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(54) **FITNESS DEVICE**

(57) A fitness device includes a frame (1), a sliding rod group (5), a translation plate (2), a foot rod (3) and a handle rod (4). Wherein, two ends of the sliding rod group (5) are respectively fixed on the frame (1); the translation plate (2) is movably arranged on the sliding rod group (5) and moves on the sliding rod group (5); two ends of the

handle rod (4) are fixedly connected to the frame (1); two ends of the foot rod (3) are movably connected to the frame (1) and move back and forth on the frame (1). The fitness device can assist in correctly mastering an exercise posture and exercising one or more muscles of a human body.

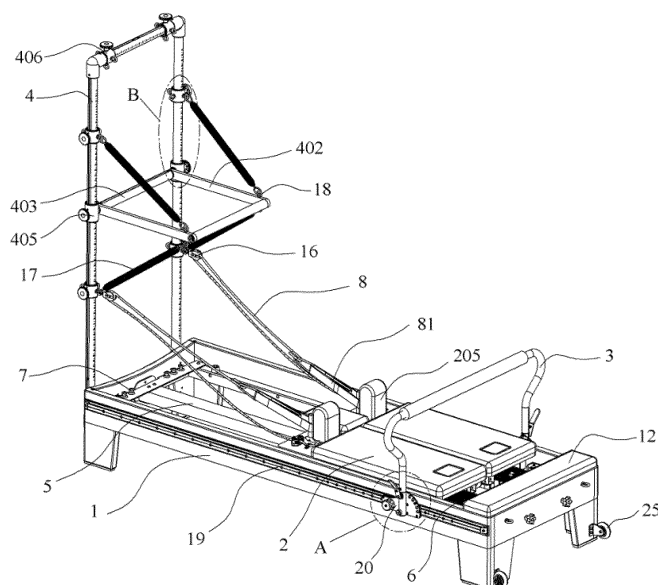


FIG. 1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to the technical field of sports equipment, in particular to a fitness device.

BACKGROUND OF THE INVENTION

[0002] Improvement in people's life quality, such as taking a car while going out and taking an elevator to go upstairs while getting back home, causes people a decrease in quantity of motion, thus some people will choose to exercise on purpose, so as to enhance their physique. In early days, people always took exercise outdoors due to absence of equipment; however, if it is necessary to exercise some specific parts of a human body, such as the abdomen, an exercise is achievable by way of doing sit-ups. However, when an exercise is done by way of doing sit-ups, it is necessary to restrict feet with the help of an object, or press feet directly with the help of a person; moreover, uneven strength exerted to muscles may occur on both sides of the abdomen through this kind of exercise only together with stretch, so that the exercise results in an asymmetrical abdominal muscle profile worsening the appearance. For example, if it is necessary to exercise the leg muscles, an exercise is achievable by way of running, but running for a long time will cause some damage to the feet; moreover, since it is difficult for a nonexpert to master a correct running posture and method, the way of running makes the feet toe in or toe out; in addition, it is still necessary to achieve the exercise by way of only running outdoors, which is extremely inconvenient.

[0003] Therefore, the technical problem to be actually solved by the present invention is how to achievably assist in correctly mastering an exercise posture and exercising one or more muscles of a human body by way of proposing a fitness device.

SUMMARY OF THE INVENTION

[0004] In view of the above-mentioned technical problem, the present invention proposes a fitness device that assists in correctly mastering an exercise posture and achievably exercising body muscles.

[0005] The present invention embodies the technical solution as follows. A fitness device proposed by the present invention includes a frame, a sliding rod group, a translation plate, a foot rod and a handle rod. Wherein, two ends of the sliding rod group are respectively fixed on the frame; the translation plate is movably arranged on the sliding rod group and moves on the sliding rod group; two ends of the handle rod are fixedly connected to the frame; two ends of the foot rod are movably connected to the frame and move back and forth on the frame.

[0006] An exerciser enables human body parts such as feet and legs that need to be exercised to slide back and

forth by way of making the translation plate move back and forth on the sliding rod group; the handle rod and the foot rod can be used as supports for human body parts such as hands, feet and buttocks.

5 [0007] Preferably, the translation plate includes a first plate assembly and a second plate assembly, wherein, the first plate assembly and the second plate assembly are arranged on the sliding rod group side by side, and the first plate assembly and the second plate assembly slidably fit with the sliding rod group.

10 [0008] Preferably, the fitness device further includes a blocking bar detachably disposed on the first plate assembly and/or the second plate assembly, which can function as a barrier and a support for the feet or the legs placed on the first plate assembly and the second plate assembly, so as to enhance safety during exercise. Wherein, the blocking bar may be configured to be 2-4 pieces, which can be placed at the front end or the rear end of the first plate assembly and the second plate assembly as needed by an exerciser.

15 [0009] Preferably, a first insertion hole is arranged on the first plate assembly and/or the second plate assembly, and the blocking bar is provided with a first insertion rod, which is inserted into and fits with the first insertion hole.

20 [0010] Preferably, at least one transverse groove and at least one longitudinal groove vertically intersected with each other are further set at the position of the first insertion hole of the first plate assembly and/or the second plate assembly, and the first insertion hole is positioned at the intersection of the transverse groove and longitudinal groove; a position-restricting rod fitting with the transverse groove and/or longitudinal groove is arranged on the first insertion rod.

25 [0011] Specifically, the transverse groove is configured to be one in number, and the longitudinal groove is configured to be two in number, forming two cross-shaped structures, so that the first insertion rod can be inserted in one of the cross-shaped structures as needed. When the first insertion rod is inserted in the first insertion hole, the position-restricting rod on the first insertion rod is positioned in the transverse groove or the longitudinal groove, making this insertion connection more stable.

30 [0012] Preferably, the fitness device further includes a connector that connects the first plate assembly with the second plate assembly, so as to make the first plate assembly and the second plate assembly move synchronously. In addition, after the connector is removed, the first plate assembly and the second plate assembly of the translation plate can move back and forth in the direction of both ends of the sliding rod group, respectively. Wherein, the connector may be designed to be a plate, thus the plate-shaped connector can increase the area of the translation plate; but not limited to this, the connector may also be designed to be a long strip, which is only used to connect the first plate assembly with the second plate assembly.

[0013] Preferably, a second insertion hole is set on the first plate assembly and the second plate assembly, respectively, designed to be a waist-shaped hole on one and a circular hole on the other; two second insertion rods are disposed on the connector, and inserted into and fit with the second insertion holes on the first plate assembly and the second plate assembly, respectively. The hole is designed to be waist-shaped, so that the insertion structure between the second insertion rod and the second insertion hole has an appropriate adjustment range without need of complete alignment, making insertion more convenient.

[0014] Preferably, an insertion block is disposed on the connector; an insertion groove is set on the first plate assembly and the second plate assembly, respectively, and the insertion groove on the first plate assembly faces the insertion groove on the second plate assembly, so as to accommodate the insertion block. In addition, a triangular positioning structure may be formed between the insertion block and the two insertion rods, making the connection structure more stable.

[0015] Preferably, the fitness device further includes a first draw spring, and the frame, the first plate assembly and the second plate assembly are respectively provided with a positioning stake; two ends of the first draw spring are respectively hooked on the frame and the first plate assembly, or on the frame and the second plate assembly, so that the first draw spring can provide an elastic force when the first plate assembly and the second plate assembly slide back and forth.

[0016] Preferably, the fitness device further includes a cross bar and a draw rod, wherein the cross bar is disposed on the handle rod, and the draw rod and the cross bar are pivotally connected with each other. Specifically, a sleeve piece is fixed on the cross bar, and the draw rod is rotatably arranged on the sleeve piece. However, this design is limited to this, the draw rod may also be pivotally connected with the handle rod directly.

[0017] Preferably, one end of the cross bar is provided with a first adjusting tube, which slidably fits with the handle rod, and is locked by means of an adjusting screw bolt, so that the height of the cross bar adjustable with respect to the handle rod can adapt to exercisers different in height or different exercise postures.

[0018] Preferably, at least one adjustable hanging piece is arranged on the handle rod, and the adjustable hanging piece includes a second adjusting tube and at least one first hanging ring arranged on the second adjusting tube, which is locked through an adjusting screw bolt. The adjustable hanging piece is configured to easily hook or hang apparatuses such as elastic ropes.

[0019] The fitness device further includes an elastic rope; a fixing seat, an adjusting component and an upright post are arranged on either of the first plate assembly and the second plate assembly, and one end of the elastic rope passes through the adjusting component and is fixed on the fixing seat; the other end of the elastic rope

is provided with a pull ring for hands to hold, which can encircle the upright post. The adjusting component includes two adjusting gears that are arranged opposite to each other, which interact with each other to clamp the elastic rope, achieving the function of adjusting the length of the elastic rope.

[0020] Wherein, the pull ring and the elastic rope can be detachably connected with each other by means of a hook structure, so that the pull ring can be removed for co-use with a second draw spring, which is used to exercise arms and the likes.

[0021] The middle portion of the elastic rope is connected with a fixed pulley with a hook, and the fixed pulley is hung on the first hanging ring through the hook. At the time of exercising, the fixed pulley can provide a support point for an exerciser to pull the first plate assembly and the second plate assembly.

[0022] The handle rod is fixed on the frame, and a scale is set on the outer wall of the handle rod, making the adjustment of the adjustable hanging piece and the cross bar convenient.

[0023] Preferably, the fitness device further includes a second draw spring, and at least one second hanging ring is arranged on the draw rod; hooks at both ends of the second draw spring are hooked on the first hanging ring and the second hanging ring, respectively.

[0024] Preferably, a moving guiding rail is arranged on an outer side of the frame, and the foot rod is provided with an adjusting block, which slidably fits with the moving guiding rail.

[0025] When the foot rod moves to a corresponding position, it is locked by means of a screw bolt. A plurality of pulleys is arranged on the adjusting block, so as to easily make the adjusting block slide on the moving guiding rail. Wherein, a scale is set on the moving guiding rail, making the positioning of the foot rod convenient.

[0026] Preferably, the foot rod is pivotally connected with the adjusting block, which is fan-shaped, and of which the arc edge is provided with a plurality of adjusting holes; the foot rod is also provided with a latch and an adjusting handle used to control the latch, and the latch is inserted into and fits with the adjusting holes.

[0027] Specifically, the latch is arranged at one end of the adjusting handle, and the middle portion of the adjusting handle is pivotally connected with the foot rod; thus, if the other end of the adjusting handle is pressed, and the latch can be raised free from the adjusting hole; if the other end of the adjusting handle is released, the latch is inserted into the adjusting hole to be locked. Wherein, a spring used to reset is arranged between the adjusting handle and the foot rod, thus, when the adjusting handle is released, the latch is inserted into the adjusting hole to be locked under an elastic force of the spring. Preferably, the spring is arranged at the pivot connection of the adjusting handle and the foot rod, making the structure simple and the adjustment convenient. One end of the adjusting handle is provided with a U-shaped groove, and the latch is jammed in the U-shaped groove to form a

stuck connection.

[0028] In the present application, the frame includes a first assembly, a second assembly, a third assembly, and a fourth assembly. The first assembly, the second assembly, the third assembly and the fourth assembly are connected end to end respectively to form a frame having an accommodating space composed of the first assembly, the second assembly, the third assembly and the fourth assembly, and the sliding rod group stands in the accommodating space of the frame. The first assembly and the second assembly have a surface opposite to each other, the third assembly and the fourth assembly have a surface opposite to each other, and the two ends of the handle rod and the foot rod are connected to the third assembly and the fourth assembly of the frame, respectively. A connecting rod is arranged at the bottom of the handle rod, and two ends of this connecting rod are respectively connected with the handle rod, so as to connect ends of the third assembly and the fourth assembly, making the structure of the handle rod more stable.

[0029] The second assembly is provided with a first roller assisting in transport. Wherein, the first roller is arranged on a side wall of the second assembly; in addition, when the fitness device is in a non-transport state, the first roller is configured to leave the ground, so that the fitness device can be stably placed on the ground.

[0030] Preferably, the sliding rod group includes a first sliding rail assembly, a second sliding rail assembly, and a third sliding rail assembly. Wherein, one end of the first sliding rail assembly, the second sliding rail assembly and the third sliding rail assembly is fixedly connected with the first assembly, respectively; the other end of the first sliding rail assembly, the second sliding rail assembly and the third sliding rail assembly is fixedly connected with the second assembly, respectively; the translation plate moves on the first sliding rail assembly and/or the second sliding rail assembly and/or the third sliding rail assembly, and one side of the second sliding rail assembly and the third sliding rail assembly is in contact with the third assembly and the fourth assembly, respectively.

[0031] Preferably, the second sliding rail assembly and the third sliding rail assembly are congruent to each other, and the width of the first sliding rail assembly is greater than that of the first sliding rail assembly and/or the second sliding rail assembly. Wherein, the first sliding rail assembly is positioned at the middle of the second sliding rail assembly and the third sliding rail assembly. Therefore, when the translation plate moves on the sliding rod group composed of the first sliding rail assembly, the second sliding rail assembly and the third sliding rail assembly, the translation plate moves in an extension direction of the two ends of the first sliding rail assembly, the second sliding rail assembly and the third sliding rail assembly.

[0032] Wherein, at least eight second rollers are arranged on the first plate assembly and the second plate

assembly, respectively, and the second rollers are arranged on the surface of the first plate assembly and the second plate assembly facing the sliding rod group; when the first plate assembly and/or the second plate assembly move, the second rollers roll on the sliding rod group.

[0033] Specifically, the second rollers are distributed on two adjacent sides of the first plate assembly/second plate assembly, when the first plate assembly moves, the second rollers on the first plate assembly move on the first sliding rail assembly and the second sliding rail assembly; in addition, while the first plate assembly is moving on the sliding rod group, four second rollers on the first plate assembly roll on the first sliding rail assembly, and the other four second rollers roll on the second sliding rail assembly. When the second plate assembly moves, the second rollers on the second plate assembly move on the first sliding rail assembly and the third sliding rail assembly; in addition, while the second plate assembly is moving on the sliding rod group, four second rollers on the second plate assembly roll on the first sliding rail assembly, and the other four second rollers roll on the third sliding rail assembly.

[0034] Preferably, the fitness device further includes a stake-bearing stand, which is fixedly disposed at one end of the frame, and a second stake-bearing stand and a foot stool are arranged at an identical end of the frame.

[0035] The present invention has the following beneficial effects. An exerciser enables human body parts such as feet and legs that need to be exercised to slide back and forth by way of making the translation plate move back and forth on the sliding rod group; the handle rod and the foot rod can be used as supports for human body parts such as hands, feet and buttocks, making it possible to achieve various exercise modes, and scientifically guide and assist exercisers to adopt a correct exercise posture, so as to enable various muscles such as abdominal muscles, leg muscles, arm muscles and back muscles to get exercised.

BRIEF DESCRIPTION OF THE DRAWINGS

[0036]

Fig.1 is a 3D structure diagram of an exemplified fitness device.

Fig.2 is a partial enlarged view at A in Fig. 1.

Fig.3 is a partial enlarged view at B in Fig. 1.

Fig.4 is a partial structure diagram of an exemplified translation plate.

Fig.5 is a partial enlarged view at C in Fig.4.

Fig.6 is a structure diagram of an exemplified blocking bar.

Fig.7 is a structure diagram of an exemplified connector.

Fig.8 is a structure diagram of the bottom of an exemplified first plate assembly and second plate assembly.

Fig.9 is another 3D structure diagram of an ex-

amplified fitness device.

Fig. 10 is a 3D structure diagram of another exemplified fitness device.

Fig. 11 shows a bottom view of another exemplified translation plate.

Fig. 12 shows part of the exercise action.

[0037] Where, 1-frame; 2-translation plate; 201-first plate assembly; 202-second plate assembly; 203-connector; 204-second roller; 205-blocking bar; 206-first insertion hole; 207-first insertion rod; 208-transverse groove; 209-longitudinal groove; 210-position-restricting rod; 211-second insertion hole; 212-second insertion rod; 213-insertion block; 214-insertion groove; 3-foot rod; 4-handle rod; 401-connecting rod; 402-draw rod; 403-cross bar; 404-sleeve piece; 405-first adjusting tube; 406-adjustable hanging piece; 407-second adjusting tube; 408-first hanging ring; 9-first sliding rail assembly; 10-second sliding rail assembly; 11-third sliding rail assembly; 12-stake-bearing stand; 5-sliding rod group; 6-first draw spring; 7-positioning stake; 8-elastic rope; 81-pull ring; 13-fixing seat; 14-adjusting component; 15-upright post; 16-fixed pulley; 17-second draw spring; 18-second hanging ring; 19-moving guiding rail; 20-adjusting block; 21-pulley; 22-adjusting hole; 23-latch; 24-adjusting handle; 25-first roller; 101-first assembly; 102-second assembly; 103-third assembly; 104-fourth assembly.

DETAILED DESCRIPTION OF SOME EMBODIMENTS

[0038] We shall describe the present invention in detail and completely by means of specific embodiments in combination with the drawings as follows.

[0039] As shown in Fig. 1, a fitness device proposed by the present invention includes a frame 1, a sliding rod group 5, a translation plate 2, a foot rod 3 and a handle rod 4. Wherein, two ends of the sliding rod group 5 are respectively fixed on the frame 1; the translation plate 2 is movably arranged on the sliding rod group 5 and moves on the sliding rod group 5; two ends of the handle rod 4 are fixedly connected to the frame 1; two ends of the foot rod 3 are movably connected to the frame 1 and move back and forth on the frame 1.

[0040] As shown in Figs. 1 and 4, the translation plate 2 includes a first plate assembly 201 and a second plate assembly 202 that are arranged side by side and slidably fit with the sliding rod group 5. A blocking bar 205 is detachably disposed on the first plate assembly 201 and the second plate assembly 202, it can function as a barrier and a support for the feet or the legs placed on the first plate assembly 201 and the second plate assembly 202, so as to enhance safety during exercise.

[0041] As shown in Figs. 4, 5 and 6, the blocking bar 205 is inserted into and fits with either of the first plate assembly 201 and the second plate assembly 202, one transverse groove 208 and two longitudinal groove 209 vertically intersected with each other to form two cross-shaped structures are further set on the first plate as-

sembly 201 and the second plate assembly 202; a first insertion hole 206 is positioned at the intersection of the transverse groove 208 and longitudinal groove 209; the blocking bar 205 is provided with a first insertion rod 207, and a position-restricting rod 210 fitting with the transverse groove 208/longitudinal groove 209 is arranged on the first insertion rod 207. The first insertion rod 207 is inserted into the first insertion hole 206 of one of the two cross-shaped structures, and the position-restricting rod 210 is positioned inside the transverse groove 208/longitudinal groove 209.

[0042] As shown in Figs. 1, 4, 5 and 7, in an example, a connector 203 is arranged between the first plate assembly 201 and the second plate assembly 202, so as to make the first plate assembly 201 and the second plate assembly 202 move synchronously. In addition, after the connector 203 is removed, the first plate assembly 201 and the second plate assembly 202 of the translation plate 2 can move back and forth in the direction of both ends of the sliding rod group 5, respectively. As shown in Fig. 7, the connector 203 may be designed to be a plate, thus the plate-shaped connector 203 can increase the area of the translation plate 2.

[0043] In another example, as shown in Fig. 11, the connector 203 may also be designed to be a long strip, which is only used to connect the first plate assembly 201 with the second plate assembly 202.

[0044] As shown in Figs. 5 and 7, a second insertion hole 211 and an insertion groove 214 are set on the first plate assembly 201 and the second plate assembly 202, respectively, designed to be a waist-shaped hole on one and a circular hole on the other; one insertion block 213 and two second insertion rods 212 are disposed on the connector 203, and two second insertion rods 212 are inserted into and fit with the second insertion hole 211 on the first plate assembly 201 and the second plate assembly 202, respectively; the insertion groove 214 on the first plate assembly 201 faces the insertion groove 214 on the second plate assembly 202, so as to accommodate the insertion block 213. The hole is designed to be waist-shaped, so that the insertion structure between the second insertion rod 212 and the second insertion hole 211 has an appropriate adjustment range without need of complete alignment, making insertion more convenient.

[0045] When taking exercise on a fitness device, an exerciser may choose to connect the first plate assembly 201 with the second plate assembly 202 together or use them separately. Therefore, it is necessary to design a mechanism that not only meets safety requirements of users, but also satisfy the exerciser in terms of fastness, simpleness and user-friendliness. Therefore, the fitness device of the present application has two unique structures to connect or lock the plate assembly; thus, the insertion block 213 can slide within the insertion groove 214 through the connector 203 to insert the two second insertion rods 212 into the second insertion hole 211. The connector 203 also has a non-slip surface and can be placed on central rails, so that the exerciser can sit down

and take some exercise, as shown in Fig. 12. Another unique feature of the first plate assembly 201 and the second plate assembly 202 lies in possible arrangement of the blocking bar 205 on either of the two. This means that the exerciser can take exercise over again by way of simply placing the blocking bar 205 on two ends of the first plate assembly 201/second plate assembly 202, as shown in Fig. 12.

[0046] As shown in Figs.1 and 8, the fitness device further includes a first draw spring 6, and the frame 1, the first plate assembly 201 and the second plate assembly 202 are respectively provided with a positioning stake 7; two ends of the first draw spring 6 are respectively hooked on the frame 1 and the first plate assembly 201, or on the frame 1 and the second plate assembly 202, so that the first draw spring 6 can provide an elastic force when the first plate assembly 201 and the second plate assembly 202 slide back and forth.

[0047] In the fitness device of the present application, the first tension spring 6 is arranged below the first plate assembly 201 and the second plate assembly 202, as shown in Fig.8, so that a user can make use of the resistance and elastic force of the first draw spring. Corresponding to this, the positioning stake 7 is arranged on the frame 1, as shown in Fig. 1, which ensures that the first draw spring is not subjected to the resistance from behind.

[0048] As shown in Figs. 1 and 3, in an example, the fitness device further includes a cross bar 403 and a draw rod 402, wherein the cross bar 403 is disposed on the handle rod 4, and the draw rod 402 and the cross bar 403 are pivotally connected with each other. Specifically, the cross bar 403 is fixedly provided with a sleeve piece 404, and the draw rod 402 is rotatably arranged on the sleeve piece 404.

[0049] In another example, as shown in Fig. 10, the draw rod 402 may also be pivotally connected with the handle rod 4 directly.

[0050] As shown in Figs. 1, 3 and 9, one end of the cross bar 403 is provided with a first adjusting tube 405, which slidably fits with the handle rod 4, and is locked by means of an adjusting screw bolt, so that the height of the cross bar 403 adjustable with respect to the handle rod 4 can adapt to exercisers different in height or different exercise postures. At least one adjustable hanging piece 406 is arranged on the handle rod 4, and the adjustable hanging piece 406 includes a second adjusting tube 407 and at least one first hanging ring 408 arranged on the second adjusting tube 407, which is locked through an adjusting screw bolt.

[0051] As shown in Figs.1 and 5, the fitness device further includes an elastic rope 8; a fixing seat 13, an adjusting component 14 and an upright post 15 are arranged on either of the first plate assembly 201 and the second plate assembly 202, and one end of the elastic rope 8 passes through the adjusting component 14 and is fixed on the fixing seat 14; the other end of the elastic rope is provided with a pull ring 81 for hands to hold, which can

encircle the upright post 15. The adjusting component 14 includes two adjusting gears that are arranged opposite to each other, which interact with each other to clamp the elastic rope 8, achieving the function of adjusting the length of the elastic rope 8.

[0052] As shown in Fig. 1, the pull ring 81 and the elastic rope 8 can be detachably connected with each other by means of a hook structure, so that the pull ring 81 can be removed for co-use with a second draw spring 17, which is used to exercise arms and the likes. The middle portion of the elastic rope 8 is connected with a fixed pulley 16 with a hook, and the fixed pulley 16 is hung on the first hanging ring 408 through the hook. At the time of exercising, the fixed pulley 16 can provide a support point for an exerciser to pull the first plate assembly 201 and the second plate assembly 202.

[0053] As shown in Figs. 1 and 3, the handle rod 4 is fixed on the frame 1, and a scale is set on the outer wall of the handle rod 4, making the adjustment of the adjustable hanging piece 406 and the cross bar 403 convenient.

[0054] As shown in Fig. 1, the fitness device further includes a second draw spring 17, and at least one second hanging ring 18 is arranged on the draw rod 402; hooks at both ends of the second draw spring 17 are hooked on the first hanging ring 408 and the second hanging ring 18, respectively.

[0055] As shown in Figs. 1 and 2, a moving guiding rail 19 is arranged on an outer side of the frame 1, and the foot rod 3 is provided with an adjusting block 20, which slidably fits with the moving guiding rail 19. When the foot rod 3 moves to a corresponding position, it is locked by means of a screw bolt. A plurality of pulleys 21 are arranged on the adjusting block 20, so as to easily adjust the adjusting block 20 sliding on the moving guiding rail 19. Wherein, a scale is set on the moving guiding rail 19, making the positioning of the foot rod 3 convenient. In addition, a plurality of through holes (as shown in the figure) are arranged on the moving guiding rail 19 along the latter's length, enabling the foot rod 3 to be freely positioned on the frame 1, thereby meeting requirements for more additional exercise action, as shown in Fig. 12.

[0056] As shown in Fig.2, the foot rod 3 is pivotally connected with the adjusting block 20, which is fan-shaped, and of which the arc edge is provided with a plurality of adjusting holes 22; the foot rod 3 is also provided with a latch 23 and an adjusting handle 24 used to control the latch 23; the latch 23 is arranged at one end of the adjusting handle 24, and the middle portion of the adjusting handle 24 is pivotally connected with the foot rod 3; thus, if the other end of the adjusting handle 24 is pressed, and the latch 23 can be raised free from the adjusting hole 22; if the other end of the adjusting handle 24 is released, the latch 23 is inserted into the adjusting hole 22 to be locked. A plurality of adjusting holes 22 are arranged to enable the foot rod 3 to be adjusted, so as to allow the foot rod 3 to have more different positions. Wherein, a spring used to reset is arranged between the adjusting handle 24 and the foot rod 3, thus, when

the adjusting handle 24 is released, the latch 23 is inserted into the adjusting hole 22 to be locked under an elastic force of the spring. Preferably, the spring is arranged at the pivot connection of the adjusting handle 24 and the foot rod 3, making the structure simple and the adjustment convenient. One end of the adjusting handle 24 is provided with a U-shaped groove, and the latch 23 is jammed in the U-shaped groove to form a stuck connection.

[0057] As shown in Fig. 10, in the present application, the frame 1 includes a first assembly 101, a second assembly 102, a third assembly 103, and a fourth assembly 104. The first assembly 101, the second assembly 102, the third assembly 103 and the fourth assembly 104 are connected end to end respectively to form a frame having an accommodating space composed of the first assembly 101, the second assembly 102, the third assembly 103 and the fourth assembly 104, and the sliding rod group 5 stands in the accommodating space of the frame 1. The first assembly 101 and the second assembly 102 have a surface opposite to each other, the third assembly 103 and the fourth assembly 104 have a surface opposite to each other, and the two ends of the handle rod 4 and the foot rod 3 are connected to the third assembly 103 and the fourth assembly 104 of the frame 1, respectively. A connecting rod 401 is arranged at the bottom of the handle rod 4, and two ends of this connecting rod 401 are respectively connected with the handle rod 4, so as to connect the ends of the third assembly 103 and the fourth assembly 104, making the structure of the handle rod 4 more stable.

[0058] As shown in Fig. 1, the second assembly 102 is provided with a first roller 25 assisting in transport. Wherein, the first roller 25 is arranged on a side wall of the second assembly 102; in addition, when the fitness device is in a non-transport state, the first roller 25 is configured to leave the ground, so that the fitness device can be stably placed on the ground.

[0059] As shown in Fig. 9, the sliding rod group 5 includes a first sliding rail assembly 9, a second sliding rail assembly 10, and a third sliding rail assembly 11. Wherein, one end of any one among the first sliding rail assembly 9, the second sliding rail assembly 10 and the third sliding rail assembly 11 is fixedly connected with the first assembly 101, respectively; the other end of any one among the first sliding rail assembly 9, the second sliding rail assembly 10 and the third sliding rail assembly 11 is fixedly connected with the second assembly 102, respectively; the translation plate 2 moves on the first sliding rail assembly 9 and/or the second sliding rail assembly 10 and/or the third sliding rail assembly 11, and one side of the second sliding rail assembly 10 and the third sliding rail assembly 11 is in contact with the third assembly 103 and the fourth assembly 104, respectively.

[0060] Preferably, the second sliding rail assembly 10 and the third sliding rail assembly 11 are congruent to each other, and the width of the first sliding rail assembly 9 is greater than that of the first sliding rail assembly 9

and/or the second sliding rail assembly 10. Wherein, the first sliding rail assembly 9 is positioned at the middle of the second sliding rail assembly 10 and the third sliding rail assembly 11. Therefore, when the translation plate 2 moves on the sliding rod group composed of the first sliding rail assembly 9, the second sliding rail assembly 10 and the third sliding rail assembly 11, the translation plate 2 moves in an extension direction of the two ends of the first sliding rail assembly 9, the second sliding rail assembly 10 and the third sliding rail assembly 11.

[0061] As shown in Fig. 8, at least eight second rollers 204 are arranged on the first plate assembly 201 and the second plate assembly 202, respectively, and the second rollers 204 are arranged on the surface of the first plate assembly 201 and the second plate assembly 202 facing the sliding rod group 5; when the first plate assembly 201 and/or the second plate assembly 202 move, the second rollers 204 roll on the sliding rod group 5.

[0062] Specifically, the second rollers 204 are distributed on two adjacent sides of the first plate assembly 201/second plate assembly 202, when the first plate assembly 201 moves, the second rollers 204 on the first plate assembly 201 move on the first sliding rail assembly 9 and the second sliding rail assembly 10; in addition, while the first plate assembly 201 is moving on the sliding rod group 5, four second rollers 204 on the first plate assembly 201 roll on the first sliding rail assembly 9, and the other four second rollers 204 roll on the second sliding rail assembly 10. When the second plate assembly 202 moves, the second rollers 204 on the second plate assembly 202 move on the first sliding rail assembly 9 and the third sliding rail assembly 11; in addition, while the second plate assembly 202 is moving on the sliding rod group 5, four second rollers 204 on the second plate assembly 202 roll on the first sliding rail assembly 9, and the other four second rollers 204 roll on the third sliding rail assembly 11.

[0063] As shown in Figs. 1 and 10, the fitness device further includes a stake-bearing stand 12, which is fixedly disposed at one end of the frame 1, and a second stake-bearing stand 12 and a foot stool are arranged at an identical end of the frame 1.

[0064] The above content is only preferred examples of the present invention, does not pose any limitations on the protection scope of the present invention, and all equivalent structural modifications made by way of employing the contents of the description and drawings of the present invention and directly or indirectly applied in other related technical fields fall within the protection scope of the present invention for the same reason.

Claims

1. A fitness device comprising a frame, a sliding rod group, a translation plate, a foot rod and a handle rod, wherein two ends of the sliding rod group are respectively fixed on the frame; the translation plate is

movably arranged on the sliding rod group and moves on the sliding rod group; two ends of the handle rod are fixedly connected to the frame; two ends of the foot rod are movably connected to the frame and move back and forth on the frame.

2. The fitness device according to claim 1, wherein the translation plate includes a first plate assembly and a second plate assembly, the first plate assembly and the second plate assembly are arranged on the sliding rod group side by side, and the first plate assembly and the second plate assembly slidably fit with the sliding rod group. 10
3. The fitness device according to claim 2, wherein it further includes a blocking bar detachably disposed on the first plate assembly and/or the second plate assembly. 15
4. The fitness device according to claim 3, wherein a first insertion hole is arranged on the first plate assembly and/or the second plate assembly, and the blocking bar is provided with a first insertion rod, which is inserted into and fits with the first insertion hole. 20
5. The fitness device according to claim 4, wherein at least one transverse groove and at least one longitudinal groove vertically intersected with each other are further set at the position of the first insertion hole of the first plate assembly and/or the second plate assembly, and the first insertion hole is positioned at the intersection of the transverse groove and longitudinal groove; a position-restricting rod fitting with the transverse groove and/or longitudinal groove is arranged on the first insertion rod. 25
6. The fitness device according to claim 2, wherein it further includes a connector that connects the first plate assembly with the second plate assembly, so as to make the first plate assembly and the second plate assembly move synchronously. 30
7. The fitness device according to claim 6, wherein a second insertion hole is set on the first plate assembly and the second plate assembly, respectively, designed to be a waist-shaped hole on one and a circular hole on the other; two second insertion rods are disposed on the connector, and inserted into and fit with the second insertion holes on the first plate assembly and the second plate assembly, respectively. 35
8. The fitness device according to claim 7, wherein an insertion block is disposed on the connector; an insertion groove is set on the first plate assembly and the second plate assembly, respectively, and the insertion groove on the first plate assembly faces the 40

insertion groove on the second plate assembly, so as to accommodate the insertion block.

9. The fitness device according to claim 2, wherein it further includes a first draw spring, and the frame, the first plate assembly and the second plate assembly are respectively provided with a positioning stake; two ends of the first draw spring are respectively hooked on the frame and the first plate assembly, or on the frame and the second plate assembly. 45
10. The fitness device according to claim 1, wherein it further includes a cross bar and a draw rod, the cross bar is disposed on the handle rod, and the draw rod and the cross bar are pivotally connected with each other.
11. The fitness device according to claim 10, wherein one end of the cross bar is provided with a first adjusting tube, which slidably fits with the handle rod, and is locked by means of an adjusting screw bolt.
12. The fitness device according to claim 10, wherein at least one adjustable hanging piece is arranged on the handle rod, and the adjustable hanging piece includes a second adjusting tube and at least one first hanging ring arranged on the second adjusting tube, which is locked through an adjusting screw bolt.
13. The fitness device according to claim 12, wherein it further includes a second draw spring, and at least one second hanging ring is arranged on the draw rod; hooks at both ends of the second draw spring are hooked on the first hanging ring and the second hanging ring, respectively.
14. The fitness device according to claim 1, wherein a moving guiding rail is arranged on an outer side of the frame, and the foot rod is provided with an adjusting block, which slidably fits with the moving guiding rail.
15. The fitness device according to claim 14, wherein the foot rod is pivotally connected with the adjusting block, which is fan-shaped, and of which the arc edge is provided with a plurality of adjusting holes; the foot rod is also provided with a latch and an adjusting handle used to control the latch, and the latch is inserted into and fits with the adjusting holes. 50

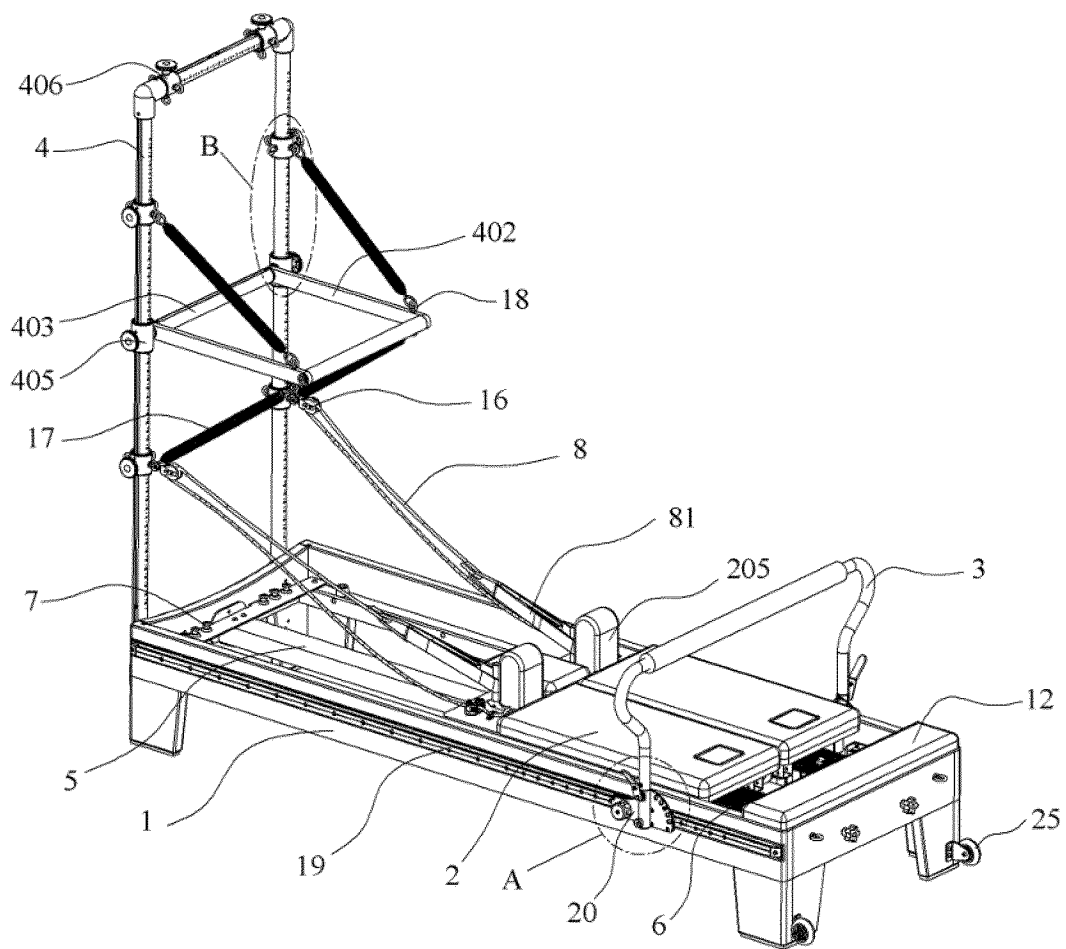


FIG.1

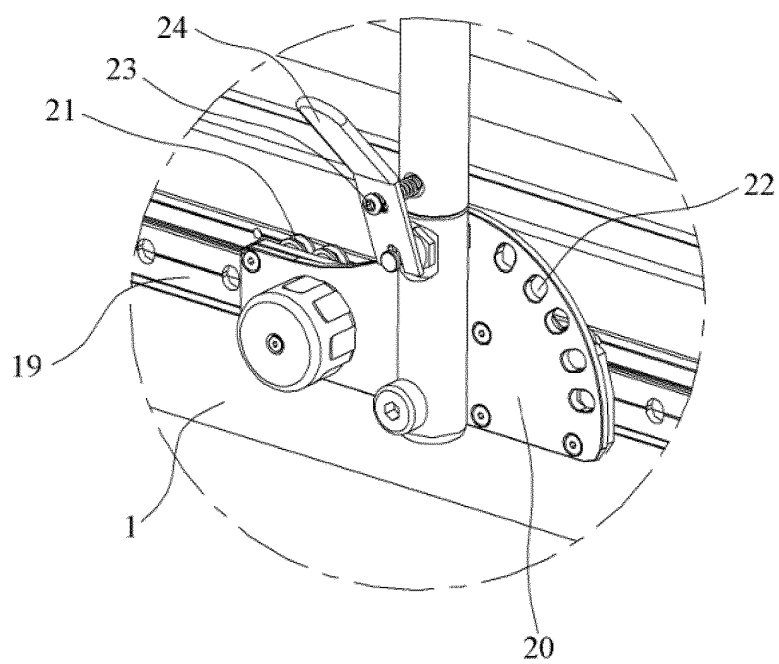


FIG. 2

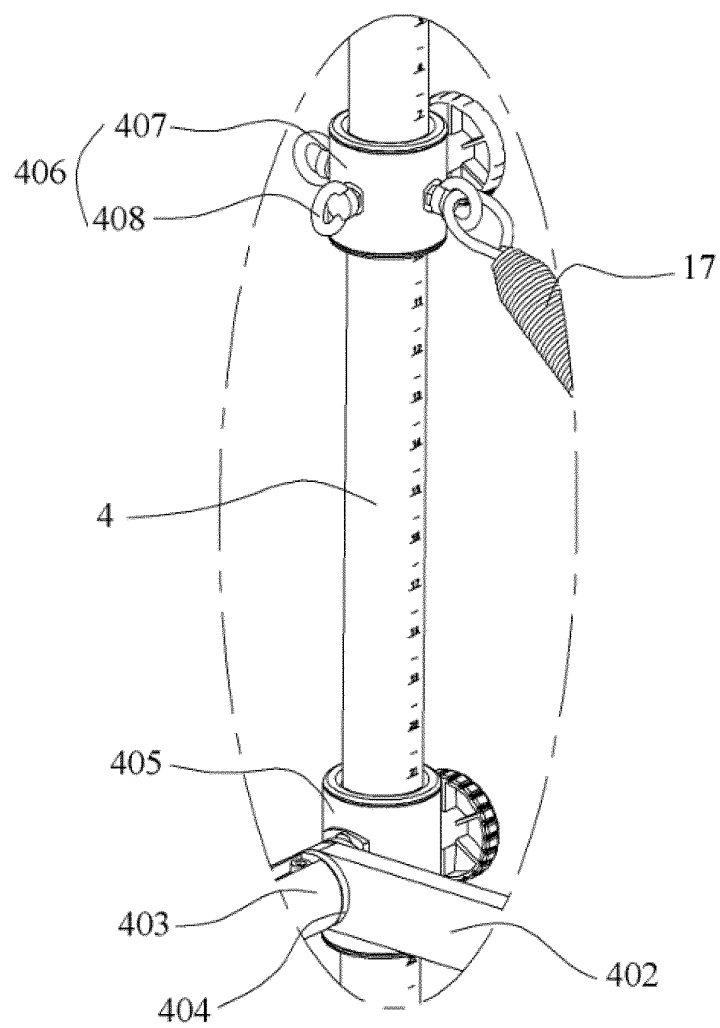


FIG. 3

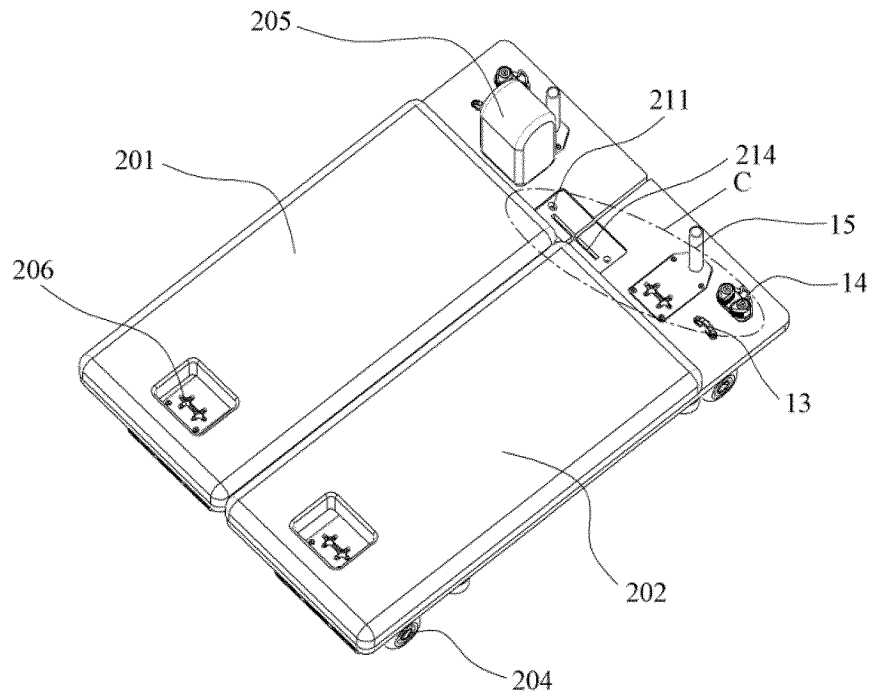


FIG. 4

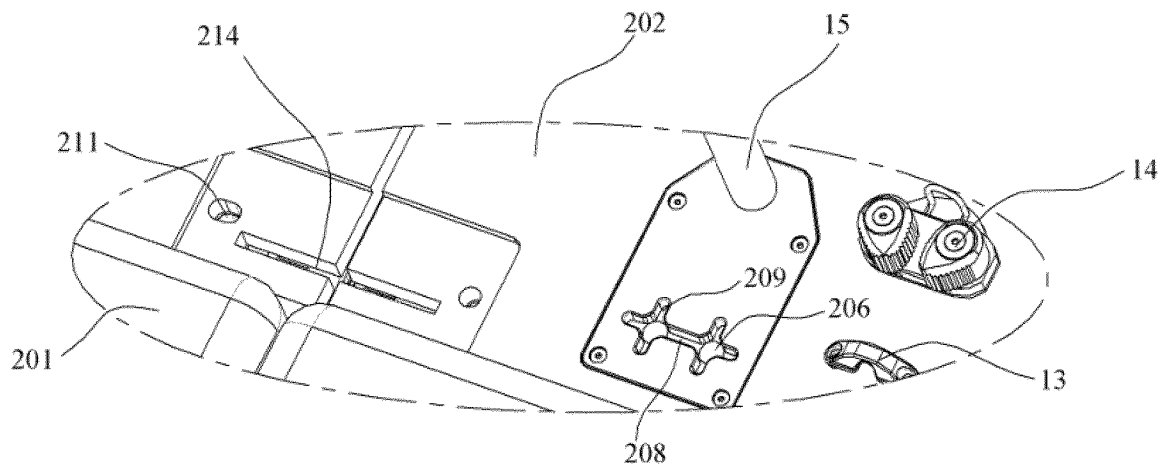


FIG. 5

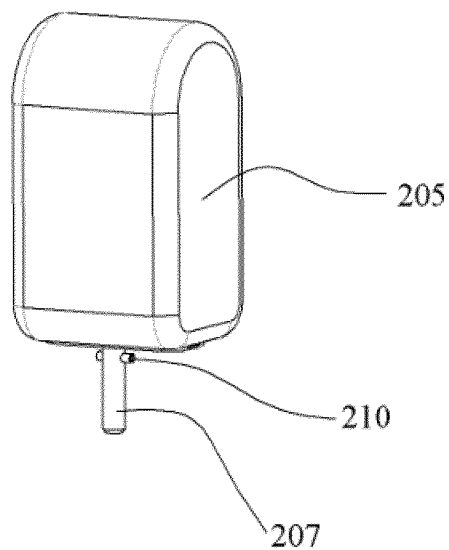


FIG. 6

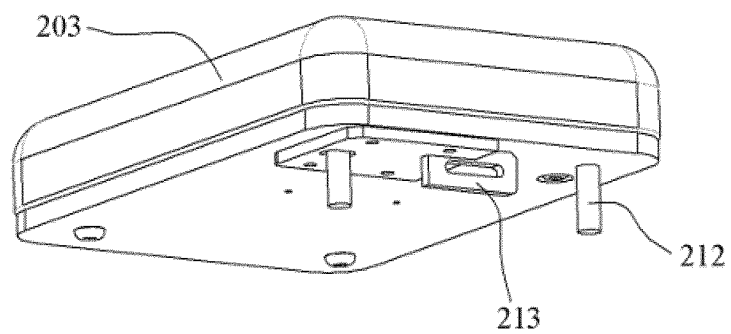


FIG. 7

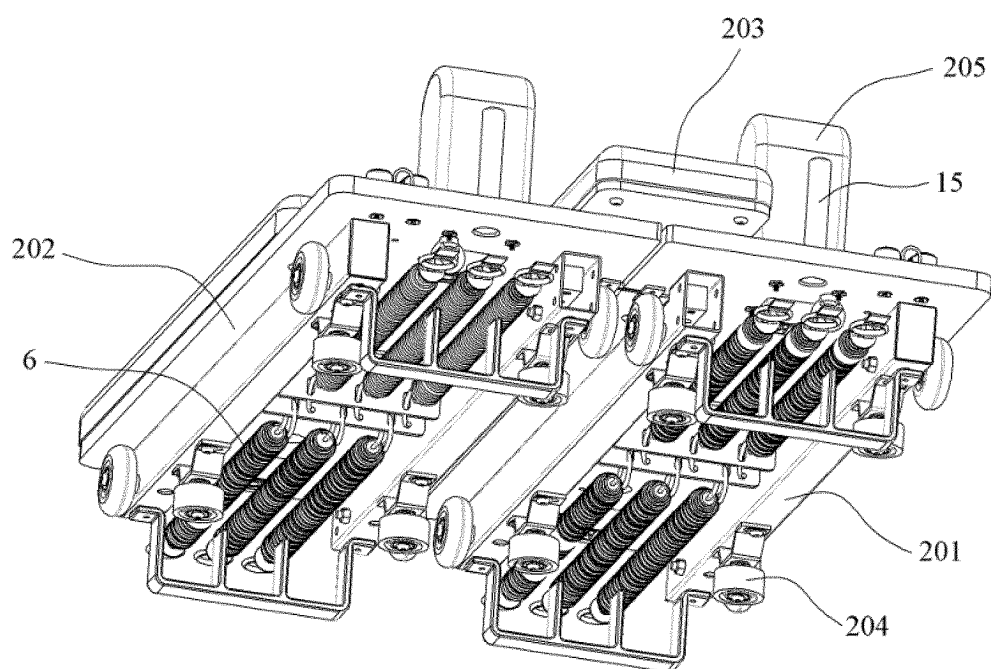


FIG. 8

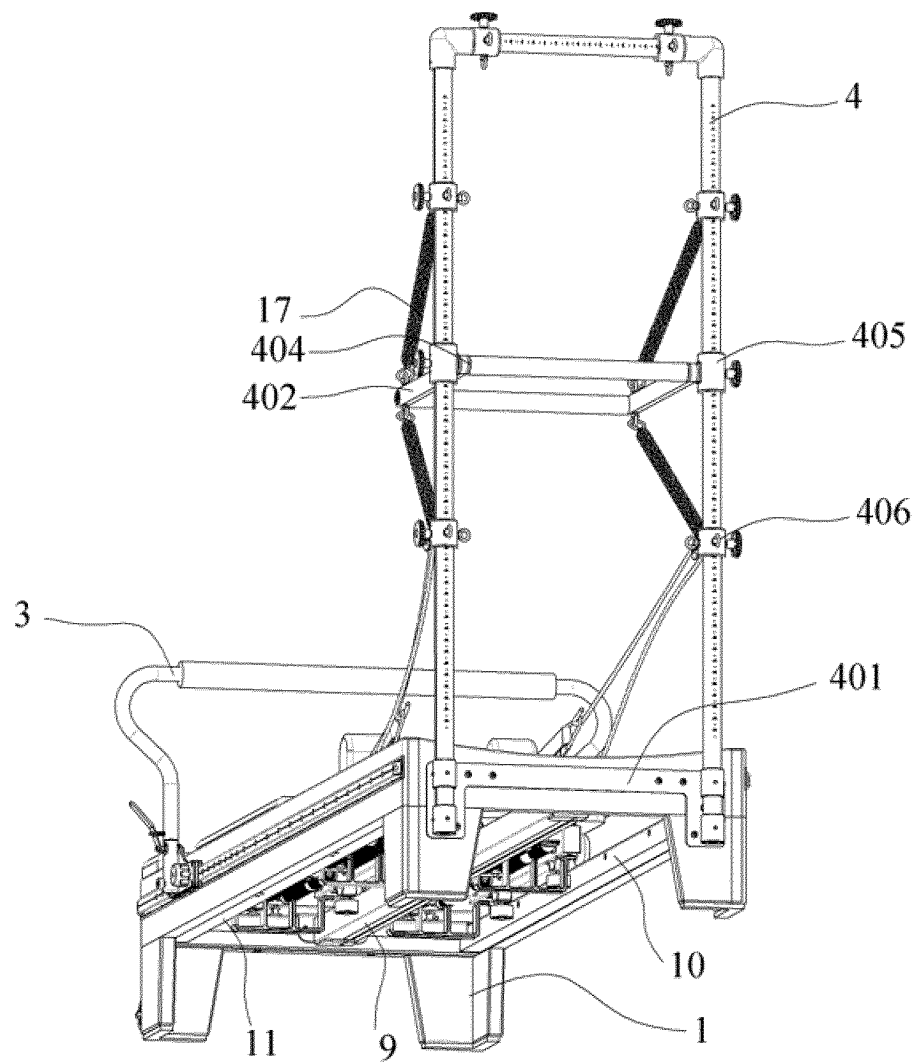


FIG.9

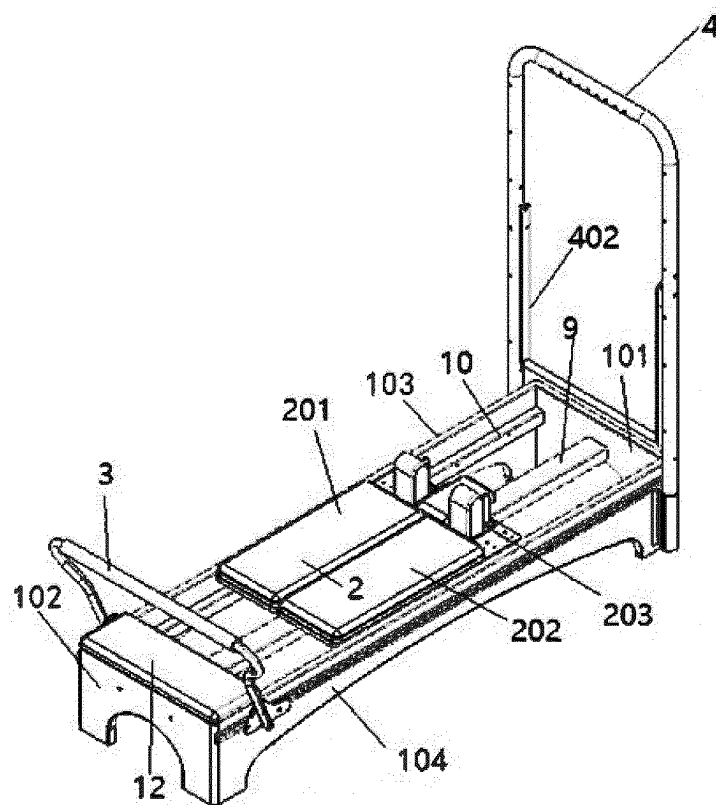


FIG.10

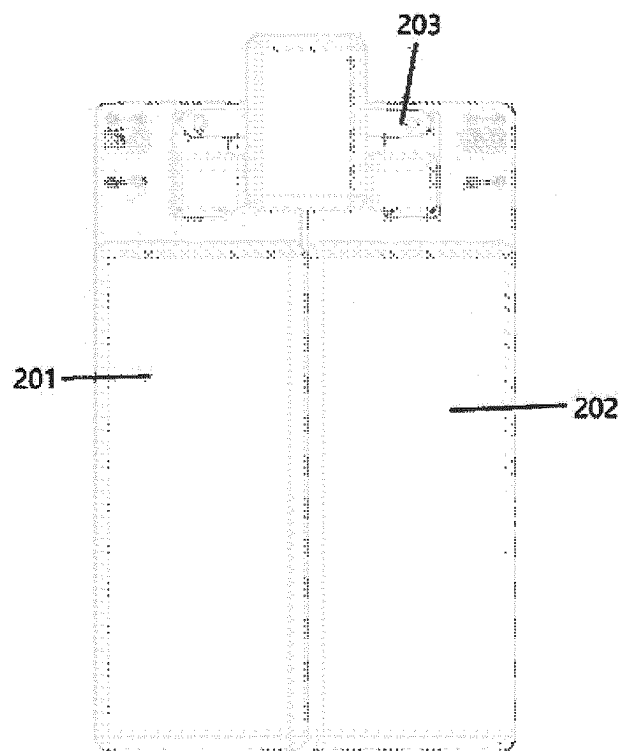


FIG.11

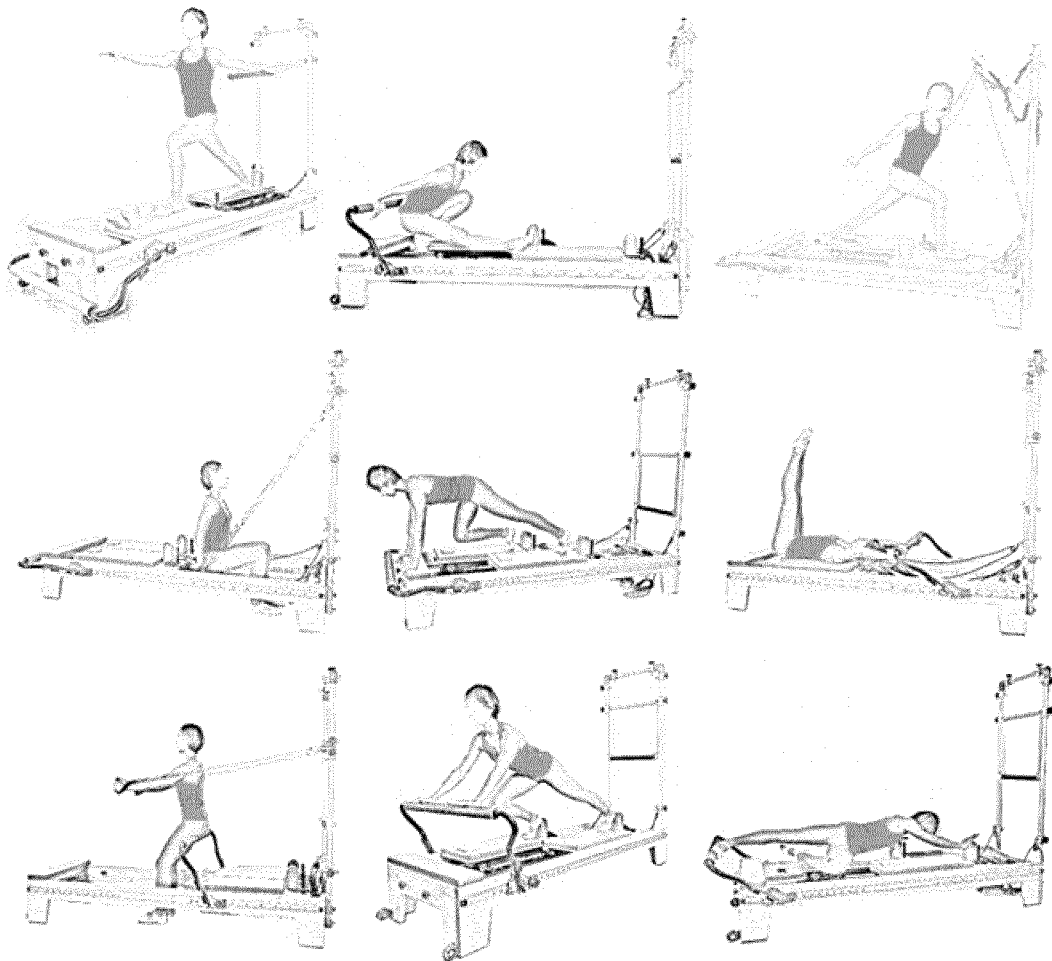


FIG.12

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/138624

A. CLASSIFICATION OF SUBJECT MATTER

A63B22/02(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC:A63B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNTXT, ENTXTC, VEN, CNKI: 普拉提, 大器械, 核心床, 框架, 滑动杆, 滑杆, 板, 移动, 平移, 脚杆, 柄杆, Pilates, machine, core, bed, frame, sliding, pole?, bar?, board, moving, foot, lever, handle

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 217041217 U (SHANGHAI QINGYING FITNESS CO. LTD.) 26 July 2022 (2022-07-26) description, specific embodiments, and figure 1	1-3, 6-9, 14
Y	CN 215025751 U (XUZHOU SANYUAN MEDICINE TECHNOLOGY GROUP CO. LTD.) 07 December 2021 (2021-12-07) description, specific embodiments, and figures 1-3	1-15
Y	CN 206613103 U (HU, Xingshi) 07 November 2017 (2017-11-07) description, specific embodiments, and figures 1 and 2	1-15
Y	CN 212491413 U (WANG, Yao) 09 February 2021 (2021-02-09) description, specific embodiments, and figures 1-4	1-15
Y	CN 104941138 A (BALANCED BODY INC.) 30 September 2015 (2015-09-30) description, specific embodiments, and figure 1	1-15
Y	CN 211327999 U (GUANGZHOU LEEKON FITNESS EQUIPMENT CO. LTD.) 25 August 2020 (2020-08-25) description, specific embodiments, and figure 1	1-15

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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“&” document member of the same patent family

Date of the actual completion of the international search

2023年3月1日

Date of mailing of the international search report

01 August 2023

Name and mailing address of the ISA/CN

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Facsimile No. (86-10)62019451

Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No. PCT/CN2022/138624

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2013210593 A1 (MCBRIDE ROBERT W et al.) 15 August 2013 (2013-08-15) description, specific embodiments, and figure 1	1-15

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2022/138624

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 217041217 U	26 July 2022	None	
CN 215025751 U	07 December 2021	None	
CN 206613103 U	07 November 2017	None	
CN 212491413 U	09 February 2021	None	
CN 104941138 A	30 September 2015	None	
CN 211327999 U	25 August 2020	None	
US 2013210593 A1	15 August 2013	None	

Form PCT/ISA/210 (patent family annex) (July 2022)