, carry and transport the chair, and the cost is lowered greatly;

(4) Multifunctional chair of the present invention, as the first supporting unit is connected with the first connecting position of the first frame body unit, the height of the tail end of the first frame body unit is lower than the height thereof in the first connecting position, so that when the multifunctional chair is in the first posture of the inclining chair or the seat, the parts such as hip and leg can be attached to the first leaning unit on the first frame body unit, and thus, the contact area between a human body and the first leaning unit is increased, and the stress points are scattered; and therefore, a user is more comfortable and relaxed; and when the multifunctional chair is in the second posture of the fitness equipment, the second frame body unit is overlapped on the rear portion of the first frame body unit, so that the second leaning unit, the first leaning unit and the first supporting unit jointly form a supporting range needed by fitness, i.e., it improves the stretching range to the parts such as leg, waist, abdomen, back, shoulder and neck when it is used for fitness demands such as push-up and sit-up, so that existing independent fitness equipment is completely replaced.

[0012] The additional aspects and advantages of the present invention will be partially given in the following description, and some will become obvious from the following description, or be understood through the practice of the present invention.

Description of the drawings

[0013] The drawings described are used to provide a further understanding of the present invention and constitute a part of this application. The exemplary embodiments of the present invention and their descriptions are used to explain the present invention, and do not constitute an improper limitation of the present invention. In the attached pictures, figures 17-19 and 22-23 are embodiments of the present invention, whereas figures 1 to 16, 20-21 and 24-25 are examples not according to the present invention:

Fig. 1 is a schematic diagram of the overall structure of the multifunctional chair in the first posture according to the first example not according to the invention. $

Fig. 2 is an exploded schematic diagram of Fig. 1.

Fig. 3 is a partial structural diagram of the multifunctional chair in the first posture according to the first example not according to the present invention.

Fig. 4 is a schematic diagram of the overall structure of the multifunctional chair in the second posture according to the first example not according to the present invention.

Fig. 5 is an exploded schematic diagram of Fig. 4.

Fig. 6 is a partial structural diagram of the multifunctional chair in the second posture according to the first embodiment of the present invention.

Fig. 7 is a schematic diagram of the internal structure of the third rotating assembly of the multifunctional chair according to the first example not according to the invention.

Fig. 8 is a schematic structural diagram of the first rotating assembly of the multifunctional chair according to the first example not according to the present invention.

Fig. 9 is a schematic structural diagram of the first leaning unit and part of the frame body structure I of the multifunctional chair according to the first example not according to the present invention.

Fig. 10 is a schematic structural diagram of the second leaning unit and part of the frame body structure II of the multifunctional chair according to the first example not according to the present invention.

Fig. 11 is a partial structural diagram of the multifunctional chair in the first posture according to the second example not according to the present inven-

tion.

Fig. 12 is a schematic diagram of the overall structure of the multifunctional chair in the second posture according to the second example not according to the present invention.

Fig. 13 is a schematic diagram of an enlarged structure at A in Fig. 11.

Fig. 14 is a partial structural diagram of the multifunctional chair in the first posture according to the third example not according to the invention.

Fig. 15 is a partial structural diagram of the multifunctional chair in the second posture according to the third example not according to the invention.

Fig. 16 is a schematic structural diagram of the third rotating assembly of a multifunctional chair according to the third example not according to the invention.

Fig. 17 is a partial structural diagram of the multifunctional chair in the first posture according to the first embodiment of the present invention.

Fig. 18 is a schematic structural diagram of the multifunctional chair in the first embodiment of the present invention in the folded and contracted state.

Fig. 19 is a schematic structural diagram of a pivotal structure I of a multifunctional chair according to the first embodiment of the present invention.

Fig. 20 is a partial structural diagram of the multifunctional chair in the first posture according to the fourth example not according to the invention.

Fig. 21 is a schematic structural diagram of the multifunctional chair in the fourth example not according to the invention in the folded and contracted state.

Fig. 22 is a partial structural diagram of the multifunctional chair in the six posture according to the second embodiment according to the invention.

Fig. 23 is a schematic structural diagram of the multifunctional chair in the second embodiment of the present invention in the folded and contracted state.

Fig. 24 is a partial structural diagram of the multifunctional chair in the fifth example not according to the invention.

Fig. 25 is a schematic structural diagram of the second rotating assembly of a multifunctional chair according to the seventh example not according to the invention.

DESCRIPTION

[0014] In order to make the objectives, technical solutions, and advantages of the embodiments of the present invention clearer, the technical solutions of the embodiments of the present invention will be described clearly and completely in conjunction with the accompanying drawings of the embodiments of the present invention. Obviously, the described embodiments are part of the embodiments of the present invention, rather than all of the embodiments.

[0015] In the description of the present invention, it should be understood that the terms "upper", "lower", "front", "rear", "left", "right", "top", "bottom", "inner", " The orientation or positional relationship indicated by "outside" is based on the orientation or positional relationship shown in the drawings, which is only for the convenience of describing the present invention and simplifying the description, and does not indicate or imply that the device or element referred to must have a specific orientation to The specific azimuth structure and operation cannot be understood as a limitation of the present invention.

[0016] In the present invention, unless otherwise clearly specified and limited, the terms "installed", "connected", "connected", "fixed" and other terms should be understood in a broad sense, for example, it can be a fixed connection or a detachable connection. , Or integrally connected; it can be a mechanical connection or an electrical connection; it can be directly connected or indirectly connected through an intermediate medium, and it can be the internal communication between two components. For those of ordinary skill in the art, the specific meanings of the above-mentioned terms in the present invention can be understood according to specific situations.

[0017] Unless otherwise defined, the technical terms or scientific terms used herein shall have the usual meanings understood by those with ordinary skills in the field to which the present invention belongs. The "first", "second" and similar words used in the specification and claims of the patent application of the present invention do not denote any order, quantity or importance, but are only used to distinguish different components. Similarly, similar words such as "one" or "one" do not mean a quantity limit, but mean that there is at least one.

[0018] As shown in Fig. 1 to Fig. 10, the example discloses a multifunctional chair, including a first frame body unit 1, a second frame body unit 2, a first supporting unit 3, and a first leaning unit 13 and a second leaning unit 23 respectively arranged on the first frame body unit 1 and the second frame body unit 2, where the first frame body unit 1 is provided with a head end 101 and a tail end 102, the first supporting unit 3 is connected with a first connecting position 103 of the first frame body unit 1 to support the first frame body unit 1, so that a height of the tail end 102 of the first frame body unit 1 is higher

than the first connecting position 103, the first leaning unit 13 is arranged close to the first connecting position 103 and is mainly used to contact and support parts such as a hip and a leg, the second frame body unit 2 is arranged on a rear portion of the first frame body unit 1 and is rotatably connected with the first frame body unit 1, the multifunctional chair can move between a first posture as an inclining chair or a seat and a second posture as fitness equipment due to the rotatable connection, and the second leaning unit 23 is arranged on the second frame body unit 2 and is mainly used to contact and support parts such as a waist, a back and a shoulder. According to the multifunctional chair of the example, two using postures of the first posture as the inclining chair or the seat and the second posture as the fitness equipment can be obtained by adjusting an angular relation between the second frame body unit 2 and the first frame body unit 1, and the chair is multipurpose. In particular, when the chair is adjusted to the second posture as the fitness equipment, it has the functions of fitness equipment, such as sit-up and push-up. In addition, the angle of the second frame body unit 2 relative to the first frame body unit 1 can be adjusted arbitrarily as needed, for example, when it is used as the seat at 90 degrees, as the inclining chair at 135 degrees, as the fitness equipment at 180 degrees and the like, and the demands on fitness or inclining chair or seat can be selected or switched anytime. It is convenient to operate; a supporting frame of the multifunctional chair in the example is composed of the first frame body unit 1 and the second frame body unit 2, the first frame body unit 1 and the second frame body unit 2 are provided with the first leaning unit 13 and the second leaning unit 23, the second frame body unit 2 is rotated relative to the first frame body unit 1, and the angle between the first leaning unit 13 and the second leaning unit 23 is adjusted therewith conveniently, so that fitness or inclining chair or seat is switched by one key. Further, the structure of the multifunctional chair is simplified greatly, and it is simple and convenient to mount the chair and convenient to mount or detach the chair; the first frame body unit 1 and the second frame body unit 2 in the example can be adjusted to an overlapped state. On the one hand, the integral structure of the multifunctional chair can be reduced, so that it is convenient to package, carry and transport the chair, and the cost is lowered greatly; on the other hand, when the first frame body unit 1 and the second frame body unit 2 serve as the fitness equipment for sit-up, push-up and the like when being adjusted to the overlapped state, it has a relatively great stretching range for parts such as a leg, a waist, an abdomen, a back, a shoulder and a neck, and the second frame body unit 2 does not hinder the stretching action and various stretching actions can be performed freely; as the first supporting unit 3 is connected with the first connecting position 103 of the first frame body unit 1, the height of the tail end 102 of the first frame body unit 1 is lower than the height thereof in the first connecting position 103, so that when the multifunctional chair is in the first posture of the inclining chair or the seat, the parts such as hip and leg can be attached to the first leaning unit 13 on the first frame body unit 1, and thus, the contact area between a human body and the first leaning unit 13 is increased, and the stress points are scattered; and therefore, a user is more comfortable and relaxed; and when the multifunctional chair is in the second posture of the fitness equipment, the second frame body unit 2 is overlapped on the rear portion of the first frame body unit 1, so that the second leaning unit 23, the first leaning unit 13 and the first supporting unit 3 jointly form a supporting range needed by fitness, i.e., it improves the stretching range to the parts such as leg, waist, abdomen, back, shoulder and neck when it is used for fitness demands such as push-up and sit-up, so that existing independent fitness equipment is completely replaced; certainly, when the second frame body unit 2 is overlapped on the rear portion of the first frame body unit 1, the angle between the second leaning unit 23 and the first leaning unit 13 can be equal to 180 degrees, i.e., the second frame body unit 2 is just overlapped ith the rear portion of the first frame body unit 1, and the angle can be slightly greater than or smaller than 180 degrees, i.e., the second frame body unit 2 inclines slightly and is overlapped to the rear portion of the first frame body unit 1, and it can serve as the fitness equipment for sit-up and push-up. In addition, in the example, in order for clear description, the first posture for the inclining chair or the seat is that the second frame body unit 2 and the first frame body unit 1 have an angle, and the second posture for the fitness equipment is that the second frame body unit 2 is overlapped with the tail end of the first frame body unit 1. In some other examples, it can further be used as the fitness equipment when the second frame body unit 2 and the first frame body unit 1 have the angle.

[0019] As shown in Fig. 3, as an example, the first frame body unit 1 includes two frame body structures I 11 arranged in parallel; the frame body structures I 11 are arranged as rod-shaped structures; the first leaning unit 13 is mounted and supported between the two frame body structures I 11, so that the two frame body structures I 11 and the first leaning unit 13 jointly form a supporting end surface that is primarily used to support the parts such as hip and leg, and therefore, profiles needed by the first frame body unit 1 are saved greatly, the cost is saved, the overall weight of the multifunctional chair is alleviated, and it is convenient to use and carry; the two frame body structures I 11 are arranged in parallel, and compared with a structure that the frame body structures I 11 are not arranged in parallel, on the one hand, the integral size of the multifunctional chair is reduced, so that it is convenient to place, package, carry and transport; and on the other hand, widths of front and back ends of the two frame body structures I 11 are consistent, so that it is convenient to mount or connect the first leaning unit 13. Certainly, in some other examples, there may be one frame body structure I 11 that is arranged as a platy structure or a combination of three, four, five or even

more rod-shaped structures with the first leaning unit 13 or is not provided with the first leaning unit 13 or is arranged as other frame body structures. The two frame body structures I 11 can further be arranged in an unparallel manner such as splay, inverted splay or intersection. The structures, with the first leaning unit 13, can also jointly form the supporting end surface for supporting the parts such as hip and leg. Certainly, the frame body structure I 11 in the example is made of metal materials such as steel and iron, so that the firmness of the structure is improved. In some other examples, the frame body structure I 11 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity.

[0020] As shown in Fig. 3, as the example, the first frame body unit 1 further includes two transverse supporting structures I 12 arranged between the first frame body structures I 11 at an interval, the transverse supporting structures I 12 are arranged as rod-shaped structures, and the first leaning unit 13 is mounted and supported above the first frame body structures I 11 and the transverse supporting structures I 12. In the example, by additionally arranging the two transverse supporting structures I 12 arranged at an interval between the two frame body structures I 11, the stability and bearing performance of the first frame body unit 1 and the first leaning unit 13 are improved. The two transverse supporting structures I 12 are arranged at an interval, so that profiles needed by the first frame body unit 1 are saved greatly, the cost is saved, the overall weight of the multifunctional chair is alleviated and it is convenient to use and carry the chair. Certainly, in some other examples, there may be one transverse supporting structure I 12 that is arranged as a platy structure or the transverse supporting structures I may be arranged as three, four, five or even more rod-shaped structures arranged at an interval or not at an interval, or the transverse supporting structures I may be arranged as other frame body structures, so that the stability and bearing performance of the first frame body unit 1 can further be improved. In some other examples, the two transverse supporting structures I 12 may not be arranged. Furthermore, in the example, the two transverse supporting structures I 12 are arranged in parallel, so that a support-free space is formed between the two transverse supporting structures I 12. When the parts such as hip and leg are placed on the first leaning unit 13 arranged on the first frame body unit 1, the user is more comfortable and relaxed. Certainly, in some other examples, the two transverse supporting structures I 12 can further be arranged in an unparallel manner such as splay and inverted splay or intersection, so that the stability and bearing performance of the first frame body unit 1 can further be improved. In addition, the transverse supporting structure I 12 in the example is arranged as a downward concave arc-shaped structure, so that the attaching areas between the first leaning unit 13 and the parts such as hip and leg above the transverse supporting structure I 12 are further increased, and thus, the comfort levels of the parts such as hip and leg are further improved. Certainly, in some other examples, the transverse supporting structure I 12 can be further arranged as an upward convex arc-shaped structure to improve the stretching range of the parts such as leg, waist, abdomen, back, shoulder and neck, or it is arranged as a straight body structure for supporting the parts such as hip and leg, too. Certainly, the transverse supporting structure I 12 in the example is made of metal materials such as steel and iron, so that the firmness of the structure is improved. In some other examples, the transverse supporting structure I 12 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity.

[0021] As shown in Fig. 3, as an example, the frame body structure I 11 is arranged as an integrated structure, so that the stability of the frame body structure I 11 is improved, and the frame body structure I is simple in structure and convenient to produce and machine.

[0022] As shown in Fig. 3, the second frame body unit 2 is connected with the first frame body unit 1 via the third rotating assembly 8, and the third rotating assembly 8 is configured to adjust and lock the position of the second frame body unit 2 between the first posture for the inclining chair or the seat and the second posture for the fitness equipment relative to the first frame body unit 1. In the example, the third rotating assembly 8 is arranged between the second frame body unit 2 and the first frame body unit 1, so that the angle and position between the second frame body unit 2 and the first frame body unit 1 can be adjusted and locked; the second frame body unit 2 is rotated relative to the first frame body unit 1, the angle between the first leaning unit 13 and the second leaning unit 23 is adjusted therewith, so that it is convenient to adjust and fitness equipment or inclining chair or seat is switched by one key. The structure of the multifunctional chair is simplified greatly, the weight of the multifunctional chair is alleviated, and it is convenient to use and carry the multifunctional chair and it is convenient to mount and detach the multifunctional chair. Certainly, the third rotating assembly 8 can further be used to adjust the angle and position between the second frame body unit 2 and the first frame body unit 1 and is matched with other locking structures to lock the angle and position between the second frame body unit 2 and the first frame body unit 1, or the third rotating assembly 8 is merely used to lock the angle and position between the second frame body unit 2 and the first frame body unit 1 and is matched with other adjusting structures to adjust the angle and position between the second frame body unit 2 and the first frame body unit 1, so that the angle and position between the second frame body unit 2 and the first frame body unit 1 can be adjusted and locked, too.

[0023] As shown in Fig. 4, the second posture for the fitness equipment is formed in such a way that the second frame body unit 2 moves along the direction of the tail

end of the first frame body unit 1 via rotation of the third rotating assembly 8 to be overlapped with the tail end 102 of the first frame body unit 1, and at the moment, the second leaning unit 23 further moves along with the second frame body unit 2 to be overlapped with the tail end 102, so that the integral multifunctional chair is in the structure of the fitness equipment for sit-up and push-up, and can be used for large-range stretching actions of the parts such as leg, waist, abdomen, back, shoulder and neck. In the example, the third rotating assembly 8 is arranged in a middle position of the first frame body unit 1, so that the second frame body unit 2 can be overlapped with the tail end 102 after moving along the direction of the tail end 102 of the first frame body unit 1, and therefore, it is ensured that the second leaning unit 23 and the first leaning unit 13 are distracted to the maximum range to form the maximum supporting end surface; certainly, in some other examples, the third rotating assembly 8 can be further arranged in a position that is a distance from the middle position relative to the first frame body unit 1, so that the second frame body unit 2 is overlapped with part of structure of the first frame body unit 1 close to the tail end 102 after moving along the direction of the tail end 102 of the first frame body unit 1 so as to form a slightly small supporting end surface, and it can be further switched between the first posture for the inclining chair or the seat and the second gesture for the fitness equipment. In the embodiment, the second frame body unit 2 is arranged to be matched with the shape of the tail end 102 of the first frame body unit 1, so that the overlapping degree is higher without occupying extra space. Certainly, the shapes of the tail ends 102 of the second frame body unit 2 and the first frame body unit 1 can further be arranged in different shapes, so that the two are just partially overlapped, and the second posture for the fitness equipment can be further formed.

[0024] As shown in Fig. 1, as an example, the first posture for the inclining chair or the seat is formed in such a way that the second frame body unit 2 rotates relative to the first frame body unit 1 via the third rotating assembly 8 and moves along any one direction of the tail end 102 or the head end 101 of the first frame body unit 1 to have an angle with the first frame body unit 1, and at the moment, the second leaning unit 23 further moves along with the second frame body unit 2 to have an angle with the tail end 102 of the first frame body unit 1, so that the integral multifunctional chair is in the structure of the inclining chair or the seat, and the second frame body unit 2 can be adjusted to a comfortable height as needed. Certainly, when the multifunctional chair is in the first posture for the inclining chair or the seat, it can further be used for stretching actions of the parts such as leg, waist, abdomen, back, shoulder and neck.

[0025] As shown in Fig. 3, as an example, the second frame body unit 2 includes two frame body structures II 21 arranged in parallel; the frame body structures II 21 are arranged as rod-shaped structures; the second leaning unit 23 is mounted and supported between the two frame body structures II 21, so that the two frame body structures II 21 and the second leaning unit 23 jointly form a supporting end surface that is primarily used to support the parts such as back and waist, and therefore, profiles needed by the second frame body unit 2 are saved greatly, the cost is saved, the overall weight of the multifunctional chair is alleviated, and it is convenient to use and carry; the two frame body structures II 21 are arranged in parallel, and compared with a structure that the frame body structures II are not arranged in parallel, on the one hand, the integral size of the multifunctional chair is reduced, so that it is convenient to place, package, carry and transport; and on the other hand, widths of front and back ends of the two frame body structures II 21 are consistent, so that it is convenient to mount or connect the second leaning unit 23. Certainly, there may be one frame body structure II 21 that is arranged as a platy structure or a combination of three, four, five or even more rod-shaped structures with the second leaning unit 23 or is not provided with the second leaning unit 23 or is arranged as other frame body structures. The two frame body structures II 21 can further be arranged in an unparallel manner such as splay, inverted splay or intersection. The structures, with the second leaning unit, can also jointly form the supporting end surface for supporting the parts such as back and waist. Certainly, the frame body structure II 21 in the example is made of metal materials such as steel and iron, so that the firmness of the structure is improved. In some other examples, the frame body structure II 21 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity.

[0026] As shown in Fig. 2, as an example, the second frame body unit 2 further includes two transverse supporting structures II 22 arranged between the frame body structures II 21 at an interval, the transverse supporting structures II 22 are arranged as rod-shaped structures, and the second leaning unit 23 is mounted and supported in front of the two frame body structures II 21 and the transverse supporting structures II 22. In the example, by additionally arranging the two transverse supporting structures II 22 arranged at an interval between the two frame body structures II 21, the stability and bearing performance of the second frame body unit 2 and the second leaning unit 23 are improved. The two transverse supporting structures II 22 are arranged at an interval, so that profiles needed by the second frame body unit 2 are saved greatly, the cost is saved, the overall weight of the multifunctional chair is alleviated and it is convenient to use and carry the chair. Certainly, there may be one transverse supporting structure II 22 that is arranged as a platy structure or the transverse supporting structures II may be arranged as three, four, five or even more rod-shaped structures arranged at an interval or not at an interval, or the transverse supporting structures I may be arranged as other frame body structures, so that the stability and bearing performance of the second frame body

unit 2 can further be improved. In some other examples, the two transverse supporting structures II 22 may not be arranged. Furthermore, the two transverse supporting structures II 22 are arranged in parallel, so that a support-free space is formed between the two transverse supporting structures II 22. When the parts such as back and waist are placed on the second leaning unit 23 arranged on the second frame body unit 2, the user is more comfortable and relaxed. Certainly, the two transverse supporting structures II 22 can further be arranged in an unparallel manner such as splay and inverted splay or intersection, so that the stability and bearing performance of the second frame body unit 2 can further be improved. In addition, the transverse supporting structure II 22 is arranged as a backward concave arc-shaped structure, so that the attaching areas between the second leaning unit 23 in front of the transverse supporting structure II 22 and the parts such as back and waist are further increased, and thus, the comfort levels of the parts such as back and waist are further improved. Certainly, the transverse supporting structure II 22 can be further arranged as a frontward convex arc-shaped structure to improve the stretching range of the parts such as leg, waist, abdomen, back, shoulder and neck, or it is arranged as a straight body structure for supporting the parts such as back and waist, too. Certainly, the transverse supporting structure II 21 in the example is made of metal materials such as steel and iron, so that the firmness of the structure is improved. In some other examples, the transverse supporting structure II 21 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity.

[0027] As shown in Fig. 7, as an example, the third rotating assembly 8 includes a ratchet wheel 812 with a ratchet wheel arm 811, a ratchet wheel shaft 813, a rotating arm 814, a check pawl 815, a check pawl shaft 816, a return piece 817 and a restoration piece 818, where the ratchet wheel arm 811 is connected with the frame body structure II 21; one end of the rotating arm 814 is hinged with the ratchet wheel 812 via a ratchet wheel shaft 813 and the other end thereof is connected with the frame body structure I 11; the check pawl 815 is hinged with the rotating arm 814 via a check pawl shaft 816 and is arranged corresponding to the ratchet wheel 812, and is used to resist rotation of the ratchet wheel 812; the return piece 817 is sleeved on the ratchet wheel shaft 813, one end of the return piece 817 is provided with an arc-shaped notch structure 8171, the ratchet wheel 812 is provided with an arc-shaped protrusion structure 8121 corresponding to the arc-shaped notch 8171, and the other end of the return piece 817 is provided with a lug structure 8172 corresponding to the check pawl 815 to drive the check pawl 815 to leave the ratchet wheel 812; and the restoration piece 818 is a reset spring and is used to drive the check pawl 815 to lean against the ratchet wheel 812 after the check pawl 815 leaves the ratchet wheel 812. In the example, when the frame body structure II 21 rotates towards the direction of the head end 101, the ratchet wheel 812 further rotates therewith anti-clockwise, and meanwhile, the check pawl 815 streaks backs of teeth of the ratchet wheel 812 one by one. After the frame body structure II 21 is adjusted to a needed angle, the check pawl 815 is returned to lean against a certain tooth space of the ratchet wheel 812 under elastic action of the restoration piece 818, so that the ratchet wheel 812 is locked, i.e., the frame body structure II 21 and the frame body structure I 11 are locked; and when it is needed to rotate the frame body structure II 21 towards the direction of the tail end 102, the frame body structure II 21 is rotated towards the direction of the tail end 102 first, so that the front side of the arc-shaped protrusion structure 8121 on the ratchet wheel 812 leans against the front side of the arc-shaped notch structure 8171 on the return piece 817, and the frame body structure II 21 is rotated continuously, so that the arc-shaped protrusion structure 8121 pushes the arc-shaped notch structure 8171 to rotate anti-clockwise until the lug structure 8172 pushes the ratchet pawl 835 away from the ratchet wheel 812, and then the frame body structure II 21 is rotated towards the direction of the tail end 102; after the rear side of the arc-shaped protrusion structure 8121 leans against the rear side of the arc-shaped notch structure 8171 on the return piece 817, the frame body structure II 21 is rotated continuously, so that the arc-shaped protrusion structure 8121 pushes the arc-shaped notch structure 8171 to rotate clockwise until the lug structure 8172 leaves the check pawl 815; the check pawl 815 leans against a certain tooth space of the ratchet wheel 812 under the elastic action of the restoration piece 818, so that the ratchet wheel 812 is locked, i.e., the frame body structure II 21 and the frame body structure I 11 are locked. The third rotating assembly 8 is simple in structure and easy to operate, so that the frame body structure II 21 connected with the ratchet wheel arm 811 can rotate and can be locked between the head end 101 and the tail end 102 of the frame body structure I 11 connected with the rotating arm 834. Certainly, the third rotating assembly 8 can further be arranged in other ratchet wheel structures or hinged structures in which the frame body structure II 21 can rotate and can be locked between the head end 101 and the tail end 102 of the frame body structure I 11, and the frame body structure II 21 can further rotate and can be locked between the head end 101 and the tail end 102 of the frame body structure I 11. In addition, there are two third rotating assemblies 8 in the example and are respectively welded between the frame body structure II 21 and the frame body structure I 11 on the same side, so that the adjustability and the adjusting stability can be improved. Certainly, in some other embodiments, there is only one third rotating assembly 8, and the welding mode can be replaced by other connecting modes such as threaded connection, riveting connection, buckling connection and the like, and the third rotating assemblies 8 can further be

arranged between any one or two of the frame body structure II 21 and the transverse supporting structures II 22 and any one or two of the frame body structure I 11 and the transverse supporting structures I 12, so that the second frame body unit 2 and the first frame body unit 1 are rotatably connected and locked.

[0028] As shown in Fig. 3, as an example, the first connecting position 103 is arranged close to the head end 11 close to the frame body structure I 11, i.e., the first supporting unit 3 is supported near the head end 101 of the frame body structure I 11, so that the integral height of the multifunctional chair is reduced and the integral stability of the multifunctional chair is improved. A distance is reserved between the head end 101 of the frame body structure I and the first connecting position 103, so that on the one hand, the connecting stability between the first supporting unit 3 and the frame body structure I 11 is improved and the falling connection risk is reduced, and on the other hand, the part of structure of the head end 101 of the frame body structure I 11 can further be used as a handrail, in particular used to assist the human body to perform various fitness actions such as sit-up and push-up when the multifunctional chair is in the second posture of the fitness equipment. In addition, the first leaning unit 13 is arranged on the frame body structure I 11 along the tail end 102 close to the first connecting position 103, so that the supporting end surface distracted between the first leaning unit 13 and the second leaning unit 23 is larger and has a larger contact area with human, the origins of force are more scattered, and therefore, the comfort level is improved. Certainly, in some other examples, the first connecting position 103 can further be overlapped with the head end 101 of the frame body structure I 11, so that the overall height of the multifunctional chair is further reduced, and the integral stability of the multifunctional chair is improved. The head end 101 of the frame body structure I 11 is hidden in the first supporting unit 3, so that the multifunctional chair is more concise integrally and more barrier-free to use, or a position close to the head end 101 on a position close to the frame body structure I 11 is provided with another first connecting position 103 while the first connecting position 103 and the head end 101 of the frame body structure I 11 are overlapped, so that on a basis of conciseness and no barriers, the connecting stability of the first supporting unit 3 and the frame body structure I 11 is improved and the falling connection risk is reduced. In the example, the first connecting position 103 is arranged on the frame body structure I 11, so that the stability and the bearing performance of the multifunctional chair are improved. Certainly, the first connecting position 103 can further be arranged on the transverse supporting structures I 12 or the frame body structure I 11 and the transverse supporting structures I 12, so that the first supporting unit 3 and the transverse supporting structures I 12 are connected or the frame body structure I 11 and the transverse supporting structures I 12 are connected jointly, and therefore, the first supporting unit 3 can support the head end 101 of the first frame body unit 1 or a position close to the head end 101, so that the height of the tail end 102 of the first frame body unit 1 is lower than the height of the first connecting position 103.

[0029] As shown in Fig. 1, as an example, there is one first supporting unit 3, so that it is simple in structure and convenient to use, carry and transport. Certainly, in some other examples there are two, three or even more first supporting unit 3 to enhance support to the first frame body unit 1, so that the stability and the bearing performance of the multifunctional chair are improved. In addition, the first supporting unit 3 is arranged at an angle with mounting end surfaces such as a floor, a ground mat, gravel and various indoor or outdoor platform surfaces, i.e., the first supporting unit 3 is arranged obliquely relative to the mounting end surfaces. In the example, the upper end of the first supporting unit 3 is arranged inclining backwards, so that the multifunctional chair forms a gradually contracted structure from bottom to top integrally. All parts of the multifunctional chair are more compact when the first frame body unit 1 is stressed, so that it is more stable and firm in structure. Certainly, the upper end of the first supporting unit 3 can further be arranged inclining forwards, so that the multifunctional chair forms a gradually contracted structure from bottom to top integrally, and parts such as feet and shank can move in a barrier-free manner, or the first supporting unit 3 is arranged perpendicular to the mounting end surfaces to further form stable triangular supporting structures with the first frame body unit 1 and the mounting end surfaces such as the ground, so that the multifunctional chair is placed and used stably.

[0030] As shown in Fig. 3, as an example, the first supporting unit 3 includes two parallelly arranged first supporting pieces 31, the first supporting pieces 31 are arranged in rod-shaped structures, and the upper ends of the two first supporting pieces 31 are respectively connected with the first connecting position 103 of the frame body structure I 11 on the same side and the lower ends thereof lean against the mounting end surfaces of mounting media such as the floor, the ground mat, the gravel and various indoor or outdoor platforms, so that profiles needed by the first supporting unit 31 are greatly saved, the cost is saved, the overall weight of the multifunctional chair is alleviated and it is convenient to use and carry. The two first supporting pieces 31 are arranged in parallel and are arranged in splayed shapes relatively. On the one hand, the overall volume of the multifunctional chair is reduced, so that it is convenient to place, package, carry and transport. On the other hand, the two first supporting pieces 31 and the frame body structure I 11 on the same side are located on a same plane, and a backward forward supporting force is applied to the frame body structures I 11 on the same side, so that the supporting stability is improved. Certainly, in some other examples, there is one first supporting piece 31 arranged in a platy structure, and meanwhile, it is connected with the first connecting positions 103 on the two frame body

structures I 11, or there are three, four, five or even more rod-shaped structures, so that one frame body structure I 11 is respectively connected with a plurality of first supporting pieces 31. The two first supporting pieces 31 can further be arranged in such an unparallel manner of splayed and inverted splayed shapes or arranged in an intersected manner, so that the two first supporting pieces 31 are respectively connected with the frame body structures I 11 on the opposite side, which can further support the first connecting positions 103 on the first frame body units 1 by the first supporting unit 3. Certainly, the first supporting piece 31 in the example is made of metal materials such as steel and iron. In some other examples, the first supporting piece 31 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity.

[0031] As shown in Fig. 3, as an example, the first supporting piece 31 is arranged as an integrated structure, so that the stability of the first supporting unit 3 is improved, and it is simple in structure and convenient to produce and machine.

[0032] As shown in Fig. 3, as an example, the first supporting unit 3 is rotatably connected with the first frame body unit 1 via the first rotating assembly 6, so that the first supporting unit 3 can rotate relative to the first frame body unit 1. On the one hand, by adjusting the relative angle between the first supporting unit 3 and the first frame body unit 1, the angle between the mounting end surface of the first supporting unit 3 relative to the ground and the overall height of the multifunctional chair are changed, so that the supporting direction of the first frame body unit 1 by the first supporting unit 3 is changed to form different supporting structures. Meanwhile, the positioning unit 9 can move therewith, so that the angle when it is used as a foot mat or a presser foot is different, and therefore, the multifunctional chair is richer in using state. On the other hand, after the first supporting unit 3 is rotated to lean against the first frame body unit 1, the first supporting unit 3 can further be folded, so that the integral volume of the multifunctional chair is reduced, and it is convenient to store, package, carry and transport. In the example, there are two first rotating assemblies 6. The first supporting piece 31 and the frame body structure I 11 on the same side are connected via one first rotating assembly 6, so that the two first supporting pieces 31 rotate respectively relative to the frame body structure I 11 on the same side to combine more diversified using states. The two supporting pieces 31 can be folded, so that the integral volume of the multifunctional chair is further reduced, and it is convenient to store, package, carry and transport. Certainly, in some other examples, there may be only one first rotating assembly 6, so that a certain first supporting piece 31 can rotate and can be folded relative to the frame body structure I 11 on the same side, and the multifunctional chair is richer in using state and the integral volume of the multifunctional chair is reduced.

[0033] As shown in Fig. 8, as an example, the first rotating assembly 6 includes a connector I 61, a rotating shaft I 62 and a limiting piece I 63, where one end of the connector I 61 is connected with the first connecting position 103 on the frame body structure I 11 while the other end thereof is hinged to the first supporting pieces 31 via the rotating shaft I 62, so that the first supporting piece 31 can rotate relative to the first connecting position 103 on the frame body structure I 11. The rotating shaft I 62 is arranged perpendicular to the direction of the frame body structure I 11, and the limiting piece I 63 is arranged on the front portion of the connector I 61, so that the rotating trajectories of the two first supporting pieces 31 are defined in a parallel direction of the frame body structure I 11, thereby preventing instability of the multifunctional chair due to inconsistence of the rotating angles and the directions of the two first supporting pieces 31. In the example, when the first supporting unit 3 is rotated forwards to the front end of the first supporting piece 31 relative to the first frame body unit 1 to lean against the limiting piece I 63, i.e., the first supporting unit 3 is unfolded under drive by the first supporting piece 31, at the time, the multifunctional chair can be placed on the mounting end surfaces such as ground to use. When the first supporting unit 3 is rotated backwards to the first frame body unit 1 relative to the first frame body unit 1 to lean against the first frame body unit 1, i.e., the first supporting unit 3 is folded and contracted under drive of the first supporting piece 31, at the time, the integral volume of the multifunctional chair is reduced and it is convenient to store, package, carry or transport. Certainly, in some other embodiments, a locking piece can further be arranged to lock the first supporting piece 31 at any angle rotating relative to the connector I 61, so that the first supporting piece 31 and the first frame body unit 1 are integrally fixed to different angles and positions for foot mats or presser feet at different angles and positions, and thus, the multifunctional chair is richer in using state. In some other examples, the first rotating assembly 6 can further be arranged in other connecting structures such as a hinge in such a manner that the first supporting piece 31 rotates relative to the frame body structure I 11 and the first frame body unit 1 is converted between the unfolded state and the contracted state, so that it is convenient to use, store, package, carry or transport.

[0034] As shown in Fig. 5, as an example, the multifunctional chair further includes a positioning unit 9 arranged on the first supporting unit 3. When the multifunctional chair is in the first state of the reclining chair or the seat, it can further be used for placing parts such as feet and shanks, so that the sitting or lying comfort level is improved. In the second posture of the fitness equipment, it can be further used for placing or positioning one of the feet and shanks, or placing or positioning the feet and shanks simultaneously to assist various stretching actions of legs, waist, abdomen, back, shoulders, neck and the like. It replaces existing independent fitness equipment completely.

[0035] As shown in Fig. 5, as an example, the positioning unit 9 includes two positioning connectors 91 and a positioning adjusting piece 92, where the positioning connectors 91 are arranged in rod-shaped structures and the two positioning connectors 91 are arranged at an interval. Two ends of the two positioning connectors 91 are respectively connected with two first supporting pieces 31. On the one hand, the two positioning connectors 91 and the two first supporting pieces 31 jointly form leaning end surfaces for placing or positioning parts such as legs and shanks, so that profiles needed by the positioning unit 9 are saved greatly, the cost is saved, the integral weight of the multifunctional chair is alleviated, and it is convenient to use and carry. The two positioning connectors 91 are arranged at an interval, so that the parts such as legs and shanks can be placed butane the two positioning connectors 91 to limit and support front and back two contact surfaces, so that the positioning stability is improved. On the other hand, the two positioning connectors 91 are connected between the two first supporting pieces 31 to further enhance the stability of the first supporting unit 3. The two first supporting pieces 31 are respectively sleeved with the positioning adjusting pieces 92, and the outer ends of the positioning adjusting pieces 92 are formed with positioning end surfaces leaning against the parts such as legs and shanks, so that the contact area between the two positioning pieces 91 and the parts such as legs and shanks is increased, and the comfort level is improved. In the example, there are two positioning connectors 91 which are respectively sleeved with the positioning adjusting pieces 92, so that the parts such as legs and shanks and the positioning unit 9 have two placing or positioning end surfaces, and therefore, the comfort level and the positioning stability are improved. Certainly, there may only be one, or three four, five or even more positioning connectors 91. The positioning adjusting pieces 92 can be merely sleeved on a certain positioning connector 91 or several certain positioning connectors 91 to be combined or there are no positioning adjusting pieces 92, which can also be used for placing or positioning the parts such as legs and shanks. In addition, fixed connection structures such as welding and riveting structures can be adopted between the positioning connectors 91 and the first supporting pieces 31, so that the stability of the structure is improved. Detachable connection structures such as threaded structures, screws and dowels can be adopted, too, so that the multifunctional chair is converted between a condition with the positioning unit and a condition without the positioning unit, and therefore, the multifunctional chair is more diversified. Rotatable connection structures are adopted, so that the positioning connectors 91 can rotate relative to the first supporting pieces 31 to massage the parts such as legs and shanks, thereby enriching the functionality of the multifunctional chair. Similarly, fixed connection structures such as welding and gluing structures can be adopted between the positioning connectors 91 and the first supporting pieces 31, so that the stability of the structure is improved. Detachable connection structures such as clamping connection structures, threaded structures, and interference fitting connection structures can be adopted, too, so that the multifunctional chair is converted between a condition with the positioning adjusting pieces and a condition without the positioning adjusting pieces, and therefore, the multifunctional chair is more diversified. Rotatable connection structures are adopted, so that the positioning adjusting pieces 92 can rotate relative to the positioning connectors 91 to massage the parts such as legs and shanks, thereby enriching the functionality of the multifunctional chair. Certainly, the positioning connectors 91 in the example are made of metal materials such as steel and iron, so that the firmness of the structure is improved. In some other example, the positioning connectors 91 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity.

[0036] As shown in Fig. 5, as an example, the positioning adjusting pieces 92 are arranged as flexible structures such as a sponge body, a foam body and a soft silica structure, so that the comfort levels of the parts such as legs and shanks placed or positioned on the positioning adjusting pieces 92 are further enhanced. Certainly, in some other examples, the positioning adjusting pieces 92 can further be arranged in hard structures such as steel, iron, plastics and hard silica gel and can further increase the contact area between the two positioning connectors 91 and the parts such as legs and shanks, so that the comfort level is improved properly.

[0037] As shown in Fig. 2, as an example, the multifunctional chair further includes a second supporting unit 4 for supporting the rear portion of the first frame body unit 1 so as to keep balance of the integral multifunctional chair. In the example, the second supporting unit 4 is formed by the tail end 102 of the first frame body unit 1, so that the structure is simplified, and it is convenient to produce and machine. Certainly, in some other examples, the second supporting unit 4 can further be formed by the main body on the first frame body unit 1 close to the tail end 102 and the tail end 102 jointly, i.e., is formed by the first frame body unit 1 which is larger, or is merely formed by the main body on the first frame body unit 1 close to the tail end 102, or is independently arranged with the second supporting unit 4 and is connected with the tail end 102 of the first frame body unit 1 or a position close to the tail end 102, to further support the rear portion of the first frame body unit 1 to keep balance of the integral multifunctional chair.

[0038] As shown in Fig. 4, as an example, there is one second supporting unit 4, so that it is simple in structure and convenient to use, carry and transport. Certainly, in some other examples, there are two, three or even more second supporting unit 4 to enhance support to the rear portion of the first frame body unit 1, so that the stability and the bearing performance of the multifunctional chair

are improved. In addition, the second supporting unit 4 is arranged at an angle with mounting end surfaces such as a floor, a ground mat, gravel and various indoor or outdoor platform surfaces, i.e., the second supporting unit 4 is arranged obliquely relative to the mounting end surfaces. In the example, the upper end of the second supporting unit 4 is arranged inclining backwards, so that the multifunctional chair forms a gradually contracted structure from bottom to top integrally. All parts of the multifunctional chair are more compact when the first frame body unit 1 is stressed, so that it is more stable and firm in structure. The second supporting unit forms an extended shape of the first frame body unit 1 due to the angle of the upper end of the second supporting unit 4 inclining forwards, so that it is simple in structure and easy to produce and machine, and can form the stable triangular supporting structures with the first frame body unit 1, the first supporting unit 3 and the mounting end surface such as ground, and therefore, the multifunctional chair is placed and used stably. Certainly, in some other examples, the upper end of the second supporting unit 4 can further be arranged inclining forwards, so that the multifunctional chair forms a gradually contracted structure from bottom to top integrally, and the tail end 102 of the first frame body unit 1 and the mounting end surfaces such as ground have a certain height, so that it can move below the tail end 102 of the first frame body unit 1 in a barrier-free manner, or the second supporting unit 4 is arranged perpendicular to the mounting end surfaces to support the front and rear ends of the frame body unit 1 with the first supporting unit 3 jointly, so that the multifunctional chair is placed and used stably.

[0039] As shown in Fig. 5, as an example, the second supporting unit 4 includes two parallelly arranged second supporting pieces 41, the second supporting pieces 41 are arranged as rod-shaped structures, the second supporting pieces 41 are respectively formed by the frame body structures I 11 on the same side, and the lower ends of the second supporting pieces 41 lean against the mounting end surfaces of mounting media such as the floor, the ground mat, the gravel and various indoor or outdoor platforms, so that profiles needed by the second supporting unit 41 are greatly saved, the cost is saved, the overall weight of the multifunctional chair is alleviated and it is convenient to use and carry. The two second supporting pieces 41 are arranged in parallel and are arranged in splayed shapes relatively. On the one hand, the overall volume of the multifunctional chair is reduced, so that it is convenient to place, package, carry and transport. On the other hand, the two second supporting pieces 41 and the frame body structure I 11 on the same side are located on a same plane, and a backward forward supporting force is applied to the frame body structures I 11 on the same side, so that the supporting stability is improved. Certainly, in some other examples, there is one second supporting piece 41 arranged in a platy structure, and meanwhile, it is connected with the two frame body structures I 11, or there are three, four, five or even more rod-shaped structures, so that one frame body structure I 11 is respectively connected with a plurality of second supporting pieces 41. The two second supporting pieces 41 can further be arranged in such an unparallel manner of splayed and inverted splayed shapes or arranged in an intersected manner, so that the two second supporting pieces 41 are respectively connected with the frame body structures I 11 on the opposite side, which can further support the rear portion of the first frame body unit 1 by the second supporting unit 4. Certainly, the second supporting piece 41 in the embodiment is made of metal materials such as steel and iron, so that the firmness of the example is improved. In some other examples, the second supporting piece 41 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity.

[0040] As shown in Fig. 5, as an example, the second supporting piece 41 is arranged as an integrated structure, so that the stability of the second supporting unit 4 is improved, and it is simple in structure and convenient to produce and machine.

[0041] As shown in Fig. 5, as an example, the second supporting unit 4 further includes a first reinforcing piece 42 between the two second supporting pieces 41 for enhancing the stability and the bearing performance of the structure of the second supporting unit 4. The second reinforcing piece 42 is arranged as the rod-shaped structure, so that profiles needed by the second reinforcing piece 42 is saved greatly, the cost is saved, the overall weight of the multifunctional chair is alleviated, and it is convenient to use and carry. Certainly, there may be two, three or even more second reinforcing pieces 42 to further enhance the stability of the second supporting unit 4. The rod body structure can be replaced by a platy structure or other structures, which may realize an effect of enhancing the stability and the bearing performance of the structure of the second supporting unit 4. In addition, the second reinforcing pieces 42 are arranged between the tail ends o f the two supporting pieces 41, so that the contact areas between the second supporting units 4 and the mounting end surfaces such as ground are increased, and the stability of placing the chair is improved. Certainly, the second reinforcing pieces 42 are arranged between other position of the two supporting pieces 41, which may realize an effect of enhancing the stability and the bearing performance of the structure of the second supporting unit 4. Certainly, the second reinforcing piece 41 in the example is made of metal materials such as steel and iron, so that the firmness of the structure is improved. In some other examples, the second reinforcing piece 41 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity.

[0042] As shown in Fig. 2, as an example, the multifunctional chair further includes a handrail structure 14.

The handrail structure 14 is sleeved outside the head end 101 of the frame body structure I 11, so that the contact area when the head end 101 of the frame body structure I 11 is grasped by a hand is increased, and therefore, the using comfort level is improved, in particular, it is favorable to assist the human body to perform various fitness actions such as sit-up and push-up when the multifunctional chair is in the second posture of the fitness equipment. In the embodiment, the handrail structure 14 is arranged outside the head end 101 of the frame body structure I 11, so that it is favorable to mount, detach and use and convenient to produce and machine. It further has an anti-collision effect in the position of the head end 101. Certainly, the handrail structure 14 can further be arranged on other positions of the frame body structure I 1, or can be arranged on any one of or a combination of several of the transverse supporting structures I 12, the first leaning unit 13, the first rotating assemblies 6, the first supporting pieces 31, the positioning connectors 91, the positioning adjusting pieces 92, the frame body structures II 21, the transverse supporting structures II 22 or the second leaning unit 23, which may realize an effect of assisting the human body to perform various fitness actions such as sit-up and push-up. In addition, the handrail structure 14 is in flexible structures such as a sponge body, a foam body or a soft silica gel structure, so that the grasping comfort level is improved. Certainly, in some other embodiments, the handrail structure 14 can further be in rigid structures such as a steel body, an iron body and a body, so that the using comfort level can be properly improved.

[0043] As shown in Fig. 2, as an example, the handrail structure 14 is rotatably connected with the head end 101 of the frame body structure I 11, and the handrail structure 14 can rotate relative to the frame body structure I 11 after being grasped, so that it is convenient to assist the human body to perform various fitness actions such as hand and wrist twisting, and therefore, the fitness effect is improved. Certainly, the handrail structure 14 can further be connected with the head end 101 of the frame body structure I 11 via fixed connection structures such as welding, gluing connection structures, so that the connecting stability is improved, or via detachable connection structures such as thread connection structures, screw connection structures, clamping connection structures and interference fitting connection structures, which is convenient to replace handrail structures 14 of different types.

[0044] As shown in Fig. 9, the first leaning unit 13 includes a first leaning structure 131, the first leaning structure 131 is mainly used for contacting and supporting the parts such as hip and legs when the human body sits or lies down, the first leaning structure 131 is arranged on the frame body structure I 11, and the first leaning structure 131 is formed by extending along the direction close to the tail end 102 of the first frame body unit 1 from the rear end close to the first connecting position 103. On the one hand, the front end of the first leaning structure 131 is arranged close to the first connecting position 103 supported by the first supporting piece 31, so that the first leaning structure 131 is located between the first connecting position 103 on the frame body structure I 11 and the first rotating assembly 6 in a large area, so that it is ensured that the first leaning structure 131 has an contact end surface large enough and is not intersected with the first connecting position 103 or the first rotating assembly 6, and therefore, it is convenient to mount and detach. On the other hand, a suspending space is reserved between the front end of the first leaning structure 131 and the positioning unit 4 to place and position the parts such as legs and shanks, a suspending space is reserved between the front end of the first leaning structure 131 and the handrail structure 14 to place the parts such as legs and shanks, and the parts such as legs and shanks are blocked in the suspending space via the handrail structure 14 to further position the parts such as legs and shanks, and collision to the parts such as legs and shanks by the outer side can be prevented. Certainly, the front end of the first leaning structure 131 can further be arranged on the first connecting position 103, can further reserve the suspending space for placing and positioning the parts such as legs and shanks on a basis of ensuring that the first leaning unit 13 has the contact end surface large enough, or is formed by extending along the direction close to the tail end 102 of the first frame body unit 1 from the front end close to the first connecting position 103. The rear end of the first leaning structure 131 can further be arranged in a position on the frame body structure I 11 connected with the first rotating assembly 6, or is arranged behind the position on the frame body structure I 11 connected with the first rotating assembly 6 and is even arranged at the tail end 102 of the first frame body unit 1, which can further support the parts such as hip and legs by the first leaning unit 3. Certainly, the first leaning structure 131 can further be arranged on the transverse supporting structures I 12, or is arranged on the frame body structure I 11 and the transverse supporting structures I 12, which can further support the parts such as hip and legs.

[0045] As shown in Fig. 9, the first leaning structure 131 is connected with the frame body structure I 11 via the first connecting assembly 132, so that the first leaning structure 131 is detachably connected to the frame body structure I 11, and therefore, it is convenient to clean the first leaning structure 131, or the first leaning structures 131 of different types can be replaced according to different demands, so that the multifunctional chair is more diversified. In the example, the frame body structure I 11 is provided with a groove type structure with an opening. The first connecting assembly 132 is arranged in a clamping strip structure matched with the groove type structure. The first leaning structure 131 is in buckling connection with the groove type structure on the frame body structure I 11 via the clamping strip structure, so that it is convenient to mount and detach. In some other examples, the groove type structure and the clamping strip structure can further

be arranged in other buckling structures or any one detachable connection structure such as a hook structure and a pasting structure or a combination of several detachable connection structures, so that it is convenient to clean and replace the first leaning structures 131 of different types. Certainly, there may be no first connecting assembly 132. Part of or all structures of the end portion of the first leaning structure 131 are wrapped outside the frame body structure I 11 and are connected with the frame body structure I 11, so that the structure is simplified and it is convenient to produce and machine.

[0046] As shown in Fig. 10, the second leaning unit 23 includes a second leaning structure 231, the second leaning structure 231 is mainly used to contact and support the parts such as back and waist of the human body sitting or lying, the second leaning structure 231 is arranged on the frame body structure II 21, and is formed by extending along the direction close to the other end of the frame body structure II 21 from an end close to the frame body structure II 21. In the example, two ends of the second leaning structure 231 are arranged close to two ends of the frame body structure II 21 respectively, so that the second leaning structure 231 is arranged on the frame body structure II 21 in a large area, and therefore, it is ensured that the second leaning structure 231 has the contact end surface large enough, and it is convenient to mount and detach. Certainly, in some other examples, the second leaning structure 231 can further be arranged in part of regions on the frame body structure II 21, so that the second leaning structure 231 has the contact end surface relatively small, and the leaning structure 231 can support the parts such as hip and legs. Certainly, in some other examples, the second leaning structure 231 can further be arranged on the transverse supporting structures II 22, or is arranged on the frame body structure II 21 and the transverse supporting structures II 22, which can further support the parts such as hip and waist.

[0047] As shown in Fig. 10, as an example, the second leaning structure 231 is connected with the frame body structure II 21 via the second connecting assembly 232, so that the second leaning structure 231 is detachably connected to the frame body structure II 21, and therefore, it is convenient to clean the second leaning structure 231, or the second leaning structures 231 of different types can be replaced according to different demands, so that the multifunctional chair is more diversified. In the example, the frame body structure II 21 is provided with a groove type structure with an opening. The second connecting assembly 232 is arranged in a clamping strip structure matched with the groove type structure. The second leaning structure 231 is in buckling connection with the groove type structure on the frame body structure II 21 via the clamping strip structure, so that it is convenient to mount and detach. In some other examples, the groove type structure and the clamping strip structure can further be arranged in other buckling structures or any one detachable connection structure such as a hook structure and a pasting structure or a combination of several detachable connection structures, so that it is convenient to clean and replace the second leaning structures 231 of different types. Certainly, there may be no second connecting assembly 232. Part of or all structures of the end portion of the second leaning structure 231 are wrapped outside the frame body structure II 21 and are connected with the frame body structure I 11, so that the structure is simplified and it is convenient to produce and machine.

[0048] As shown in Fig. 9 to Fig. 10, the first leaning structure 131 and the second leaning structure 231 are arranged as cloth structures, so that the cost is lowered. Certainly, the cloth structures can be made from elastic materials, so that the flexibility when the human sits or lies down is improved. The cloth structures can further be made from non-elastic materials, so that the hardness when the human sits or lies down is improved. In some other examples, the cloth structures can further be replaced by any one of or a combination of several of other structures such as leather structures, bamboo structures, rattan structures, plastic structures and wooden structures, which may contact and support the parts such as hip, legs, back and waist when the human body sits or lies down, and the multifunctional chair is more diversified.

[0049] As shown in Fig.6, the frame body structure I 11 is arranged as the upward-convex arc-shaped structure, in particular the upward-convex arc-shaped structure gradually descending along the direction of the tail end 102 along the first connecting position 103 of the frame body structure I 11; the frame body structure II 21 is arranged as the upward-convex arc-shaped structure matched with the tail end 102 of the frame body structure I 11; as the first leaning unit 13 is formed by extending along the direction of the tail end 102 from a position close to the first connecting position 103, when the multifunctional chair is in the first posture of the reclining chair or the seat, the human body can integrally sit on or lie down the first leaning unit 13 and the second leaning unit 23 arranged on the first frame body unit 1 and the second frame body unit 2 obliquely backwards, so that the whole body is pressure-relieved and relaxed. Further, due to the upward-convex arc-shaped structure, the parts such as hip, legs, back and waist better fit the first leaning unit 13 and the second leaning unit 23, and the force bearing points are further scattered, and the human body feel more comfortable and relaxed; when the multifunctional chair is in the second posture of the fitness equipment, the human body can lie on the first leaning unit 13 and the second leaning unit 23 arranged on the first frame body unit 1 and the second frame body unit 2 in an integral gradual descending posture from the edge of the first connecting position 103 close to the first leaning unit 13 to perform fitness actions such as sit-up. Compared with reclining on a plane to perform the actions, the fitness strength is enhanced, and the fitness effect is improved, i.e., the stretching amplitude of the parts such as legs,

waist, abdomen, back, shoulders and neck is increased, the fitness effect is improved; and it is in the gradual descending posture integrally, so that it better meets the human body structure, and it is more comfortable to perform fitness actions such as sit-up. Certainly, in some other examples, the frame body structure I 11 can further be arranged such that a certain position between the first connecting position 103 and the tail end 102 is higher than the upward-convex arc-shaped structure of the first connecting position 103, so that when the multifunctional chair is in the first posture of the reclining chair or the seat, only the upper part of the body and the hip and the like of the human body sits or lies down on the first leaning unit 13 and the second leaning unit 23 arranged on the first frame body unit 1 and the second frame body unit 2 obliquely backwards, so that a certain pressure relieving and relaxing function is realized. When the multifunctional chair is in the second posture, the human body can enable the parts such as the half part of the body and the hip to lie down on the first leaning unit 13 and the second leaning unit 23 arranged on the first frame body unit 1 and the second frame body unit 2 in the gradual descending posture to perform fitness actions such as sit-up. Compared with reclining on a plane to perform the actions, the fitness strength can be enhanced and existing independent fitness equipment is replaced, or the frame body structure I 11 can further be arranged as a straight body structure. As the tail end 102 of the frame body structure I 11 is lower than the first connecting position 103, the attaching area can be increased to a certain extent, and therefore, the comfort level is improved. The relative angle between the first leaning unit 13 on the frame body structure I 11 and the second leaning unit 23 on the frame body structure II 21 is equal to 180 degrees, so that the stretching amplitude of the parts such as legs, waist, abdomen, back, shoulders and neck is increased compared with the prior art, and the fitness effect is improved.

[0050] As shown in Fig. 11 to Fig. 13, as second example not according to the invention, disclosed is a multifunctional chair. The difference between the second and the first example lies in that the multifunctional chair further includes a third supporting unit 5, where the third supporting unit 5 is arranged on the lower rear side of the second frame body unit 2, and the lower end of the third supporting unit 5 leans against the first frame body unit 1. In the example, on a basis of locking the frame body structure II 21 and the frame body structure I 11 connected therewith via the third rotating assembly 8 in the first example, by additionally arranging the third supporting unit 5, the third supporting unit 5 supports and further locks the rear portion of the second supporting unit 2, so that the stability and the bearing performance of the second frame body unit 2 are further enhanced when the multifunctional chair is in the first posture of the reclining chair or the seat, the second frame body unit 2 is prevented from rotating backwards after being stressed after the parts such as back and waist lean against the second frame body unit 2, and a supporting force towards the upper front side is applied to the rear portion of the second frame body unit 2, so that it is more forward and direct to support the second frame body unit 2 after being stressed by the third supporting unit 5, and therefore, the supporting effect is better. Certainly, the third supporting unit 5 can further be arranged right below or on the front lower side of the second frame body unit 2 or directions combining the several directions, so as to apply right-above and rear-above supporting forces or tensile forces to the second frame body unit 2, so that the stability and the bearing performance of the second frame body unit 2 when the multifunctional chair is in the first posture of the reclining chair or the seat can be enhanced. In some other examples, the lower end of the third supporting unit 5 can further lean against the second supporting unit 4, which also has an equivalent effect. In some other examples, the third supporting piece 51 can be rotatably connected with the frame body structure I 11, too, and the third adjusting assembly 52 is arranged on the frame body structure II 21, which also has an equivalent effect.

[0051] As shown in Fig. 11, as an example, the third supporting unit 5 includes the third supporting piece 51 and the third adjusting assembly 52, where the upper end of the third supporting piece 51 is rotatably connected with movable ends of the two frame body structures II 21 respectively and the lower end thereof is adjustably connected with the third adjusting assembly 52, so that the third supporting piece 51 can rotate relative to the frame body structures II 21 at the connecting position with the frame body structures II 21. The lower end of the rotated third supporting piece 51 is connected with a new position of the third adjusting assembly 52 after the third adjusting assembly 52 is adjusted, so that the supporting angle of the third supporting piece 51 to the frame body structures II 21 is adjusted, and therefore, different distracting angles between the second leaning unit 23 on the frame body structure II 21 and the first leaning unit 13 on the frame body structures I 11 are supported. There are two third adjusting assemblies 52, and the two third adjusting assemblies 52 are correspondingly arranged on the two frame body structures I 11 to adjust the position of the lower end of the third supporting piece 51 relative to the two frame body structures I 11. Certainly, a fixed connection structure such as welding and riveting connection structures can be adopted between the third adjusting assembly 52 and the frame body structure I 11, so that the connecting stability is enhanced. A detachable connection structure such as a threaded structure, a screw and a buckle can be further adopted, so that it is convenient to assembly or replace. In addition, the third adjusting assembly 52 can further be arranged on the second supporting piece 41 or the second reinforcing piece 42 or a combination of several parts, which also has the equivalent effect. In some other examples, there may be no third adjusting assemblies 52, the lower end of the third supporting piece 51 is adjustably connected with the

frame body structure I 11 directly to adjust the position of the lower end of the third supporting piece 51 relative to the two frame body structures I 11.

[0052] As shown in Fig. 13, as an example, the third adjusting assembly 52 includes an adjusting piece III 521, the adjusting piece III 521 is provided with several adjusting channels III 522, each of the adjusting channels III 522 is arranged to be matched with the lower end of the third supporting piece 51 to connect, lock and support the lower end of the third supporting piece 51 so as to improve the stability of the third supporting unit 5 on the frame body structures II 21, and meanwhile, the adjusting channel III 522 is arranged to be matched with the rotating angel of the third rotating assembly 8, so that when a distracting angle between the second leaning unit 23 on the frame body structure II 21 and the first leaning unit 13 on the frame body structure I 11 is locked at any angle of the third rotating assembly 8, there is one adjusting channel III 522 corresponding to the lower end of the third supporting piece 51 supported with the frame body structure II 21 at an angle at the time on the adjusting piece III 521, so that the second frame body unit 2 is supported and locked under a condition that each angle is locked. Certainly, in some other examples, the adjusting channel III 522 can further be arranged to be merely matched with the part of rotating angle of the third rotating assembly 8, so that the third supporting unit 5 is merely used for further support at the part of distracting angle between the second leaning unit 23 on the frame body structure II 21 and the first leaning unit 13 on the frame body structure I 11, so that the supporting stability to the frame body structure II 21 by the third supporting unit 5 can be improved.

[0053] As shown in Fig. 13, the adjusting channel III 522 is arranged as a groove type structure opened in the upper end. The third supporting piece 51 includes two supporting pieces III 511 and a clamping piece III 512, where the upper ends of the two supporting pieces III 511 are rotatably connected with the two frame body structures II 21 via hinging pieces 513 and the lower ends thereof are respectively connected with positions of the clamping piece 512 close to two end portions. The clamping piece III 512 between the position where the two supporting pieces III 511 are connected with the clamping piece III 512 and two end portions of the clamping piece III 512 is used for clamping connection with the groove type structure, so that the lower end of the third supporting piece 51 is supported and locked in a certain adjusting channel III 522. In the example, the groove type structure is arranged to be matched with the structure of the area between the end portion of the clamping piece III 512 and the position connected with the third supporting piece III 511 to enhance the supporting stability of the third adjusting assembly 52 to the lower end of the third supporting piece 51. The clamping piece III 512 is integrally arranged as the cylindrical rod-shaped structure. The groove type structure is arranged as a corresponding U-shaped groove structure, so that it is convenient to clamp the clamping piece III 512 from each angle and direction into the adjusting channel III 522 from the opening, and it is easy to operate, simple in structure and easy to produce and machine. Certainly, the structure of the area from the end portion to the position connected with the third supporting piece III 511 is merely arranged as the cylindrical structure by the clamping piece III 512 but the structure of the area between the positions connected with the two supporting pieces III 511 is arranged as other structures such as square structures and polygonal structures, so that it is further convenient to clamp the clamping piece III 512 into the adjusting channel III 522 from each angle and direction from the opening, or the clamping piece III 512 is arranged as other structures such as square structures and polygonal structures matched with the groove type structure, or other structures not matched with the groove type structure, so that the lower end of the third supporting piece 51 can further be supported and locked in a certain adjusting channel III 522. In the example, the opening of the groove type structure is formed by the clamping portion I 523 and the clamping portion II 524 at an interval; an interval width between the clamping portion I 523 and the clamping portion II 524 is smaller than the width of the groove type structure, and the clamping portion I 523 and the clamping portion II 524 are made from slightly elastic materials, so that after the end portion of the clamping piece III 512 is clamped into the groove type structure, the clamping piece III 512 is firmly defined in the groove type structure by means of the clamping portion I 523 and the clamping portion II 524 to prevent looseness. The clamping portion I 523 slightly protrudes outside the inner side of the groove type structure, the clamping portion II 524 further protrudes outside the inner side of the groove type structure relatively, i.e., the end portion of the clamping piece III 512 is defined by the clamping portion II 524, so that when the frame body structure II 21 rotates along a direction of the head end 101 or the tail end 102 of the frame body structure I 11, it drives the third supporting piece 51 to move forwards or backwards relative to the third adjusting assembly 52, i.e., two ends of the clamping piece III 512 are respectively separated from a certain adjusting channel III 522 and slide along the upper end surfaces of several clamping portions I 523 and clamping portions II 524, and after the frame body structure II 21 is adjusted to a needed angle, the frame body structure II 21 or the third supporting piece 51 is pressed downwards, the clamping piece III 512 is stressed to be clamped into another adjusting channel III 522, so that it is simpler to operate and more convenient to use. Certainly, in some other examples, the opening of the groove type structure can further be arranged as other structures which are narrower than the groove type structure, and the clamping piece III 512 can further be firmly defined in the groove type structure to prevent looseness. When it is unnecessary to use the third supporting unit 5, it is only necessary to separate the clamping piece III 512 from the adjusting piece III 521, and the third supporting

unit 5 can be folded and contracted behind the second frame body unit 2 by rotating the hinge piece III 513 relative to the frame body structure II 21 without affecting use of the multifunctional chair as the seat, the reclining chair or the fitness equipment. Certainly, the third supporting piece 51 in the example is made of metal materials such as steel and iron, so that the firmness of the structure is improved. In some other examples, the third supporting piece 51 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity. Certainly, the third supporting unit 5 in the example can further be used in other examples, so that the multifunctional chairs in other examples further have the effect.

[0054] As shown in Fig. 14 to Fig. 16, as third example not according to the present invention, disclosed is a multifunctional chair. The difference between the third and the second example lies in that the third rotating assembly 8 includes the connector III 821 and the rotating shaft 822, where the connector III 821 is connected with the frame body structure II 21, and one end of the rotating shaft III 822 is connected with the frame body structure I 11 and the other end thereof is rotatably connected with the connector III 821. In the example, structures such as the ratchet wheel arm 811, the ratchet wheel 812, the ratchet wheel shaft 813, the rotating arm 814, the check pawl 815, the check pawl shaft 816, the return piece 817 and the restoration piece 818 in the second example are replaced by the connector III 821 and the rotating shaft 822, so that the structure is simplified, and therefore, it is convenient to produce and machine. In the example, the connector III 821 can rotate in an omnibearing manner at 360 degrees relative to the rotating shaft 822. When the multifunctional chair is in the first posture of the reclining chair or the seat, the second frame body unit 2 can be rotated in a barrier-free manner along the direction of the head end 101 or the tail end 102 of the first frame body unit 1 and the rotated angle and position are locked via the third supporting piece 5, so that the second frame body unit 2 is fixed relative to the distracted angle of the first frame body unit 1, and therefore, the distracted angle range of the frame body structure II 21 relative to the frame body structure I 11 is enlarged. It is easy to operate, wide in using range and suitable for more crowds. Certainly, a fixed connection structure such as welding and riveting connection structures can be adopted between the connector III 821 and the frame body structure II 21 and between the rotating shaft III 822 and the frame body structure I 11, so that the connecting stability is enhanced. A detachable connection structure such as a screw and a buckle can be further adopted, so that it is convenient to assembly or replace. In addition, the frame body structure II 21 and the frame body structure I 11 can be rotatably connected directly through the rotating shaft or other hinge structures, so that the second frame body unit 2 can be rotated in a barrier-free manner at 360 degrees relative to the direction of the head end 101 or the tail end 102 of the first frame body unit 1. In some other examples, the connector III 821 can be connected with the frame body structure I 11, too, and the rotating shaft 822 is connected with the frame body structure II 21, which also has an equivalent effect. Certainly, the third rotating unit 8 in the example can further be used in other examples, so that the multifunctional chairs in other examples further have the effect.

[0055] As shown in Fig. 17 to Fig. 19, as an embodiment of the present invention disclosed a multifunctional chair, the difference between the embodiment and the third example lies in that the frame body structure I 11 is arranged as a split structure, including a frame body portion I 111 and a frame body portion II 112, where the frame body portion II 112 and the frame body portion I 111 are pivotably connected, and the frame body portion II 112 can be rotated relative to the frame body portion I 111, so that an angle formed between the frame body portion I 111 and the frame body portion II 112 is changed. In the embodiment, when the frame body portion II 112 is rotated relative to the frame body portion I 111 to lean against the frame body portion I 111, the frame body portion II 112 can be folded and contracted, so that on a basis of folding and contracting the first supporting unit 3 and the positioning unit 9 of the multifunctional chair in the third example, the frame body portion II 112 is further folded and contracted, and the multifunctional chair is fully folded and contracted completely, and therefore, the integral volume of the multifunctional chair is reduced greatly, and it is more convenient to store, package, carry or transport. When the frame body portion II 112 is rotated to an original state relative to the frame body portion I 111, the frame body portion II 112 can be unfolded to use. Certainly, a pivotal connector between the frame body portion I 111 and the frame body portion II 112 can be a pivotal connector which enables the frame body portion II 112 to be rotatably contracted relative to the frame body portion I 111 and to form the upward-convex arc-shaped structure of the original frame body structure I 11 when being unfolded to use. The pivotal connector in the embodiment is the pivotal structure I 113, where the pivotal structure I 113 includes a frame body portion III 115 and two pivotal connectors I 114 hinged to two ends of the frame body portion III 115, so that the frame body portion I 111 and the frame body portion II 112 can be respectively hinged with the two pivotal connectors I 114 and are respectively folded and contracted relative to the two ends of the frame body portion III 115. Compared with pivotal connection between the frame body portion I 111 and the frame body portion II 112 via one pivotal connector I, the folded and contracted multifunctional chair is more compact in structure in the embodiment, so that conditions that the first frame body unit 1 is resisted, is unsmoothly contracted and the like in the folding and contracting process due to its own structure are avoided. The frame body portion III 115 is arranged in a shape of the frame body structure I 11, so that the frame body structure I 11 with the foldable and contract-

ible effect still keeps the upward-convex arc shape on the original frame body structure I 11, and has the using effect, for the first posture of the reclining chair or the seat and the second posture of the fitness equipment, similar with that of the original frame body structure I 11. Certainly, in some other examples, the frame body portion III 115 can further be arranged in other shapes, such as downward-convex arc shapes or straight rod shapes, different from those of the frame body structure I 11, so that conditions that the first frame body unit 1 is resisted, is unsmoothly contracted and the like in the folding and contracting process due to its own structure are avoided. In the embodiment, the frame body portion II 112 can be folded and contracted below the frame body portion I 111. As the frame body structure I 11 is arranged as the upward-convex arc-shaped structure, the folded and contracted multifunctional chair is more compact in structure, and damage caused by collision in storing, packaging or transporting processes can be prevented. Meanwhile, as the frame body structure II 21 can rotate in a barrier-free manner at 360 degrees relative to the frame body structure I 11, the second frame body unit 2 and the third supporting unit 5 can be folded and contracted below the frame body portion I 111, so that the integral volume of the multifunctional chair is further decreased. Furthermore, as the transverse supporting structures I 12 and the transverse supporting structures II 22 are all arranged at an interval, the folded and contracted transverse supporting structures I 12 and transverse supporting structures II 22 can be placed in a staggered manner, so that the folded and contracted multifunctional chair is more compact in structure, the integral volume of the multifunctional chair is decreased again, and it is more convenient to store, package, carry or transport. Certainly, in some other examples, the frame body portion I 111 and the frame body portion 112 can further be merely connected via one pivotal connector I 114, so that the frame body portion II 112 can be folded and contracted below the frame body portion I 111. In some other embodiments, the frame body portion II 112, the second frame body unit 2 and the third supporting unit 5 can be folded and contracted above the frame body portion I 111, so that the integral volume of the multifunctional chair is decreased again, and it is more convenient to store, package, carry or transport. In the embodiment, there is only one pivotal structure I 113, so that the frame body structure I 11 can be integrally folded and contracted. In some other embodiments, the frame body structure I can further be provided with two, three or even more pivotal structures I 113, so that the frame body structure I 11 has three-folded, four-folded or even more-fold contracting effect. In some other examples, the frame body portion I 111 can be connected with the frame body portion II 112 via a telescopic structure. The integral volume of the multifunctional chair can further be reduced by way of decreasing the overall length of the frame body structure I 11, and it is more convenient to store, package, carry or transport. Certainly, the frame body structure I 11 in the embodiment can further be used in other embodiments, so that the multifunctional chair in other embodiments further has the effect. According to the multifunctional chair provided with the frame body structure I 11, the third rotating assembly 8 can be connected with any one of or a combination of several of the frame body portion I 111, the frame body portion II 112, the pivotal structure I 113 or the second supporting piece 41, and the second frame body unit 2 is rotatably connected relative to the first frame body unit 1, so that the multifunctional chair has two using states: the first posture for the reclining chair or the seat or the second posture for the fitness equipment.

[0056] As shown in Fig. 20-Fig. 21, as an fourth example not according to the invention, disclosed is a multifunctional chair. The difference between the fourth and the first example lies in that the frame body structure I 11 is provided with the pivotal structure I 113 in the embodiment IV; as the rotating angle between the ratchet wheel arm 811 and the rotating arm 814 is limited in a certain range, the second frame body unit 2 and the third supporting unit 5 are folded and contracted above the frame body portion I 111. On the basis of the first example, the integral volume of the multifunctional chair is reduced, and it is more convenient to store, package, carry or transport.

[0057] As shown in Fig. 22-Fig. 23, as a second embodiment of the present invention, disclosed is a multifunctional chair. The difference I between the second and the first embodiment lies in that the first supporting piece 31 is arranged as the spilt structure, including the first supporting portion 311 and the second supporting portion 312, where the first supporting piece 31 is directly connected with the first connecting position 103 on the frame body structure I 11 and is not connected via the first rotating assembly 6, the second supporting portion 312 is pivotably connected with the first supporting portion 311, and the second supporting portion 312 can be rotated relative to the first supporting portion 311, so that the angle formed between the first supporting portion 311 and the second supporting portion 312 is changed. In the embodiment, when the second supporting portion 312 rotates to the lower side of the frame body portion I 111 relative to the first supporting portion 311 to lean against the frame body portion I, the second supporting portion 312 can further be folded contracted, so that the integral volume of the multifunctional chair is reduced, and it is more convenient to store, package, carry or transport. When the second supporting portion 312 rotates to the original state relative to the first supporting portion 311, the second supporting portion 312 can be unfolded to use. In the embodiment, the pivotal structure II 313 between the first supporting portion 311 and the second supporting portion 312 is a hinge structure which is simple in structure and convenient to assemble and use. Certainly, in some other embodiments, the pivotal structure II 313 can further be other pivotal connectors capable of rotatably contracting the second supporting portion 312

relative to the first supporting portion 311 and forming the shape and structure of the original first supporting piece 31 when being unfolded and used, where the second supporting portion 312 can be switched between the folded and contracted state and the unfolded state. In addition, the lower end of the first supporting portion 311 in the embodiment is arranged close to the first connecting position 103, and the positioning connector 91 is only arranged on the second supporting portion 312, so that the folded and contracted second supporting portion 312 is closer to the frame body structure 111, and therefore, the folded and contracted multifunctional chair is integrally more compact. Certainly, in some other embodiments, the lower end of the first supporting portion 312 can further be arranged slightly far away from the first connecting position 103. The positioning connector 91 can further be arranged on the first supporting portion 311 and the second supporting portion 312 or is only arranged on the first supporting portion 311, so that the second supporting portion 312 is rotatably contracted relative to the first supporting portion 311 to be switched between the folded and contracted state and the unfolded state. In addition, the connecting end between the first supporting portion 311 and the second supporting portion 312 is further provided with the positioning protrusion, and the connecting end of the second supporting portion 312 is correspondingly provided with the positioning groove for positioning the unfolded second supporting portion 312, so that the connecting stability is enhanced, and conditions of twisting, deflecting and the like of the first supporting portion 311 or the second supporting portion 312 are prevented. The first supporting piece 31 in the embodiment is made of a wood material, so that the feeling of comfort is enhanced. In some other embodiments, the first supporting piece 31 can further be made of metal materials such as steel and iron or a plastic material or made from other materials or a combination of the materials, so that the multifunctional chair is of more diversity. Certainly, the first supporting piece 31 in the embodiment can further be used in other embodiments, so that the multifunctional chairs in other embodiments further have the effect.

[0058] As shown in Fig. 22, the difference II between the second and the first embodiment lies in that the first supporting piece 31 is arranged as a structure that is narrow on the upper side and wide on the lower side. The rod structure in the second embodiment is replaced, so that there is a larger contact area between the lower end surface of the first supporting piece 31 and the mounting end surface such as ground, and therefore, the integral stability and bearing performance of the multifunctional chair are improved. Certainly, the first supporting piece 31 in the embodiment can further be used in other embodiments, so that the multifunctional chairs in other embodiments further have the effect.

[0059] As shown in Fig. 22, the difference III between the second and the first embodiment lies in that the second supporting unit 4 is connected with the main body of the first supporting unit 3 close to the tail end 102 and the tail end 102, i.e., the second supporting unit 4 integrated with the frame body structure I 11 in the first embodiment is replaced by the independent second supporting unit 4, the second supporting unit 4 comprises two second supporting pieces 41 respectively connected with the main body of the frame body structure I 11 close to the tail end 102 and the tail end 102 and a second reinforcing piece 42 arranged between the second supporting pieces 41, and the second supporting pieces 41 are arranged as structures that are narrow on the upper side and wide on the lower side, the rod structure in the first embodiment is replaced, so that there is a larger contact area between the lower end surface of the first supporting piece 41 and the mounting end surface such as ground, and therefore, the integral stability and bearing performance of the multifunctional chair are improved. In the embodiment, the second supporting piece 41 is connected with the main body of the frame body structure I 11 close to the tail end 102 and the tail end 102, so that the contact area of the connecting area is increased and the connecting stability is improved. Certainly, in some other embodiments, the second supporting piece 41 can further be connected with the tail end 102 of the frame body structure I 11 or the position close to the tail end 102 independently. The second supporting piece 41 and the frame body structure I 11 can be connected via the fixed connection structure such as welding and riveting structures, so that the connecting stability is improved. They can further be connected via the detectable connection structures such as screws and buckles, so that it is convenient to mount and detach. The second supporting piece 41 in the embodiment is made of a wood material, so that the feeling of comfort is enhanced. In some other embodiments, the second supporting piece 41 can further be made of metal materials such as steel and iron or a plastic material or made from other materials or a combination of the materials, so that the multifunctional chair is of more diversity. Certainly, the second supporting piece 41 in the embodiment can further be used in other embodiments, so that the multifunctional chairs in other embodiments further have the effect.

[0060] As shown in Fig. 24-Fig. 25, as an fifth example not according to the invention disclosed is a multifunctional chair. The difference I between the fifth example and the second embodiment lies in that the third supporting unit 5 includes an upper third supporting piece 531 and a lower third supporting piece 532, where the upper end of the upper third supporting piece 531 is rotatably connected with the frame body structure II 21, the upper end of the lower third supporting piece 532 is in fit connection with the upper third supporting piece 531, and the lower end of the lower third supporting piece 532 is separably connected with the frame body structure I 11. The upper third supporting piece 531 and the lower third supporting piece 532 in the example replace the third supporting piece 51 and the third adjusting assembly 52 in the second embodiment. The third supporting piece

531 and the lower third supporting piece 532 are matched structurally to support the frame body structure II 21 at each angle. In some other embodiments, the lower end of the lower third supporting piece 532 can further be movably connected with the frame body structure I 11 via and adjustable structure. The frame body structure II 21 at each angle is supported jointly by the adjustable structure or the adjustable structure combined with a matching structure of the upper third supporting piece 531 and the lower third supporting piece 532. Certainly, the lower end of the third supporting piece 532 can further be connected with the second supporting unit 4, which also has an equivalent effect. In the example, the upper third supporting piece 531 and the lower third supporting piece 532 are arranged as telescopic structures. When it is needed to adjust the height of the second frame body unit 2 relative to the mounting end surface such as ground or the angle thereof relative to the first leaning unit 13, a connecting end III 5321 is gradually contracted and hidden in a mounting channel III 5311, i.e., the height of the second frame body unit 2 relative to a mounting section such as ground is reduced, and the angle of the second frame body unit 2 relative to the first leaning unit 13 is decreased. When the lower third supporting piece 532 is gradually stretched and unfolded relative to the upper third supporting piece 531, i.e., the height of the second frame body unit 2 relative to the mounting end surface such as ground is increased and the angle of the second frame body unit 2 relative to the first leaning unit 13 is decreased, so that it is easy to operate and convenient to use. Certainly, the upper third supporting piece 531 and the lower third supporting piece 532 can further be in fit connection by using other adjustable structures such as a slide rail structure and a buckling structure, and the frame body structure II 21 at each angle can be supported by changing the overall lengths of the upper third supporting piece 531 and the lower third supporting piece 532. Certainly, the upper third supporting piece 531 and the lower third supporting piece 532 in the example are made of metal materials such as steel and iron, so that the firmness of the structure is improved. In some other examples, the upper third supporting piece 531 and the lower third supporting piece 532 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity. Certainly, the third supporting unit 5 in the example can further be used in other examples, so that the multifunctional chairs in other examples further have the effect.

[0061] As shown in Fig. 24, the difference II between the fifth example and the first embodiment of the invention lies in that the first supporting piece 31 is arranged as the split structure, including the first supporting portion 311 and the second supporting portion 312, where the upper end of the second supporting portion 312 is in fit connection with the lower portion of the first supporting portion 311, and the lower end surface thereof leans against the mounting end surface of the mounting media of a floor, a ground mat, gravel and various indoor or outdoor platforms, so that the overall length of the first supporting portion 311 and the second supporting portion 312 is changed, i.e., the height of the first connecting position 103 on the frame body structure I 11 relative to the mounting end surface such as ground can be changed. The first supporting piece 31 of the integrated structure in the first embodiment is replaced by the first supporting piece 31 of the split structure including the first supporting portion 311 and the second supporting portion 312. By matching the second supporting portion 312 with the first supporting portion 311 structurally, the first connecting position 103 of the frame body structure I 11 is supported at the first supporting piece 31 and on a basis that the first supporting piece 31 can be folded and contracted below the frame body structure I 11 via the first rotating assembly 6 relatively, the length of the first supporting piece 31 can further be adjusted to adjust the height of the overall height of the multifunctional chair, so that the multifunctional chair is richer in using state and a wider application range. In the example, the second supporting portion 312 and the first supporting portion 311 are arranged as telescopic structures. The overall height of the multifunctional chair can be adjusted by changing the overall length of the second supporting portion 312 and the first supporting portion 311, and it is easy to operate and convenient to use. Certainly, the first supporting portion 311 and the second supporting portion 312 can also be in fit connection by using other adjustable structures such as a slide rail structure and a buckling structure, and the overall height of the multifunctional chair can further be adjusted by changing the overall length of the first supporting portion 311 and the second supporting portion 312. In addition, the lengths of the first supporting portion 311 and the second supporting portion 312 are substantially consistent, the two positioning connectors 91 are respectively arranged between the two first supporting portions 31 and the two second supporting portions 312, so that the overlapped lengths of the contracted first supporting portions 31 and second supporting portions 312 are greater, and the sum of the lengths of the unfolded first supporting portions 31 and second supporting portions 312 is greater, and therefore, the overall height adjusting range of the multifunctional chair is large by the first supporting piece 31. Meanwhile, the interval between the two positioning connectors 91 is increased or decreased therewith to place or position parts such as feet and shanks with different intervals. Certainly, the lengths of the first supporting portion 311 and the second supporting portion 312 can further be arranged at a relatively large interval. The two positioning connectors 91 can further be merely arranged on the first supporting portion 311 or the second supporting portion 312, so that the overall height of the multifunctional chair can be adjusted by changing the overall lengths of the first supporting portion 311 and the second supporting portion 312. Certainly, the first supporting portion 311 and the second supporting portion 312 in the example

are made of metal materials such as steel and iron, so that the firmness of the structure is improved. In some other examples, the first supporting portion 311 and the second supporting portion 312 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity. Certainly, the first supporting piece 31 in the example can further be used in other examples, so that the multifunctional chairs in other examples further have the effect.

[0062] As shown in Fig. 24, the difference III between the fifth example and the first embodiment of the invention lies in that the second supporting piece 41 is arranged as the split structure, including the third supporting portion 411 and the fourth supporting portion 412, where the upper end of the fourth supporting portion 412 is in fit connection with the lower portion of the third supporting portion 411, and the lower end surface thereof leans against the mounting end surface of the mounting media of a floor, a ground mat, gravel and various indoor or outdoor platforms, so that the overall length of the third supporting portion 411 and the fourth supporting portion 412 is changed, i.e., the height of the rear end of the frame body structure I 11 relative to the mounting end surface such as ground can be changed. The second supporting piece 41 of the integrated structure in the first embodiment is replaced by the second supporting piece 41 of the split structure including the third supporting portion 411 and the fourth supporting portion 412. By matching the fourth supporting portion 412 with the third supporting portion 411 structurally, on a basis that the second supporting piece 41 supports the rear end of the frame body structure I 11, the length of the second supporting piece 41 can further be adjusted to adjust the height of the rear end of the multifunctional chair, so that the multifunctional chair is richer in using state and a wider application range. In the example, the fourth supporting portion 412 and the third supporting portion 411 are arranged as telescopic structures. The height of the rear end of the multifunctional chair can be adjusted by changing the overall length of the fourth supporting portion 412 and the third supporting portion 411, and it is easy to operate and convenient to use. Certainly, in some other examples, the third supporting portion 411 and the fourth supporting portion 412 can also be in fit connection by using other adjustable structures such as a slide rail structure and a buckling structure, and the height of the rear end of the multifunctional chair can further be adjusted by changing the overall length of the third supporting portion 411 and the fourth supporting portion 412. In addition, the second reinforcing pieces 42 in the example are arranged between the tail ends of the two fourth supporting portions 412, so that the contact areas between the second supporting units 4 and the mounting end surfaces such as ground are increased, and the stability of placing the chair is improved. In addition, the second reinforcing pieces 42 further connect the second supporting pieces 41 on two sides integrally, facilitating integral folding or stretching of the second supporting unit 4 relative to the first frame body unit 1. Certainly, the second reinforcing pieces 42 can further be arranged between other positions of the two fourth supporting portions 412 or between the two third supporting portions 411, so that the structural stability and the bearing performance of the second supporting unit 4 are enhanced. Certainly, the third supporting portion 411 and the fourth supporting portion 412 in the example are made of metal materials such as steel and iron, so that the firmness of the structure is improved. In some other examples, the third supporting portion 411 and the fourth supporting portion 412 can be further made of materials such as wood and plastics and other materials or made from a combination of the materials, so that the multifunctional chair is of more diversity. Certainly, the second supporting piece 41 in the example can further be used in other examples, so that the multifunctional chairs in other examples further have the effect.

[0063] As shown in Fig. 24, the difference IV between the fifth example and the first embodiment lies in that the second supporting unit 4 is rotatably connected with the first frame body unit 1 via the second rotating assembly 7. In the example, by additionally arranging the second rotating assembly 7, the second supporting unit 4 can rotate relative to the first frame body unit 1. On the one hand, by adjusting the relative angle between the second supporting unit 4 and the first frame body unit 1, the angle between the second supporting unit 4 and the mounting end surface such as ground and the overall height of the multifunctional chair are changed, so that the supporting direction of the first frame body unit 1 by the second supporting unit 4 is changed to form different supporting structures, and therefore, the multifunctional chair is richer in using state. On the other hand, after the second supporting unit 4 is rotated to lean against the first frame body unit 1, the second supporting unit 4 can further be folded, so that more folding and contracting modes are provided for the multifunctional chair. In the example, there are two second rotating assemblies 7.

[0064] The second supporting piece 41 and the frame body structure I 11 on the same side are connected via one second rotating assembly 7, and are driven by the second reinforcing piece 42 to rotate relative to the frame body structure II 11 on the same side, so that it is convenient to fold and contract the second supporting unit 4 independently.

[0065] As shown in Fig. 25, as an example, the second rotating assembly 7 includes a connector II 71, a rotating shaft II 72 and a limiting piece II 73, where one end of the connector II 71 is connected with the frame body structure I 11 via the rotating shaft II 72 while the other end thereof is hinged to the second supporting piece 41 via the other rotating shaft II 72, so that the second supporting piece 41 can rotate relative to the connecting position on the frame body structure I 11. The rotating shaft II 72 is arranged perpendicular to the direction of the frame body structure I 11, and the limiting piece II 73 is arranged on the front portion of the connector II 71, so

that the rotating trajectories of the two second supporting pieces 41 are defined in a parallel direction of the frame body structure I 11, thereby preventing instability of the multifunctional chair due to inconsistence of the rotating angles and the directions of the two second supporting pieces 41. In the example, when the second supporting unit 4 is rotated backwards to the top end of the second supporting piece 41 relative to the first frame body unit 1 to lean against the limiting piece II 73, i.e., the second supporting unit 4 is unfolded under drive by the second supporting piece 41, at the time, the multifunctional chair can be placed on the mounting end surfaces such as ground to use. When the second supporting unit 4 is rotated forwards to the first frame body unit 1 relative to the first frame body unit 1 to lean against the first frame body unit 1, i.e., the second supporting unit 4 is folded and contracted under drive of the second supporting piece 41, at the time, the integral volume of the multifunctional chair is reduced and it is convenient to store, package, carry or transport. Certainly, a locking piece can further be arranged to lock the second supporting piece 41 at any angle rotating relative to the connector II 71, so that second first supporting piece 41 and the first frame body unit 1 are integrally fixed to different angles and positions for support at different angles and positions, and thus, the multifunctional chair is richer in using state. In some other examples, the second rotating assembly 7 can further be arranged as other connecting structures such as a hinge in such a manner that the second supporting piece 41 rotates relative to the frame body structure I 11 and the second supporting unit 4 is converted between the unfolded state and the contracted state, so that it is convenient to use, store, package, carry or transport. In addition, the pivotal connector I 114 in the first embodiment or the pivotal connector II 313 in the second embodiment can further be a structure of the second rotating assembly 7 in the example. Certainly, the second rotating unit 7 in the embodiment can further be used in other examples, so that the multifunctional chairs in other examples further have the effect.

[0066] Finally, it should be noted that the above embodiments are only used to illustrate the technical solutions of the present invention, not to limit them; although the present invention has been described in detail with reference to the foregoing embodiments, those of ordinary skill in the art should understand that: The technical solutions recorded in the foregoing embodiments are modified, or some of the technical features are equivalently replaced; these modifications or replacements do not cause the essence of the corresponding technical solutions to deviate from the scope of the present invention as defined in the enclosed claims.

[0067] In short, the above descriptions are only preferred embodiments of the present invention, and all equal changes and modifications made in accordance with the scope of the present invention shall fall within the scope of the present invention as defined in the enclosed claims.

Claims

1. A multifunctional chair, comprising:

a first frame body unit (1), the first frame body unit being provided with a head end (101) and a tail end (102);
a first supporting unit (3) configured to support the first frame body unit, the first supporting unit being connected with a first connecting position (103) of the first frame body unit and a height of the tail end of the first frame body unit being lower than a height of the first connecting position;
a first leaning unit (13) arranged in a position of the first frame body unit close to the first connecting position;
a second frame body unit (2) arranged on a back portion of the first frame body unit, the second frame body unit and the first frame body unit being rotatably connected, the second frame body unit and the first frame body unit in rotatable connection being capable of moving between a first posture of a reclining chair or a seat and a second posture of fitness equipment, the second frame body unit and the first frame body unit being in the first posture when having an angle, and the second frame body unit and the first frame body unit being in the second posture when the tail ends of the second frame body unit and the first frame body unit are overlapped; and
a second leaning unit (23) arranged on the second frame body unit,
wherein the first frame body unit comprises a frame body structure I (11) and transverse supporting structures I (12) arranged in parallel, the transverse supporting structures I are arranged on the frame body structure I at an interval, the frame body structure I and the transverse supporting structures I are configured to mount and support the first leaning unit, the frame body structure I and/or the transverse supporting structures I are arranged as a rod-shaped structure, and the frame body structure I is arranged as an upward-convex arc-shaped structure,
wherein
the frame body structure I comprises:

a frame body portion I (111); and
a frame body portion II (112) pivotably connected with the frame body portion I via a pivotal structure I (113), the pivotal structure I comprising a frame body portion III (115) and at least two pivotal connectors I (114) hinged to two ends of the frame body portion III, the frame body portion I and the frame body portion II being respectively hinged with the pivotal connectors I and being re-

spectively folded, and contracted relative to two ends of the frame body portion III to change an angle formed between the frame body portion I and the frame body portion II, thereby unfolding and folding states of the frame body portion I and the frame body portion II being adjusted,

wherein the second frame body unit is connected with the first frame body unit via a third rotating assembly (8), and is configured to adjust the first posture and/or the second

posture in position of the second frame body unit relative to the first frame body unit and/or lock the second frame body unit in the first posture and/or the second posture, the third rotating assembly is arranged in a middle position of the first frame body unit, and the second frame body unit is arranged to be matched with a shape of the tail end of the first frame body unit;

the second posture is formed in such a way that the second frame body unit moves along the direction of the tail end of the first frame body unit via rotation of the third rotating assembly to be overlapped with the tail end of the first frame body unit; and the first posture is formed in such a way that the second frame body unit moves along any one direction of the head end or the tail end of the first frame body unit via rotation of the third rotating assembly to have an angle with the first frame body unit;

wherein the second frame body unit comprises a frame body structure II (21) and transverse supporting structures II (22) arranged in parallel, the transverse supporting structures II are arranged on the frame body structure II at an interval, the frame body structure II and the transverse supporting structures II are configured to mount and support the second leaning unit, the frame body structure II and/or the transverse supporting structures II are arranged as a rod-shaped structure, and the frame body structure II is arranged as an upward-convex arc-shaped structure matched with the tail end of the frame body structure I,

wherein the third rotating assembly comprises:

a connector III (821) connected with the frame body structure II; and

a rotating shaft III (822), one end thereof being connected with the frame body structure I and the other end thereof being connected with the connector III,

wherein the multifunctional chair further comprises a third supporting unit (5) for supporting the second frame body unit, the third supporting unit being arranged on a lower rear side of the second frame body unit, the third supporting unit comprising:

a third supporting piece (51), an upper end of the third supporting piece being rotatably connected with the frame body structure II, the third supporting piece comprising at least two supporting pieces III and a clamping piece III (512), and the upper ends of the two supporting pieces III being rotatably connected with two frame body structures II via hinging pieces (513) respectively and the lower ends thereof being connected to positions of the clamping piece III close to two end portions, respectively; and

at least two third adjusting assemblies (52), the third adjusting assemblies being correspondingly arranged on two frame body structures I to adjust the position of the third supporting piece relative to the first frame body unit, each of the third adjusting assemblies comprising an adjusting piece III, the adjusting piece III being provided with several adjusting channels III (522), each of the adjusting channels III being arranged to be matched with the lower end of the third supporting piece, the adjusting channels III being arranged as trough structures opened in the upper ends, and the clamping piece III between a position where the two supporting pieces III and the clamping piece III are connected and two end portions of the clamping piece III is connected with the trough structure in a clamping manner to support and lock the lower end of the third supporting piece in a certain adjusting channel III.

2. The multifunctional chair any item of claim 1, wherein the first connecting position is arranged close to the head end of the first frame body unit and/or is arranged overlapped with the head end of the first frame body unit, there is at least one first supporting unit, the first supporting unit is arranged at an angle

with a mounting end surface, the upper end of the first supporting unit is arranged obliquely backwards, the first supporting unit comprises at least two first supporting pieces arranged in parallel, each of the first supporting pieces is arranged as a rod-shaped structure or a structure that is narrower on the upper portion and wider on the lower portion, and the upper end of the first supporting piece is connected with the first connecting position of the first frame body unit and the lower end of the first supporting piece leans against the mounting end surface of a mounting medium.

3. The multifunctional chair of claim 2, wherein the first supporting piece is arranged as an integrated structure, and the first supporting unit is rotatably connected with the first frame body unit via a first rotating assembly, the first rotating assembly comprising:

a connector I connected with the first connecting position on the frame body structure I;
a rotating shaft I, one end thereof being hinged with the first supporting piece while the other end thereof being connected with the connector I, the rotating shaft I being arranged perpendicular to a direction of the frame body structure I; and
a limiting piece I arranged on a front portion of the connector I, the first supporting unit being rotated forwards relative to the first frame body unit to the front end of the first supporting piece to lean against the limiting piece I so as to unfold the first supporting unit, and the first supporting unit being rotated by the first frame body unit to lean against the first frame body unit so as to fold and contract the first supporting unit.

4. The multifunctional chair of claim 3, wherein the first supporting piece is arranged as a split structure, comprising:

a first supporting portion, a lower end of the first supporting portion being arranged close to the first connecting position; and
a second supporting portion pivotably connected with the first supporting portion , change an angle between the first supporting portion and second supporting portion, thereby the unfolding and folding states of the first supporting portion and the second support being adjusted, the second supporting portion being capable of folding and contracting the second supporting portion when rotating relative to the first supporting portion to lean against the lower side of the frame body portion I, the second supporting portion being capable of unfolding the second supporting portion when rotating relative to the second supporting portion to an original state, connecting ends of the first supporting portion and the second supporting portion being further provided with positioning protrusions, and the connecting end of the second supporting portion being correspondingly provided with a positioning groove to position the unfolded second supporting portion.

5. The multifunctional chair any item of claims 1-4, further comprising a positioning unit arranged on the first supporting unit, wherein when the multifunctional chair is in the second posture, the positioning unit is configured for placing and/or positioning a foot or a leg of a human body, the positioning unit comprising:

at least two positioning connectors arranged at an interval, the positioning connectors being arranged as rod-shaped structures at an interval, two ends of the positioning connectors being respectively connected with a first supporting piece; and/or
positioning adjusting pieces sleeved on the positioning connectors, the outer ends of the each of the positioning adjusting pieces being formed with a positioning end surface for the foot or the leg of the human body to lean against and the positioning adjusting piece being arranged as a flexible structure, or
further comprising a handrail structure, wherein the handrail structure is arranged at the head end of the first frame body unit, and is sleeved outside the head end of the first frame body unit for holding.

6. The multifunctional chair of claim 5, further comprising a second supporting unit, wherein the second supporting unit is connected with the tail end of the first frame body unit and/or is connected with a main body close to the tail end; there is at least one second supporting unit, the second supporting unit is arranged at an angle with the mounting end surface, the upper end of the second supporting unit is arranged obliquely forwards, the second supporting unit comprises at least two second supporting pieces arranged in parallel, each of the second supporting pieces is arranged as a rod-shaped structure or a structure that is narrower on the upper portion and wider on the lower portion, the upper end of the first supporting piece is connected with the first frame body unit and the lower end of the first supporting piece leans against the mounting end surface of a mounting medium, the two second supporting pieces are respectively located on a same plane with the frame body structure I on the same side, the second supporting unit further comprises at least one second reinforcer arranged between the two second supporting pieces, and the second reinforcer is arranged

as a rod-shaped structure to reinforce the second supporting unit.

7. The multifunctional chair of claim 5, further comprising a second supporting unit, wherein the second supporting unit is composed of the tail end of the first frame body unit and/or a main body of the first frame body unit close to the tail end; there is at least one second supporting unit, the second supporting unit is arranged at an angle with the mounting end surface, the upper end of the second supporting unit is arranged obliquely forwards, the second supporting unit comprises at least two second supporting pieces arranged in parallel, each of the second supporting pieces is arranged as a rod-shaped structure or a structure that is narrower on the upper portion and wider on the lower portion, the upper end of the first supporting piece is connected with the first frame body unit and the lower end of the first supporting piece leans against the mounting end surface of a mounting medium, the two second supporting pieces are respectively located on a same plane with the frame body structure I on the same side, the second supporting unit further comprises at least one second reinforcer arranged between the two second supporting pieces, and the second reinforcer is arranged as a rod-shaped structure to reinforce the second supporting unit.

8. The multifunctional chair of claim 5, wherein the first leaning unit comprises a first leaning structure for the human body to sit or lie down, the first leaning structure being formed by extending from a position close to the first connecting position and/or from the first connecting position along the direction of the tail end of the first frame body unit; and

the second leaning unit comprises a second leaning structure for the human body to sit or lie down, the second leaning structure being arranged on the second frame body unit and being formed by extending from one end of the second frame body unit along the direction of the other end along the first frame body unit;
wherein the first leaning structure is connected with the frame body structure I by an end portion thereof and/or by wrapping the frame body structure I fully;
and/or the second leaning structure is connected with the frame body structure II by an end portion thereof and/or by wrapping the frame body structure II fully;
the first leaning structure and/or the second leaning structure are arranged as cloth structures and/or leather structures and/or bamboo structures and/or rattan structures and/or plastic structures and/or wooden structures.

9. The multifunctional chair of claim 5, wherein the first leaning unit comprises a first leaning structure for the human body to sit or lie down, the first leaning structure being formed by extending from a position close to the first connecting position and/or from the first connecting position along the direction of the tail end of the first frame body unit; and

the second leaning unit comprises a second leaning structure for the human body to sit or lie down, the second leaning structure being arranged on the second frame body unit and being formed by extending from one end of the second frame body unit along the direction of the other end along the first frame body unit;
wherein the first leaning structure is connected with the frame body structure I via a first connecting assembly, the first connecting assembly being arranged as a buckling structure and/or a hooking structure and/or a pasting structure;
and/or the second leaning structure is connected with the frame body structure II via a second connecting assembly, the second connecting assembly being arranged as a buckling structure and/or a hooking structure and/or a pasting structure;
the first leaning structure and/or the second leaning structure are arranged as cloth structures and/or leather structures and/or bamboo structures and/or rattan structures and/or plastic structures and/or wooden structures.

Patentansprüche

1. Multifunktionaler Stuhl, der umfasst:

eine erste Rahmenkörpereinheit (1), wobei die erste Rahmenkörpereinheit mit einem vorderen Ende (101) und einem hinteren Ende (102) versehen ist;
eine erste Stützeinheit (3), die dafür konfiguriert ist, die erste Rahmenkörpereinheit zu stützen, wobei die erste Stützeinheit mit einer ersten Verbindungsposition (103) der ersten Rahmenkörpereinheit verbunden ist und eine Höhe des hinteren Endes der ersten Rahmenkörpereinheit niedriger als eine Höhe der ersten Verbindungsposition ist;
eine erste Neigungseinheit (13), die in einer Position der ersten Rahmenkörpereinheit nahe der ersten Verbindungsposition angeordnet ist;
eine zweite Rahmenkörpereinheit (2), die an einem hinteren Abschnitt der ersten Rahmenkörpereinheit angeordnet ist, wobei die zweite Rahmenkörpereinheit und die erste Rahmenkörpereinheit drehbar verbunden sind, wobei die zweite Rahmenkörpereinheit und die erste Rahmen-

körpereinheit in drehbarer Verbindung in der Lage sind, sich zwischen einer ersten Stellung eines Liegestuhls oder eines Sitzes und einer zweiten Stellung eines Fitnessgerätes zu bewegen, wobei sich die zweite Rahmenkörpereinheit und die erste Rahmenkörpereinheit in der ersten Stellung befinden, wenn sie einen Winkel bilden, und wobei sich die zweite Rahmenkörpereinheit und die erste Rahmenkörpereinheit in der zweiten Stellung befinden, wenn die hinteren Enden der zweiten Rahmenkörpereinheit und der ersten Rahmenkörpereinheit überlappt werden; und

eine zweite Neigungseinheit (23), die an der zweiten Rahmenkörpereinheit angeordnet ist,

wobei die erste Rahmenkörpereinheit eine Rahmenkörperstruktur I (11) und parallel angeordnete Querstützstrukturen I (12) umfasst, wobei die Querstützstrukturen I an der Rahmenkörperstruktur I in einem Intervall angeordnet sind, wobei die Rahmenkörperstruktur I und die Querstützstrukturen I dafür konfiguriert sind, die erste Neigungseinheit zu montieren und zu stützen, wobei die Rahmenkörperstruktur I und/oder die Querstützstrukturen I als eine stabförmige Struktur ausgebildet sind und die Rahmenkörperstruktur I als eine nach oben konvexe bogenförmige Struktur ausgebildet ist, wobei die Rahmenkörperstruktur I umfasst:

einen Rahmenkörperabschnitt I (111); und einen Rahmenkörperabschnitt II (112), der über eine Schwenkstruktur I (113) schwenkbar mit dem Rahmenkörperabschnitt I verbunden ist, wobei die Schwenkstruktur I einen Rahmenkörperabschnitt III (115) und mindestens zwei Schwenkverbinder I (114) umfasst, die an zwei Enden des Rahmenkörperabschnitts III angelenkt sind, wobei der Rahmenkörperabschnitt I und der Rahmenkörperabschnitt II jeweils an den Schwenkverbindern I angelenkt sind und jeweils relativ zu zwei Enden des Rahmenkörperabschnitts III zusammengeklappt und verkürzt werden, um einen zwischen dem Rahmenkörperabschnitt I und dem Rahmenkörperabschnitt II gebildeten Winkel zu ändern, wodurch Aufklapp- und Zusammenklappzustände des Rahmenkörperabschnitts I und des Rahmenkörperabschnitts II verstellt werden,

wobei die zweite Rahmenkörpereinheit mit der ersten Rahmenkörpereinheit über eine dritte Drehbaugruppe (8) verbunden ist und dafür konfiguriert ist, die erste Stellung und/oder die zweite Stellung in der Position der zweiten Rahmenkörpereinheit relativ zu der ersten Rahmenkörpereinheit zu verstellen und/oder die zweite Rahmenkörpereinheit in der ersten Stellung und/oder der zweiten Stellung zu arretieren, wobei die dritte Drehbaugruppe in einer mittleren Position der ersten Rahmenkörpereinheit angeordnet ist und die zweite Rahmenkörpereinheit so ausgebildet ist, dass sie mit einer Form des hinteren Endes der ersten Rahmenkörpereinheit übereinstimmt;

die zweite Stellung in einer solchen Weise gebildet wird, dass sich die zweite Rahmenkörpereinheit entlang der Richtung des hinteren Endes der ersten Rahmenkörpereinheit mittels Drehung der dritten Drehbaugruppe bewegt, um mit dem hinteren Ende der ersten Rahmenkörpereinheit überlappt zu werden; und

die erste Stellung in einer solchen Weise gebildet wird, dass sich die zweite Rahmenkörpereinheit entlang einer Richtung des vorderen Endes oder des hinteren Endes der ersten Rahmenkörpereinheit mittels Drehung der dritten Drehbaugruppe bewegt, um einen Winkel mit der ersten Rahmenkörpereinheit zu bilden;

wobei die zweite Rahmenkörpereinheit eine Rahmenkörperstruktur II (21) und parallel angeordnete Querstützstrukturen II (22) umfasst, wobei die Querstützstrukturen II an der Rahmenkörperstruktur II in einem Intervall angeordnet sind, wobei die Rahmenkörperstruktur II und die Querstützstrukturen II dafür konfiguriert sind, die zweite Neigungseinheit zu montieren und zu stützen, wobei die Rahmenkörperstruktur II und/oder die Querstützstrukturen II als eine stabförmige Struktur ausgebildet sind und die Rahmenkörperstruktur II als eine nach oben konvexe bogenförmige Struktur ausgebildet ist, die an das hintere Ende der Rahmenkörperstruktur I angepasst ist,

wobei die dritte Drehbaugruppe umfasst:

ein Verbinder III (821), der mit der Rahmenkörperstruktur II verbunden ist; und

eine Drehwelle III (822), die an einem Ende mit der Rahmenkörperstruktur I verbunden ist und am anderen Ende mit dem Verbinder III verbunden ist,

wobei der multifunktionale Stuhl des Weiteren eine dritte Stützeinheit (5) zum Stützen der zweiten Rahmenkörpereinheit umfasst, wobei die dritte Stützeinheit an einer unteren Rückseite der zweiten Rahmenkörpereinheit angeordnet ist, wobei die dritte Stützeinheit umfasst:

ein drittes Stützstück (51), wobei ein oberes Ende des dritten Stützstücks drehbar mit der Rahmenkörperstruktur II verbunden ist, wobei das dritte Stützstück mindestens zwei Stützstücke III und ein Klemmstück III (512) umfasst und die oberen Enden der beiden Stützstücke III jeweils über Scharnierstücke (513) drehbar mit zwei Rahmenkörperstrukturen II verbunden sind und ihre unteren Enden jeweils mit Positionen des Klemmstücks III nahe zweier Endabschnitte verbunden sind; und

mindestens zwei dritte Verstellbaugruppen (52), wobei die dritten Verstellbaugruppen entsprechend an zwei Rahmenkörperstrukturen I angeordnet sind, um die Position des dritten Stützstücks relativ zu der ersten Rahmenkörpereinheit zu verstellen, wobei jede der dritten Verstellbaugruppen ein Verstellstück III umfasst, wobei das Verstellstück III mit mehreren Verstellkanälen III (522) versehen ist, wobei jeder der Verstellkanäle III so ausgebildet ist, dass er mit dem unteren Ende des dritten Stützstücks übereinstimmt, wobei die Verstellkanäle III als an den oberen Enden geöffnete Napfstrukturen angeordnet sind und das Klemmstück III zwischen einer Position, in der die beiden Stützstücke III und das Klemmstück III verbunden sind, und zwei Endabschnitten des Klemmstücks III mit der Napfstruktur in einer klemmenden Weise verbunden ist, um das untere Ende des dritten Stützstücks in einem bestimmten Verstellkanal III zu stützen und zu arretieren.

2. Multifunktionaler Stuhl nach Anspruch 1, wobei die erste Verbindungsposition nahe dem vorderen Ende der ersten Rahmenkörpereinheit angeordnet ist und/oder mit dem vorderen Ende der ersten Rahmenkörpereinheit überlappt angeordnet ist, wobei mindestens eine erste Stützeinheit vorhanden ist, wobei die erste Stützeinheit in einem Winkel mit einer Montageendfläche angeordnet ist, wobei das obere Ende der ersten Stützeinheit schräg nach hinten angeordnet ist, wobei die erste Stützeinheit mindestens zwei parallel angeordnete erste Stützstücken umfasst, wobei jedes der ersten Stützstücke als eine stabförmige Struktur ausgebildet ist oder als eine Struktur ausgebildet ist, die am oberen Abschnitt schmaler ist und am unteren Abschnitt breiter ist, und wobei das obere Ende des ersten Stützstücks mit der ersten Verbindungsposition der ersten Rahmenkörpereinheit verbunden ist und das untere Ende des ersten Stützstücks gegen die Montageendfläche eines Montagemediums lehnt.

3. Multifunktionaler Stuhl nach Anspruch 2, wobei das erste Stützstück als eine integrierte Struktur ausgebildet ist und die erste Stützeinheit über eine erste Drehbaugruppe drehbar mit der ersten Rahmenkörpereinheit verbunden ist, wobei die erste Drehbaugruppe umfasst:

einen Verbinder I, das mit der ersten Verbindungsposition an der Rahmenkörperstruktur I verbunden ist;

eine Drehwelle I, die an einem Ende an dem ersten Stützstück angelenkt ist, während sie am anderen Ende mit dem Verbinder I verbunden ist, wobei die Drehwelle I senkrecht zu einer Richtung der Rahmenkörperstruktur I angeordnet ist; und

ein Begrenzungsstück I, das an einem vorderen Abschnitt des Verbinders I angeordnet ist, wobei die erste Stützeinheit relativ zu der ersten Rahmenkörpereinheit zum vorderen Ende des ersten Stützstücks nach vorn gedreht wird, um gegen das Begrenzungsstück I zu lehnen, um die erste Stützeinheit aufzuklappen, und die erste Stützeinheit durch die erste Rahmenkörpereinheit gedreht wird, um gegen die erste Rahmenkörpereinheit zu lehnen, um die erste Stützeinheit zusammenzuklappen und zu verkürzen.

4. Multifunktionaler Stuhl nach Anspruch 3, wobei das erste Stützstück als eine geteilte Struktur ausgebildet ist, und der umfasst:

einen ersten Stützabschnitt, wobei ein unteres Ende des ersten Stützabschnitts nahe der ersten Verbindungsposition angeordnet ist; und

einen zweiten Stützabschnitt, der an dem ersten Stützabschnitt angelenkt ist, wobei ein Winkel zwischen dem ersten Stützabschnitt und dem zweiten Stützabschnitt verändert wird, wodurch die Aufklapp- und Zusammenklappzustände des ersten Stützabschnitts und der zweiten Stütze verstellt werden, wobei der zweite Stützabschnitt in der Lage ist, den zweiten Stützabschnitt zusammenzuklappen und zu verkürzen, wenn er sich relativ zu dem ersten Stützabschnitt dreht, um gegen die untere Seite des Rahmenkörperabschnitts I zu lehnen, wobei der zweite Stützabschnitt in der Lage ist, den zweiten Stützabschnitt aufzuklappen, wenn er sich relativ zu dem zweiten Stützabschnitt in einen

ursprünglichen Zustand dreht, wobei Verbindungsenden des ersten Stützabschnitts und des zweiten Stützabschnitts des Weiteren mit Positionierungsvorsprüngen versehen sind und das Verbindungsende des zweiten Stützabschnitts entsprechend mit einer Positionierungsnut versehen ist, um den aufgeklappten zweiten Stützabschnitt zu positionieren.

5. Multifunktionaler Stuhl nach einem der Ansprüche 1 bis 4, der des Weiteren eine Positionierungseinheit umfasst, die an der ersten Stützeinheit angeordnet ist, wobei, wenn sich der multifunktionale Stuhl in der zweiten Stellung befindet, die Positionierungseinheit dafür konfiguriert ist, einen Fuß oder ein Bein eines menschlichen Körpers zu platzieren und/oder zu positionieren, wobei die Positionierungseinheit umfasst:

mindestens zwei in einem Intervall angeordnete Positionierungsverbinder, wobei die Positionierungsverbinder als stabförmige Strukturen in einem Intervall ausgebildet sind, wobei zwei Enden der Positionierungsverbinder jeweils mit einem ersten Stützstück verbunden sind; und/oder
Positionierungsverstellstücke, die auf die Positionierungsverbinder geschoben sind, wobei die äußeren Enden jedes der Positionierungsverstellstücke mit einer Positionierungsendfläche zum Gegenlehnen des Fußes oder des Beins des menschlichen Körpers ausgebildet sind und das Positionierungsverstellstück als eine flexible Struktur ausgebildet ist, oder
des Weiteren eine Handlaufstruktur umfasst, wobei die Handlaufstruktur am vorderen Ende der ersten Rahmenkörpereinheit angeordnet ist und außerhalb des vorderen Endes der ersten Rahmenkörpereinheit zum Halten aufgeschoben ist.

6. Multifunktionaler Stuhl nach Anspruch 5, der des Weiteren eine zweite Stützeinheit umfasst, wobei die zweite Stützeinheit mit dem hinteren Ende der ersten Rahmenkörpereinheit verbunden ist und/oder mit einem Hauptkörper nahe dem hinteren Ende verbunden ist; wobei mindestens eine zweite Stützeinheit vorhanden ist, wobei die zweite Stützeinheit in einem Winkel mit der Montageendfläche angeordnet ist, wobei das obere Ende der zweiten Stützeinheit schräg nach vorn angeordnet ist, wobei die zweite Stützeinheit mindestens zwei parallel angeordnete zweite Stützstücke umfasst, wobei jedes der zweiten Stützstücke als eine stabförmige Struktur ausgebildet ist oder als eine Struktur ausgebildet ist, die am oberen Abschnitt schmaler ist und am unteren Abschnitt breiter ist, wobei das obere Ende des ersten Stützstücks mit der ersten Rahmenkörpereinheit verbunden ist und das untere Ende des ersten Stützstücks gegen die Montageendfläche eines Montagemediums lehnt, wobei die beiden zweiten Stützstücke jeweils auf einer selben Ebene mit der Rahmenkörperstruktur I auf der selben Seite angeordnet sind, wobei die zweite Stützeinheit des Weiteren mindestens eine zweite Verstärkung umfasst, die zwischen den beiden zweiten Stützstücken angeordnet ist, und wobei die zweite Verstärkung als eine stabförmige Struktur ausgebildet ist, um die zweite Stützeinheit zu verstärken.

7. Multifunktionaler Stuhl nach Anspruch 5, der des Weiteren eine zweite Stützeinheit umfasst, wobei die zweite Stützeinheit aus dem hinteren Ende der ersten Rahmenkörpereinheit und/oder einem Hauptkörper der ersten Rahmenkörpereinheit nahe dem hinteren Ende zusammengesetzt ist; wobei mindestens eine zweite Stützeinheit vorhanden ist, wobei die zweite Stützeinheit in einem Winkel mit der Montageendfläche angeordnet ist, wobei das obere Ende der zweiten Stützeinheit schräg nach vorn angeordnet ist, wobei die zweite Stützeinheit mindestens zwei parallel angeordnete zweite Stützstücke umfasst, wobei jedes der zweiten Stützstücke als eine stabförmige Struktur ausgebildet ist oder als eine Struktur ausgebildet ist, die am oberen Abschnitt schmaler ist und am unteren Abschnitt breiter ist, wobei das obere Ende des ersten Stützstücks mit der ersten Rahmenkörpereinheit verbunden ist und das untere Ende des ersten Stützstücks gegen die Montageendfläche eines Montagemediums lehnt, wobei die beiden zweiten Stützstücke jeweils auf einer selben Ebene mit der Rahmenkörperstruktur I auf der selben Seite angeordnet sind, wobei die zweite Stützeinheit des Weiteren mindestens eine zweite Verstärkung umfasst, die zwischen den beiden zweiten Stützstücken angeordnet ist, und wobei die zweite Verstärkung als eine stabförmige Struktur ausgebildet ist, um die zweite Stützeinheit zu verstärken.

8. Multifunktionaler Stuhl nach Anspruch 5, wobei die erste Neigungseinheit eine erste Neigungsstruktur zum Sitzen oder Liegen des menschlichen Körpers umfasst, wobei die erste Neigungsstruktur dadurch gebildet wird, dass sie sich von einer Position nahe der ersten Verbindungsposition und/oder von der ersten Verbindungsposition entlang der Richtung des hinteren Endes der ersten Rahmenkörpereinheit erstreckt; und

die zweite Neigungseinheit eine zweite Neigungsstruktur zum Sitzen oder Liegen des menschlichen Körpers umfasst, wobei die zweite Neigungsstruktur an der zweiten Rahmenkörpereinheit angeordnet ist und dadurch gebildet wird, dass sie sich von einem Ende der zweiten

Rahmenkörpereinheit entlang der Richtung des anderen Endes entlang der ersten Rahmenkörpereinheit erstreckt;
wobei die erste Neigungsstruktur mit der Rahmenkörperstruktur I durch deren Endabschnitt und/oder durch vollständiges Wickeln der Rahmenkörperstruktur I verbunden ist;
und/oder wobei die zweite Neigungsstruktur mit der Rahmenkörperstruktur II durch deren Endabschnitt und/oder durch vollständiges Wickeln der Rahmenkörperstruktur II verbunden ist;
die erste Neigungsstruktur und/oder die zweite Neigungsstruktur als Stoffstrukturen und/oder Lederstrukturen und/oder Bambusstrukturen und/oder Rattanstrukturen und/oder Kunststoffstrukturen und/oder Holzstrukturen ausgebildet sind.

9. Multifunktionaler Stuhl nach Anspruch 5, wobei die erste Neigungseinheit eine erste Neigungsstruktur zum Sitzen oder Liegen des menschlichen Körpers umfasst, wobei die erste Neigungsstruktur dadurch gebildet wird, dass sie sich von einer Position nahe der ersten Verbindungsposition und/oder von der ersten Verbindungsposition entlang der Richtung des hinteren Endes der ersten Rahmenkörpereinheit erstreckt; und

die zweite Neigungseinheit eine zweite Neigungsstruktur zum Sitzen oder Liegen des menschlichen Körpers umfasst, wobei die zweite Neigungsstruktur an der zweiten Rahmenkörpereinheit angeordnet ist und dadurch gebildet wird, dass sie sich von einem Ende der zweiten Rahmenkörpereinheit entlang der Richtung des anderen Endes entlang der ersten Rahmenkörpereinheit erstreckt;
wobei die erste Neigungsstruktur mit der Rahmenkörperstruktur I über eine erste Verbindungsbaugruppe verbunden ist, wobei die erste Verbindungsbaugruppe als eine Knickstruktur und/oder eine Einhakstruktur und/oder eine Haftstruktur ausgebildet ist;
und/oder wobei die zweite Neigungsstruktur mit der Rahmenkörperstruktur II über eine zweite Verbindungsbaugruppe verbunden ist, wobei die zweite Verbindungsbaugruppe als eine Knickstruktur und/oder eine Einhakstruktur und/oder eine Haftstruktur ausgebildet ist;
die erste Neigungsstruktur und/oder die zweite Neigungsstruktur als Stoffstrukturen und/oder Lederstrukturen und/oder Bambusstrukturen und/oder Rattanstrukturen und/oder Kunststoffstrukturen und/oder Holzstrukturen ausgebildet sind.

Revendications

1. Fauteuil multifonctionnel, comprenant :

une première unité de corps de cadre (1), la première unité de corps de cadre étant dotée d'une extrémité avant (101) et d'une extrémité arrière (102) ;
une première unité de support (3) configurée pour supporter la première unité de corps de cadre, la première unité de support étant raccordée à une première position de raccordement (103) de la première unité de corps de cadre et une hauteur de l'extrémité arrière de la première unité de corps de cadre étant inférieure à une hauteur de la première position de raccordement ;
une première unité d'appui (13) disposée dans une position de la première unité de corps de cadre proche de la première position de raccordement ;
une deuxième unité de corps de cadre (2) disposée sur une partie arrière de la première unité de corps de cadre, la deuxième unité de corps de cadre et la première unité de corps de cadre étant raccordées de façon rotative, la deuxième unité de corps de cadre et la première unité de corps de cadre raccordées de façon rotative étant capables de se déplacer entre une première orientation d'un fauteuil inclinable ou d'un siège et une deuxième orientation d'équipement de fitness, la deuxième unité de corps de cadre et la première unité de corps de cadre étant dans la première orientation lorsqu'elles forment un angle, et la deuxième unité de corps de cadre et la première unité de corps de cadre étant dans la deuxième orientation lorsque les extrémités arrières de la deuxième unité de corps de cadre et de la première unité de corps de cadre se chevauchent ; et
une deuxième unité d'appui (23) disposée sur la deuxième unité de corps de cadre,
dans lequel la première unité de corps de cadre comprend une structure de corps de cadre I (11) et des structures de support transversales I (12) disposées en parallèle, les structures de support transversales I sont disposées sur la structure de corps de cadre I à un intervalle, la structure de corps de cadre I et les structures de support transversales I sont configurées pour le montage et le support de la première unité d'appui, la structure de corps de cadre I et/ou les structures de support transversales I sont conçues comme une structure en forme de tige, et la structure de corps de cadre I est conçue comme une structure arquée convexe vers le haut,
dans lequel la structure de corps de cadre I comprend :

une partie de corps de cadre I (111) ; et
une partie de corps de cadre II (112) raccordée de façon pivotante à la partie de corps de cadre I par le biais d'une structure pivotante I (113), la structure pivotante I comprenant une partie de corps de cadre III (115) et au moins deux raccords pivotants I (114) articulés à deux extrémités de la partie de corps de cadre III, la partie de corps de cadre I et la partie de corps de cadre II étant articulées respectivement aux raccords pivotants I et étant pliés respectivement, et contractés par rapport à deux extrémités de la partie de corps de cadre III pour modifier un angle formé entre la partie de corps de cadre I et la partie de corps de cadre II, permettant ainsi de régler des états de dépliage et de pliage de la partie de corps de cadre I et de la partie de corps de cadre II, dans lequel la deuxième unité de corps de cadre est raccordée à la première unité de corps de cadre par le biais d'un troisième assemblage rotatif (8), et configurée pour régler la première orientation et/ou la deuxième orientation en position de la deuxième unité de corps de cadre par rapport à la première unité de corps de cadre et/ou pour verrouiller la deuxième unité de corps de cadre dans la première orientation et/ou dans la deuxième orientation, le troisième assemblage rotatif est disposé dans une position centrale de la première unité de corps de cadre, et la deuxième unité de corps de cadre est disposée de façon à correspondre à une forme de l'extrémité arrière de la première unité de corps de cadre ;
la deuxième orientation est formée de telle façon que la deuxième unité de corps de cadre se déplace le long de la direction de l'extrémité arrière de la première unité de corps de cadre par rotation du troisième assemblage rotatif pour se superposer à l'extrémité arrière de la première unité de corps de cadre ; et
la première orientation est formée de telle façon que la deuxième unité de corps de cadre se déplace le long de l'une quelconque parmi la direction de l'extrémité avant ou celle de l'extrémité arrière de la première unité de corps de cadre par rotation du troisième assemblage rotatif pour former un angle avec la première unité de corps de cadre ;
dans lequel la deuxième unité de corps de cadre comprend une structure de corps de cadre II (21) et des structures de support transversales II (22) disposées en parallèle, les structures de support transversales II sont disposées sur la structure de corps de cadre II à un intervalle, la structure de corps de cadre II et les structures de support transversales II sont configurées pour le montage et le support de la deuxième unité d'appui, la structure de corps de cadre II et/ou les structures de support transversales II sont conçues comme une structure en forme de tige, et la structure de corps de cadre II est conçue comme une structure arquée convexe vers le haut adaptée à l'extrémité arrière de la structure de corps de cadre I,
dans lequel le troisième assemblage rotatif comprend :

un raccord III (821) raccordé à la structure de corps de cadre II ; et
un arbre rotatif III (822), dont une extrémité est raccordée à la structure de corps de cadre I et l'autre extrémité est raccordée au raccord III,
dans lequel le fauteuil multifonctionnel comprend en outre une troisième unité de support (5) destinée à supporter la deuxième unité de corps de cadre, la troisième unité de support étant disposée sur un côté arrière inférieur de la deuxième unité de corps de cadre, la troisième unité de support comprenant :

un troisième élément de support (51), une extrémité supérieure du troisième élément de support étant raccordée de façon rotative à la structure de corps de cadre II, le troisième élément de support comprenant au moins deux éléments de support III et un élément de serrage III (512), et les extrémités supérieures des deux éléments de support III étant raccordées de façon rotative à deux structures de corps de cadre II par le biais d'éléments d'articulation (513) respectivement et les extrémités inférieures de ceux-ci étant raccordées à des positions de l'élément de serrage III à proximité de deux parties d'extrémité, respectivement ; et
au moins deux troisièmes ensembles de réglage (52), les troisièmes ensembles de réglage étant disposés en correspondance sur deux structures de corps de cadre I pour régler la position du troisième élément de support par rapport à la

première unité de corps de cadre, chacun des troisièmes ensembles de réglage comprenant un élément de réglage III, l'élément de réglage III étant doté de plusieurs canaux de réglage III (522), chacun des canaux de réglage III étant disposés de manière à correspondre à l'extrémité inférieure du troisième élément de support, les canaux de réglage III étant conçus comme des structures en creux ouvertes dans les extrémités supérieures, et l'élément de serrage III entre une position dans laquelle les deux éléments de support III et l'élément de serrage III sont raccordés et deux parties d'extrémité de l'élément de serrage III est raccordé à la structure en creux par serrage pour supporter et verrouiller l'extrémité inférieure du troisième élément de support dans un certain canal de réglage III.

2. Fauteuil multifonctionnel selon la revendication 1, dans lequel la première position de raccordement est disposée à proximité de l'extrémité avant de la première unité de corps de cadre et/ou disposée de manière à chevaucher l'extrémité avant de la première unité de corps de cadre, il est prévu au moins une première unité de support, la première unité de support est disposée selon un angle avec une surface terminale de montage, l'extrémité supérieure de la première unité de support est disposée obliquement vers l'arrière, la première unité de support comprend au moins deux premiers éléments de support disposés en parallèle, chacun des premiers éléments de support est conçu comme une structure en forme de tige ou comme une structure plus étroite sur la partie supérieure et plus large sur la partie inférieure, et l'extrémité supérieure du premier élément de support est raccordée à la première position de raccordement de la première unité de corps de cadre et l'extrémité inférieure du premier élément de support s'appuie contre la surface terminale de montage d'un moyen de montage.

3. Fauteuil multifonctionnel selon la revendication 2, dans lequel le premier élément de support est conçu comme une structure intégrée, et la première unité de support est raccordée de façon rotative à la première unité de corps de cadre par le biais d'un premier assemblage rotatif, le premier assemblage rotatif comprenant :

un raccord I raccordé à la première position de raccordement de la structure de corps de cadre I ;

un arbre rotatif I, dont une première extrémité est articulée au premier élément de support tandis que l'autre extrémité de celui-ci est raccordée au raccord I, l'arbre rotatif I étant disposé perpendiculairement à une direction de la structure de corps de cadre I ; et

un élément de butée I disposé sur une partie avant du raccord I, la première unité de support étant tournée vers l'avant par rapport à la première unité de corps de cadre vers l'extrémité avant du premier élément de support pour s'appuyer contre l'élément de butée I de manière à déplier la première unité de support, et la première unité de support étant tournée par la première unité de corps de cadre pour s'appuyer contre la première unité de corps de cadre de manière à plier et contracter la première unité de support.

4. Fauteuil multifonctionnel selon la revendication 3, dans lequel le premier élément de support est conçu comme une structure divisée, comprenant :

une première partie de support, une extrémité inférieure de la première partie de support étant disposée à proximité de la première position de raccordement ; et

une deuxième partie de support raccordée de façon pivotante à la première partie de support, modifiant un angle entre la première partie de support et la deuxième partie de support, permettant ainsi de régler des états de dépliage et de pliage de la première partie de support et de la deuxième partie de support, la deuxième partie de support étant capable de plier et de contracter la deuxième partie de support lors d'une rotation par rapport à la première partie de support pour s'appuyer contre le côté inférieur de la partie de corps de cadre I, la deuxième partie de support étant capable de déplier la deuxième partie de support lors d'une rotation par rapport à la deuxième partie de support vers un état initial, des extrémités de raccordement de la première partie de support et de la deuxième partie de support étant en outre dotées de saillies de positionnement, et l'extrémité de raccordement de la deuxième partie de support étant dotée de façon correspondante d'une rainure de positionnement pour le positionnement de la deuxième partie de support dépliée.

5. Fauteuil multifonctionnel selon l'une quelconque des revendications 1 à 4, comprenant en outre une unité de positionnement disposée sur la première unité de corps de cadre, dans lequel, lorsque le fauteuil multifonctionnel est dans la deuxième orientation, l'unité de positionnement est configurée pour placer et/ou

positionner un pied ou une jambe d'un corps humain, l'unité de positionnement comprenant :

au moins deux raccords de positionnement disposés à un intervalle, les raccords de positionnement étant conçus comme des structures en forme de tige à un intervalle, deux extrémités des raccords de positionnement étant respectivement raccordées à un premier élément de support ; et/ou
des éléments de réglage de positionnement emmanchés les raccords de positionnement, les extrémités extérieures de chacun des éléments de réglage de positionnement étant formées avec une surface terminale de positionnement pour l'appui du pied ou de la jambe du corps humain et l'élément de réglage de positionnement étant conçu comme une structure flexible, ou
comprenant en outre une structure de main courante, dans lequel la structure de main courante est disposée à l'extrémité avant de la première unité de corps de cadre, et emmanchée sur l'extérieur de l'extrémité avant de la première unité de corps de cadre pour le maintien.

6. Fauteuil multifonctionnel selon la revendication 5, comprenant en outre une deuxième unité de support, dans lequel la deuxième unité de support est raccordée à l'extrémité arrière de la première unité de corps de cadre et/ou raccordée à un corps principal à proximité de l'extrémité arrière ; il est prévu au moins une deuxième unité de support, la deuxième unité de support est disposée selon un angle avec la surface terminale de montage, l'extrémité supérieure de la deuxième unité de support est disposée obliquement vers l'avant, la deuxième unité de support comprend au moins deux deuxièmes éléments de support disposés en parallèle, chacun des deuxièmes éléments de support est conçu comme une structure en forme de tige ou comme une structure plus étroite sur la partie supérieure et plus large sur la partie inférieure, l'extrémité supérieure du premier élément de support est raccordée à la première unité de corps de cadre et l'extrémité inférieure du premier élément de support s'appuie contre la surface terminale de montage d'un moyen de montage, les deux deuxièmes éléments de support se situent respectivement sur un même plan avec la structure de corps de cadre I sur le même côté, la deuxième unité de support comprend en outre au moins un deuxième renfort disposé entre les deux deuxièmes éléments de support, et le deuxième renfort est conçu comme une structure en forme de tige destinée à renforcer la deuxième unité de support.

7. Fauteuil multifonctionnel selon la revendication 5, comprenant en outre une deuxième unité de support, dans lequel la deuxième unité de support est composée de l'extrémité arrière de la première unité de corps de cadre et/ou d'un corps principal de la première unité de corps de cadre à proximité de l'extrémité arrière ; il est prévu au moins une deuxième unité de support, la deuxième unité de support est disposée selon un angle avec la surface terminale de montage, l'extrémité supérieure de la deuxième unité de support est disposée obliquement vers l'avant, la deuxième unité de support comprend au moins deux deuxièmes éléments de support disposés en parallèle, chacun des deuxièmes éléments de support est conçu comme une structure en forme de tige ou comme une structure plus étroite sur la partie supérieure et plus large sur la partie inférieure, l'extrémité supérieure du premier élément de support est raccordée à la première unité de corps de cadre et l'extrémité inférieure du premier élément de support s'appuie contre la surface terminale de montage d'un moyen de montage, les deux deuxièmes éléments de support se situent respectivement sur un même plan avec la structure de corps de cadre I sur le même côté, la deuxième unité de support comprend en outre au moins un deuxième renfort disposé entre les deux deuxièmes éléments de support, et le deuxième renfort est conçu comme une structure en forme de tige destinée à renforcer la deuxième unité de support.

8. Fauteuil multifonctionnel selon la revendication 5, dans lequel la première unité d'appui comprend une première structure d'appui permettant au corps humain de s'assoir ou de s'allonger, la première structure d'appui étant formée en s'étendant à partir d'une position proche de la première position de raccordement et/ou à partir de la première position de raccordement le long de la direction de l'extrémité arrière de la première unité de corps de cadre ; et

la deuxième unité d'appui comprend une deuxième structure d'appui permettant au corps humain de s'assoir ou de s'allonger, la deuxième structure d'appui étant disposée sur la deuxième unité de corps de cadre et formée en s'étendant à partir d'une extrémité de la deuxième unité de corps de cadre le long de la direction de l'autre extrémité le long de la première unité de corps de cadre ;
dans lequel la première structure d'appui est raccordée à la structure de corps de cadre I par une partie d'extrémité de celle-ci et/ou en enveloppant entièrement la structure de corps de cadre I ;
et/ou la deuxième structure d'appui est raccordée à la structure de corps de cadre II par une partie d'extrémité de celle-ci et/ou en enveloppant entièrement la structure de corps de cadre II ;

la première structure d'appui et/ou la deuxième structure d'appui sont conçues comme des structures en tissu et/ou comme des structures en cuir et/ou comme des structures en bambou et/ou comme des structures en rotin et/ou comme des structures en plastique et/ou comme des structures en bois.

9. Fauteuil multifonctionnel selon la revendication 5, dans lequel la première unité d'appui comprend une première structure d'appui permettant au corps humain de s'assoir ou de s'allonger, la première structure d'appui étant formée en s'étendant à partir d'une position proche de la première position de raccordement et/ou à partir de la première position de raccordement le long de la direction de l'extrémité arrière de la première unité de corps de cadre ; et

la deuxième unité d'appui comprend une deuxième structure d'appui permettant au corps humain de s'assoir ou de s'allonger, la deuxième structure d'appui étant disposée sur la deuxième unité de corps de cadre et formée en s'étendant à partir d'une extrémité de la deuxième unité de corps de cadre le long de la direction de l'autre extrémité le long de la première unité de corps de cadre ;
dans lequel la première structure d'appui est raccordée à la structure de corps de cadre I par un premier ensemble de raccordement, le premier ensemble de raccordement étant conçu comme un structure de bouclage et/ou comme une structure d'accrochage et/ou comme une structure de collage ;
et/ou la deuxième structure d'appui est raccordée à la structure de corps de cadre II par un deuxième ensemble de raccordement, le deuxième ensemble de raccordement étant conçu comme un structure de bouclage et/ou comme une structure d'accrochage et/ou comme une structure de collage ;
la première structure d'appui et/ou la deuxième structure d'appui sont conçues comme des structures en tissu et/ou comme des structures en cuir et/ou comme des structures en bambou et/ou comme des structures en rotin et/ou comme des structures en plastique et/ou comme des structures en bois.

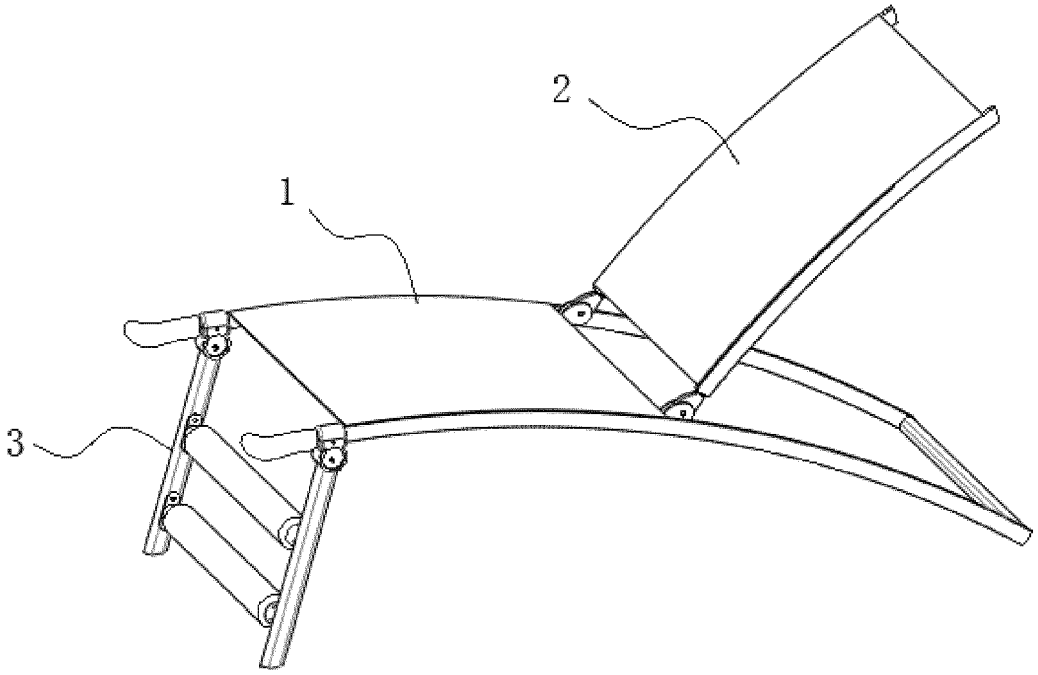

Fig. 1

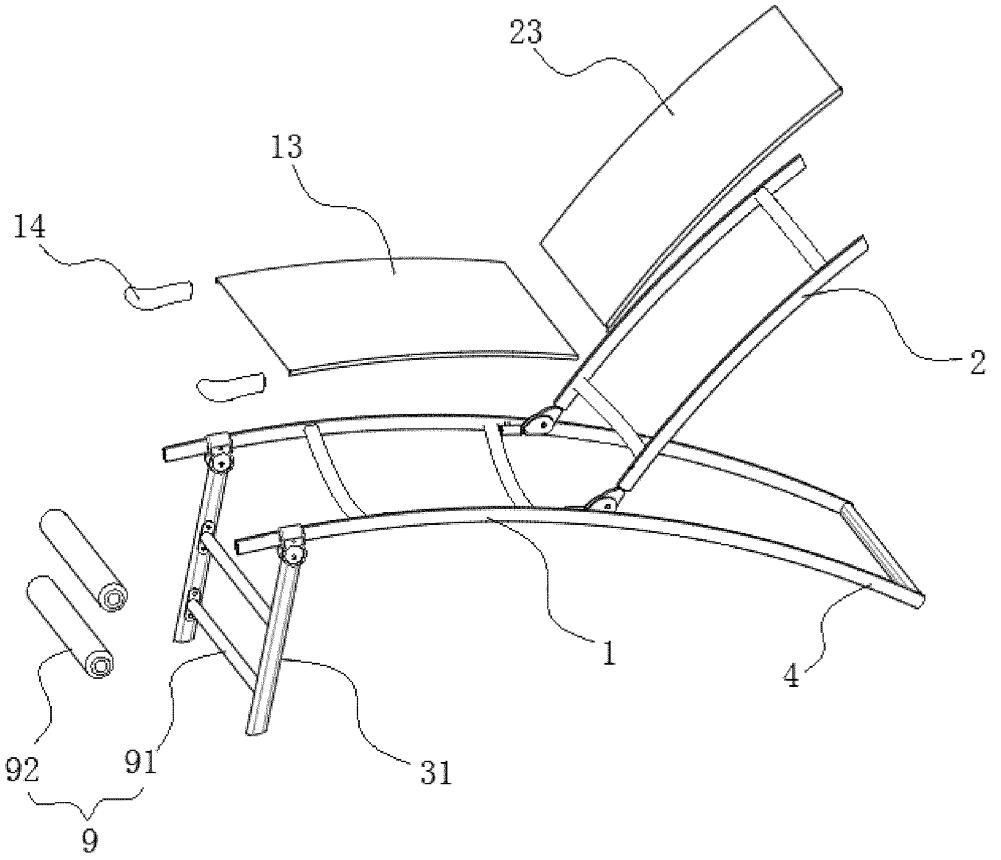

Fig. 2

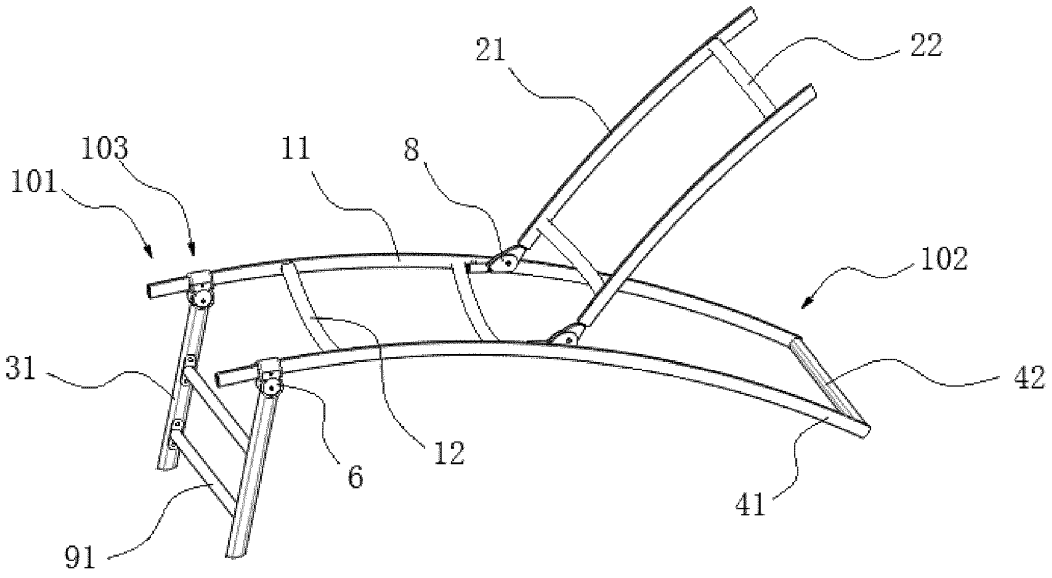

Fig. 3

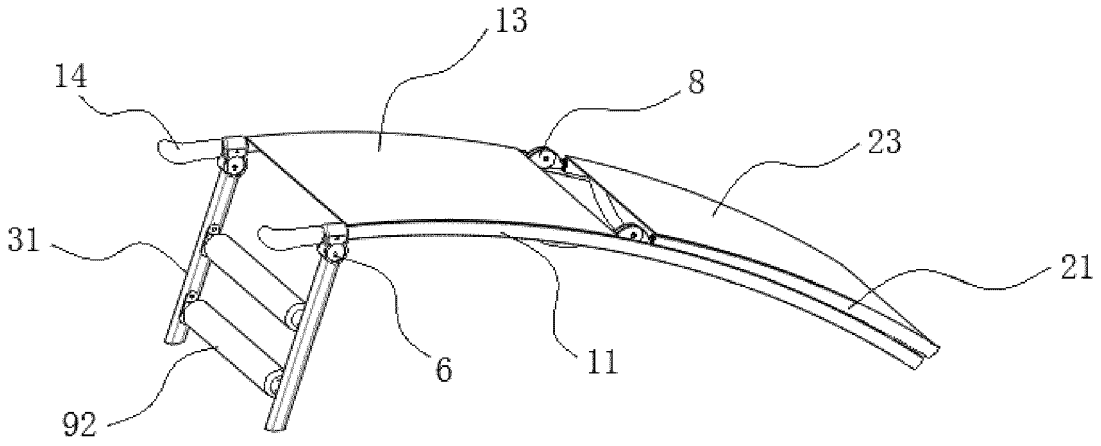

Fig. 4

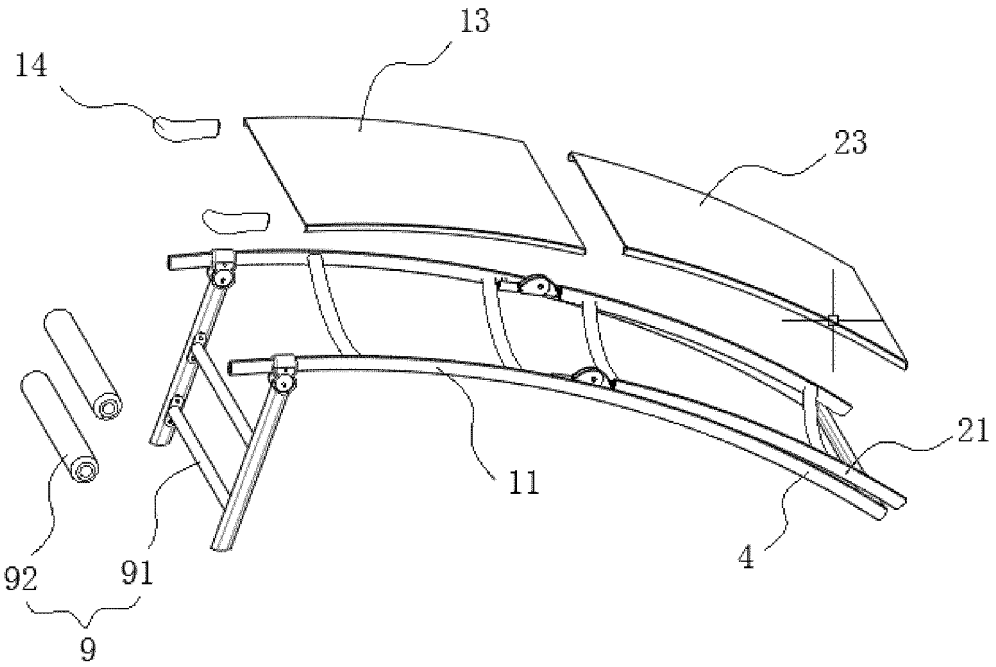

Fig. 5

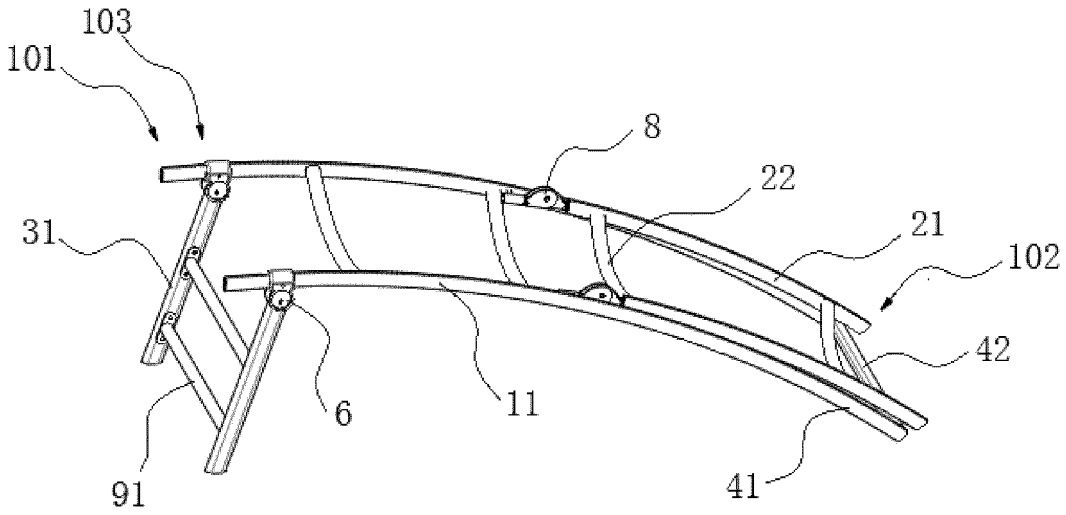
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Fig. 6

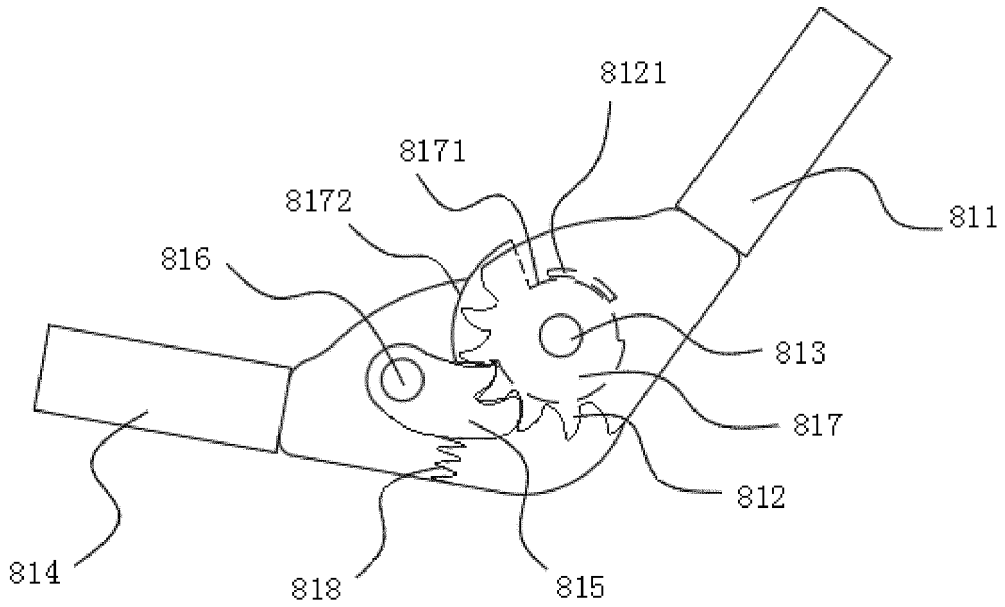
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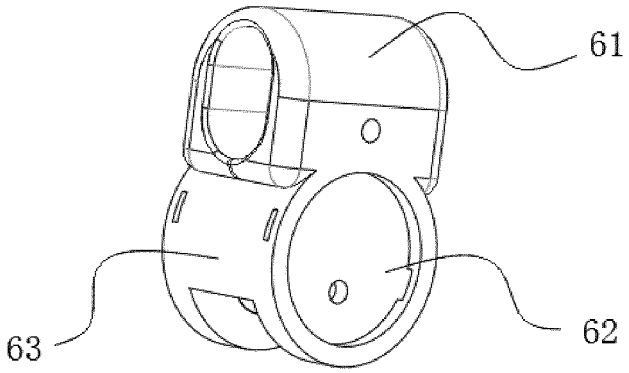
Fig. 7



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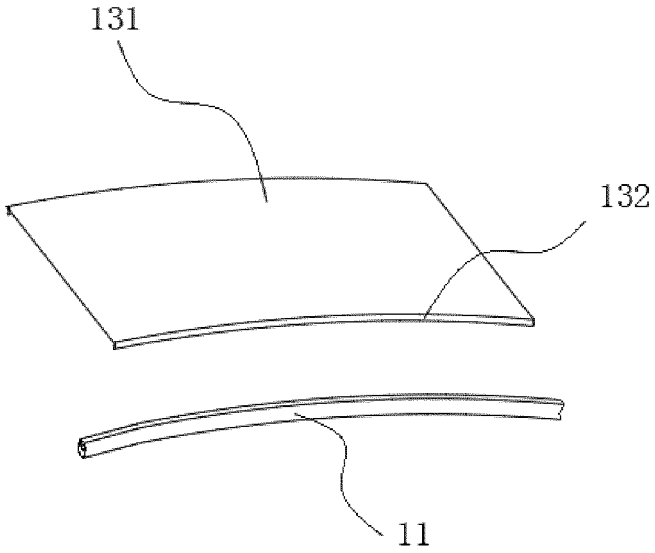

Fig. 9

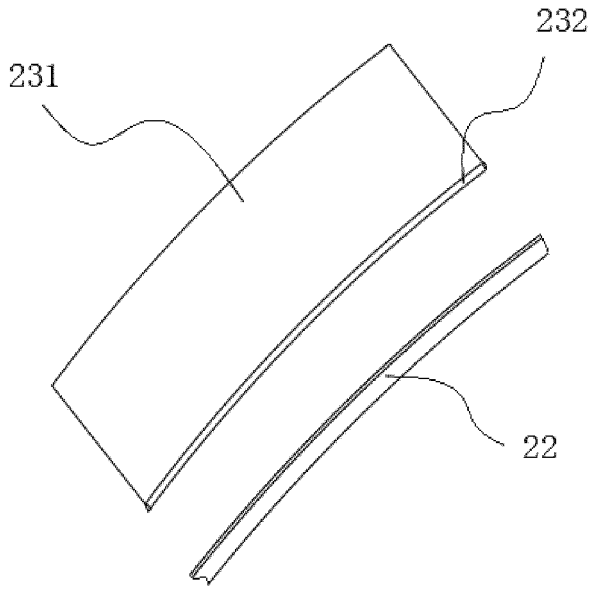

Fig. 10

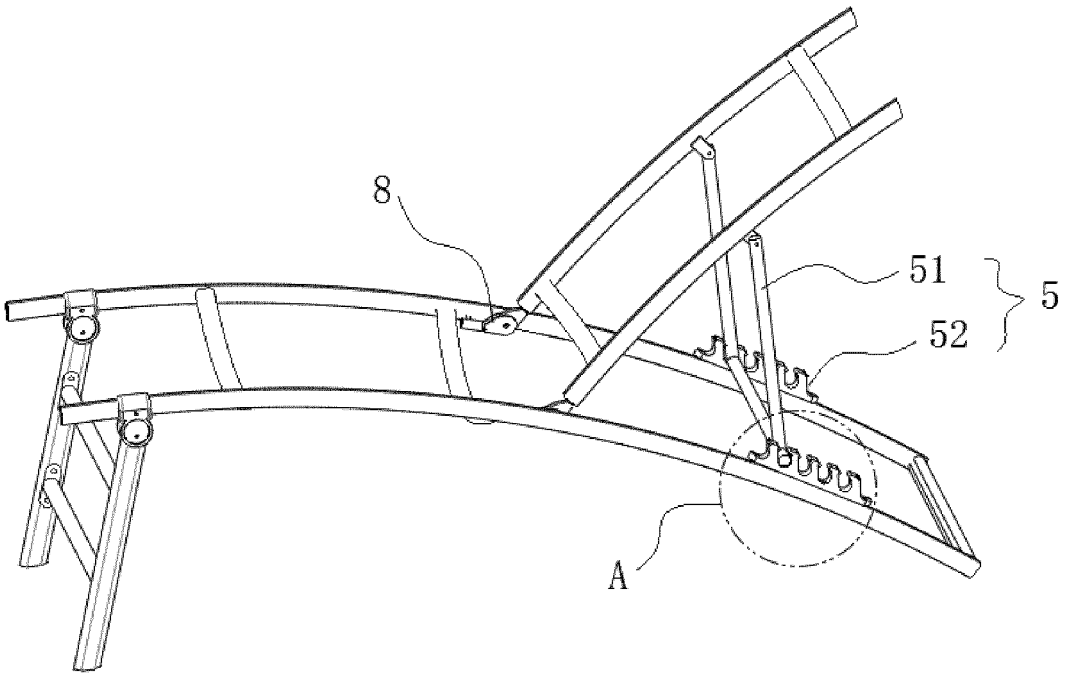

Fig. 11

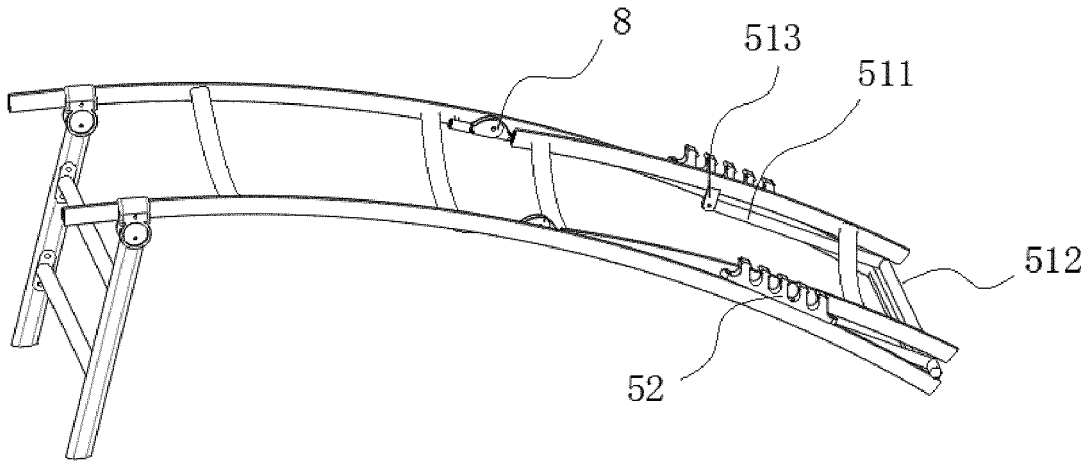

Fig. 12

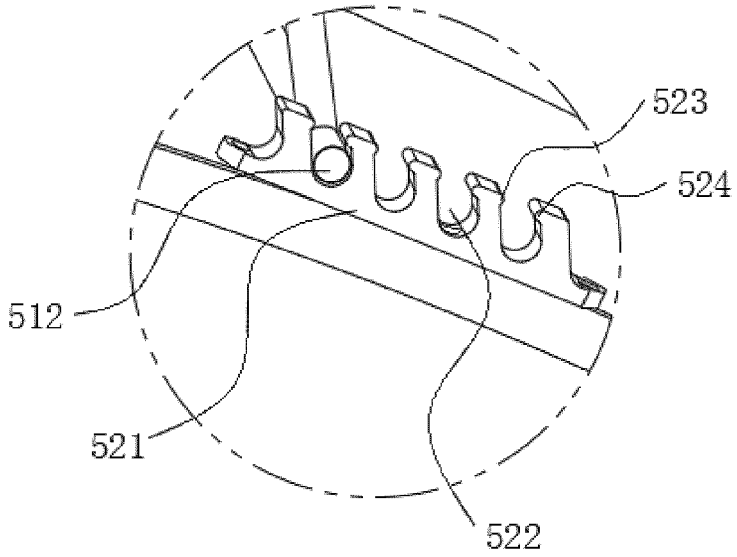

Fig. 13

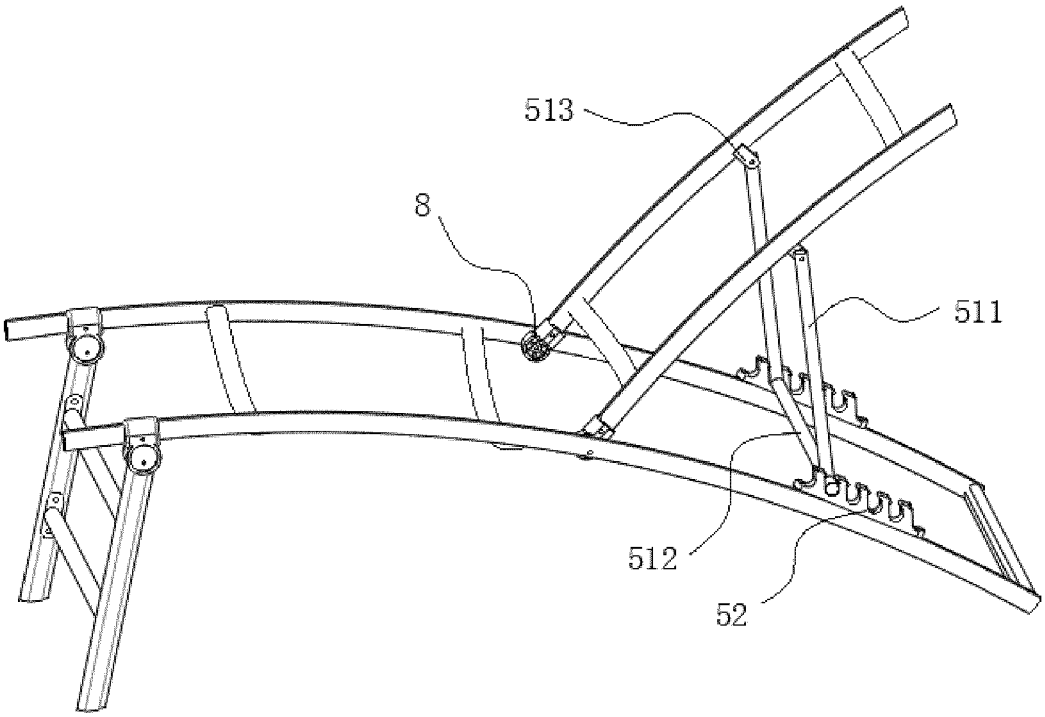

Fig. 14

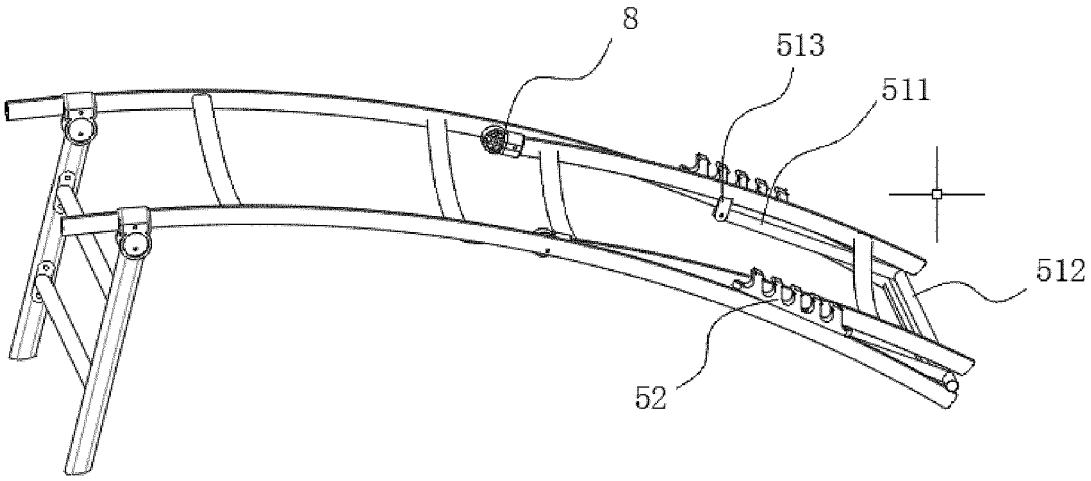

Fig. 15

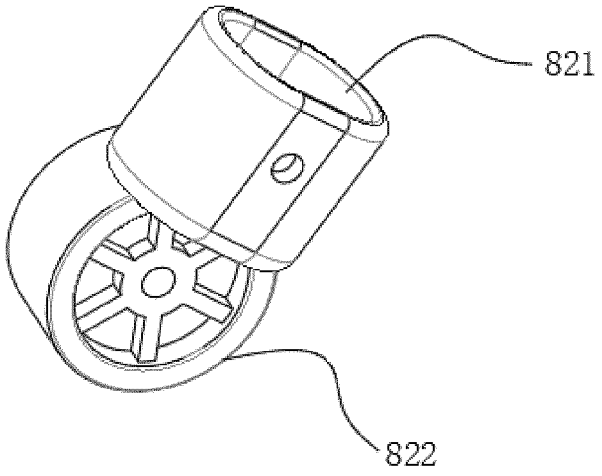

Fig. 16

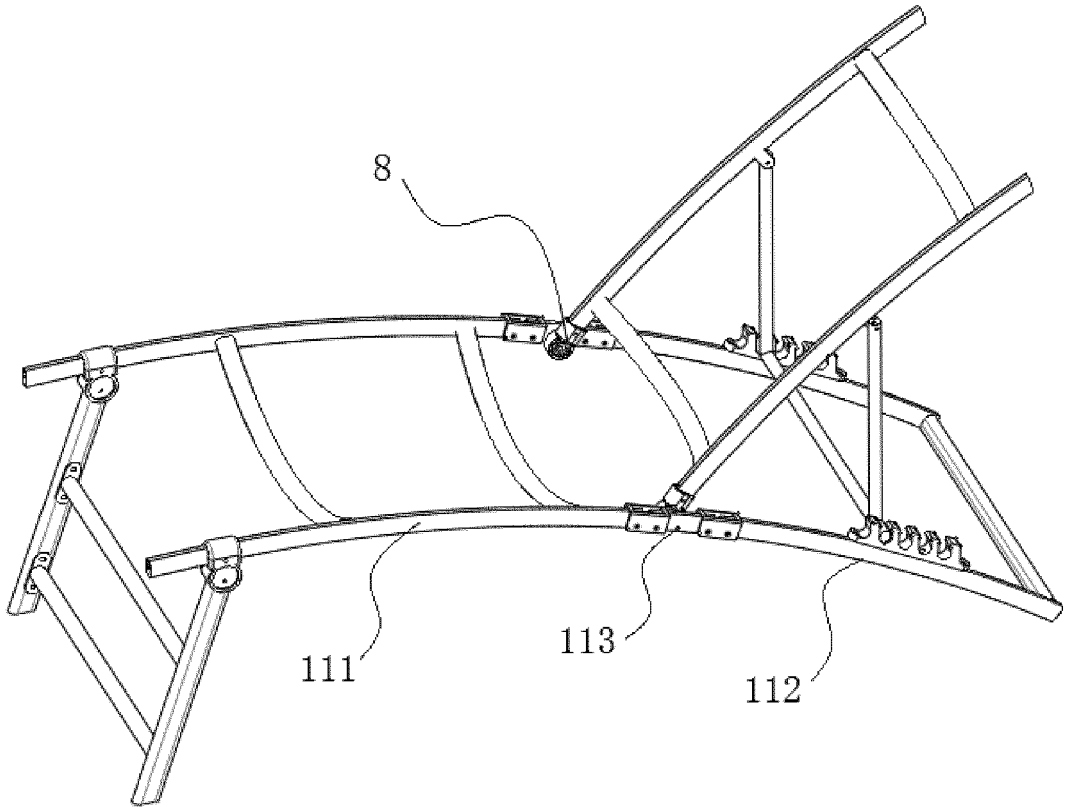

Fig. 17

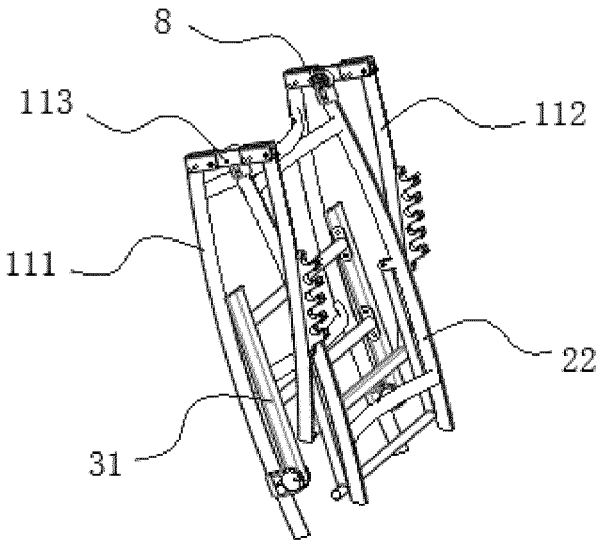

Fig. 18

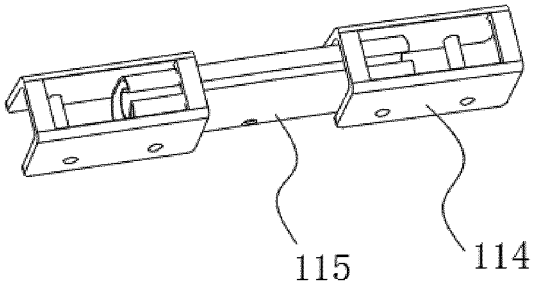

Fig. 19

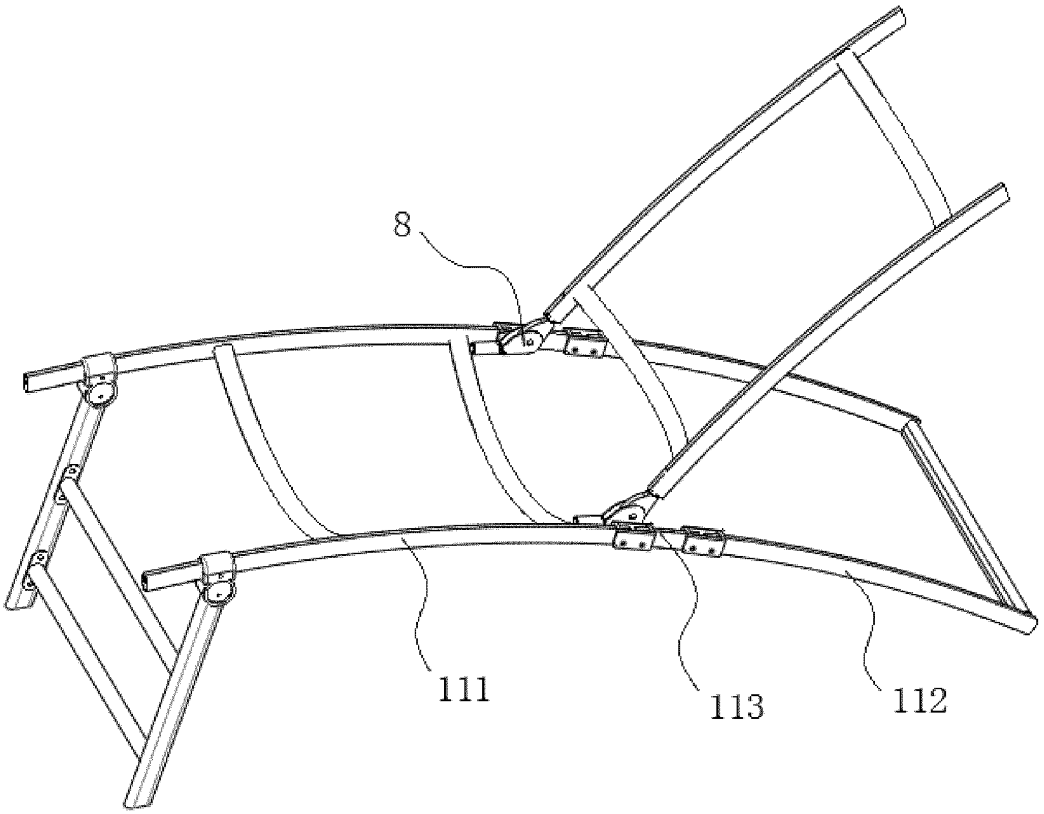

Fig. 20

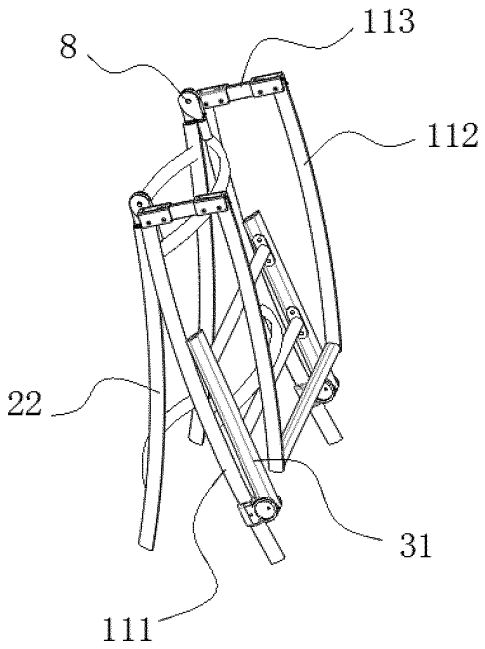

Fig. 21

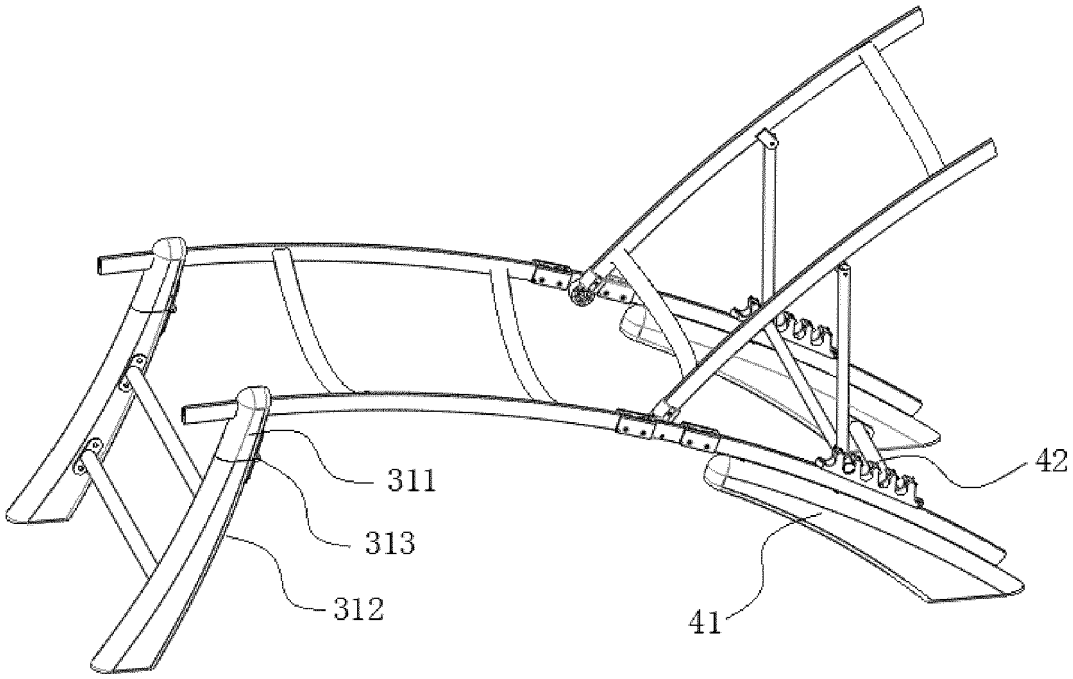

Fig. 22

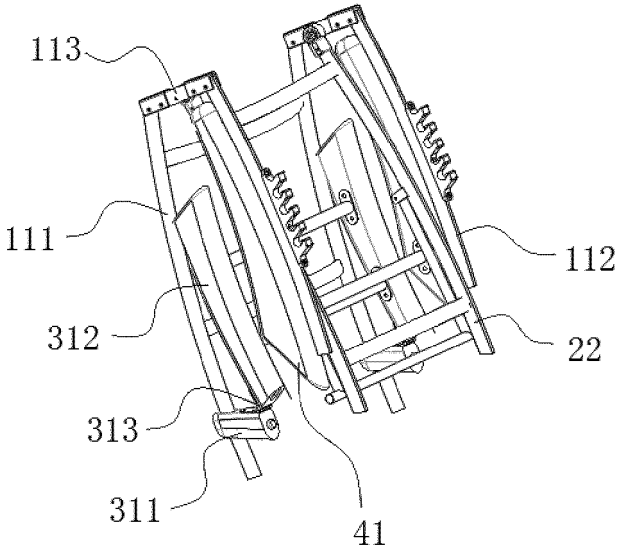

Fig. 23

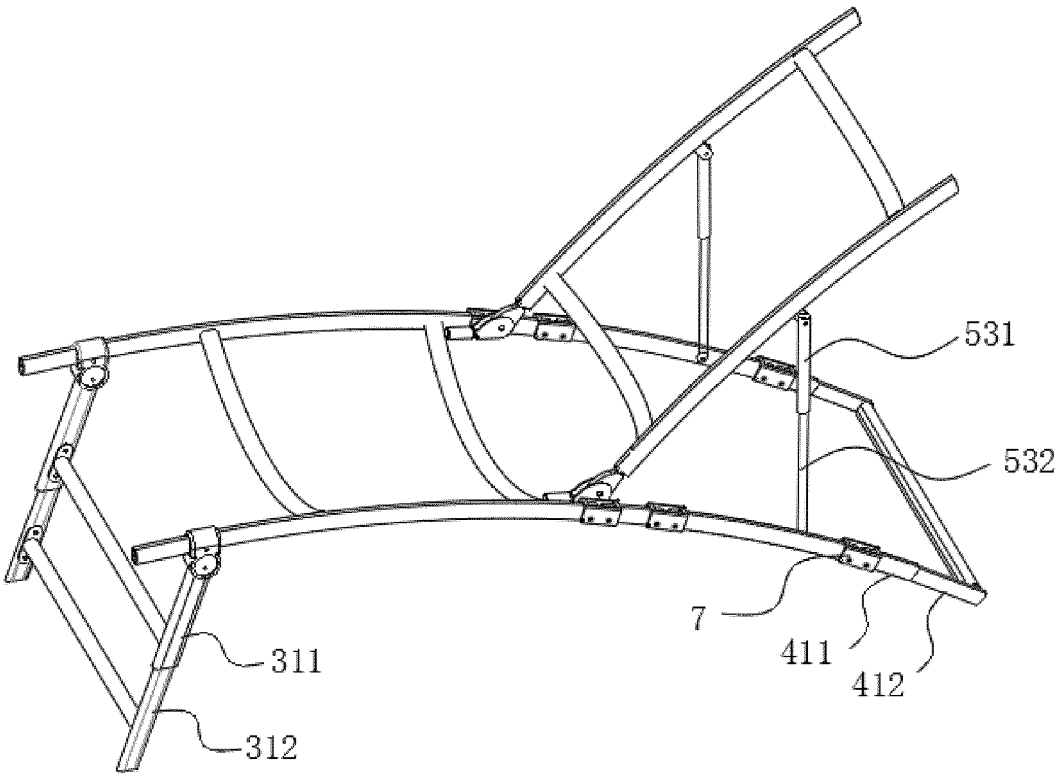

Fig. 24

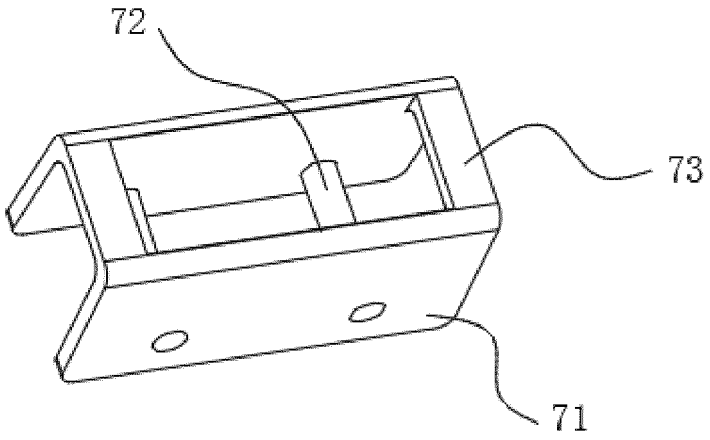

Fig. 25

REFERENCES CITED IN THE DESCRIPTION

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