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(54) FAST-SWITCHING COMPREHENSIVE TRAINING DEVICE

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Description

[0001] The disclosure relates to a fitness equipment, more particularly to a fast-switching comprehensive training device for fitness.

[0002] With the increasing standard of living, people are increasingly paying attention to their posture and health. As a result, more and more fitness equipments entered people's lives. A popular strength fitness equipment on the market has a single function, for example, a cable machine or a Smith machine, is expensive, has a large volume so that it occupies a large space, and is heavy.

[0003] WO 02/056973 A2 discloses an exercise apparatus comprising a mounting of weight stack units on a framework including wall mounted or free-standing rails, allowing the weight stack units to be moved between various usage positions and a compact storage position. The rails have a collapsible or removable segment, for reducing a footprint of the framework in a storage position. In the storage position, the framework forms a storage space that accommodates the weight stack units, a collapsible user support bench, the barbell, and other accessories. This equipment, which may further include, e.g., a foldable treadmill and screen monitor, a leg extension and curl attachment, and a preacher curl attachment, may be concealed behind panels provided as part of the apparatus. Each weight stack unit may have attached thereto a Smith guide and bearing. A compact arrangement is provided for reducing momentum of lifted weight plates. An exercise handle assembly has added degrees of freedom to facilitate user forearm and wrist rotation.

[0004] CN 104 225 876 B discloses an exercise apparatus including a frame with a pair of vertical guides. A carriage is slidably carried on each of the guides. Each of the carriages has a locking mechanism to lock the carriage at a selected vertical position and a release to disengage the locking mechanism. A horizontal exercise bar is slidably carried on guide rods. First and second cables are coupled to a selectable exercise resistance, each of the cables having an end selectively coupled to either the respective carriage or to a respective bracket at the end of the exercise bar. Secondary brackets on the exercise bar are configured to engage respective ones of the carriage releases and grab the carriage so as to selectively engage and disengage the locking mechanisms upon axial rotation of the exercise bar and raise and lower the carriages with the exercise bar.

[0005] WO 2018/086028 A1 discloses a multifunctional comprehensive Smith trainer comprising two parallel bases. A supporting upright post is vertically disposed on each base. A sliding wheel mounting frame is connected to the supporting upright post by means of a bent portion. A downward compression bar mounting upright post is connected to the front end of the sliding wheel mounting frame, and the other end of the downward compression bar mounting upright post is connected to the

base. Multiple pin holes are uniformly formed on the downward compression bar mounting upright post. An arm-bending downward compression rod, a hook and a chest developer mounting base are connected to the downward compression bar mounting upright post from the bottom to the top by means of movable pins. A steering sliding wheel is connected to the chest developer mounting base, and a chest developer is connected to the steering sliding wheel. A track mounting rod is disposed on one side of the downward compression bar mounting upright post. Tracks are connected to the track mounting rod, the tracks are parallel to the track mounting rod, and a laying push rod is disposed between the tracks.

[0006] WO 2007/061410 A1 discloses an adjustable lifting apparatus, comprising, in combination, a base, multiple cords connected to the base, a mover to be moved along a slide path in response to force exertion by the user's arms or legs, a connection or connections between the mover and one or more of the cords.

[0007] A retractable Smith machine, as disclosed in Chinese Patent No. CN207898846U, has both ends of a barbell extending out of a frame thereof to increase the counterweight. However, the counterweight cannot be increased or decreased in a quick and convenient manner.

[0008] Therefore, an object of the present disclosure is to provide a fast-switching comprehensive training device that is capable of alleviating at least one of the drawbacks of the prior art.

[0009] This object is solved by a fast-switching comprehensive training device according to the independent claim.

[0010] According to this disclosure, the fast-switching comprehensive training device comprises a main frame, two cable and pulley assemblies, a barbell unit, two counterweight units and two tension rope units. The main frame includes a middle portion, two side frame portions connected to two opposite ends of the middle portion, two pairs of counterweight guide rods respectively disposed on the side frame portions, and two pairs of cushion pads respectively disposed on bottom portions of the pairs of the counterweight guide rods. Each side frame portion includes a bottom rod, a top rod opposite to the bottom rod, and at least one vertical rod connected between the bottom rod and the top rod and spaced apart from and parallel to a corresponding one pair of the counterweight guide rods. The at least one vertical rod has a plurality of hanging holes spaced apart from each other along a length thereof.

[0011] The cable and pulley assemblies are symmetrically disposed on the side frame portions. Each cable and pulley assembly includes an adjustment tube connected between the bottom rod and the top rod and spaced apart from and parallel to the at least one vertical rod, a first sliding seat slidably sleeved on the adjustment tube, an adjustment pin removably inserted into the first sliding seat, two spaced-apart first upper pulleys mounted on the top rod, two second upper pulleys disposed

below the first upper pulleys, two lower pulleys mounted on the bottom rod, and a cable member having a first end, a second end opposite to the first end, and an intermediate section connected between the first end and the second end. The adjustment tube has a plurality of height adjustment holes spaced apart from each other along a length thereof.

[0012] The barbell unit includes two sliding guide rods respectively disposed on the side frame portions, two second sliding seats sleeved slidably and respectively on the sliding guide rods, an exercise bar having two opposite ends connected fixedly and respectively to the second sliding seats, and two hook members rotatably disposed on the exercise bar in proximity to the two opposite ends thereof. Each sliding guide rod is connected between the bottom rod and the top rod of a respective one of the side frame portions, and is located between the at least one vertical rod and the adjustment tube. Each hook member is removably hooked to a selected one of the hanging holes in the at least one vertical rod of the respective side frame portion so as to position each second sliding seat relative to the at least one vertical rod of the respective side frame portion and a corresponding one of the sliding guide rods.

[0013] The counterweight units are respectively disposed on the side frame portions and are respectively movable along the pairs of counterweight guide rods. Each counterweight unit includes a pulley bracket disposed on top thereof, and a counterweight pulley pivotally connected to the pulley bracket. Each tension rope unit includes a plurality of tension ropes.

[0014] When the adjustment pin is inserted into the first sliding seat and extends into a corresponding one of the height adjustment holes, the first sliding seat is fixed to the adjustment tube at a desired height.

[0015] The first end of the cable member is movable between a first position, in which the first end of the cable member is positioned on the first sliding seat to place the fast-switching comprehensive training device in a first exercise mode, and a second position, in which the first end of the cable member is positioned on the second sliding seat to place the fast-switching comprehensive training device in a second exercise mode.

[0016] The second end of the cable member is positioned on the first sliding seat opposite to the first end, and the intermediate section of the cable member is looped around the lower pulleys, the second upper pulleys, the counterweight pulley and the first upper pulleys.

[0017] Each tension rope has one end hooked to the bottom rod, and the other end removably hooked to a corresponding one of the counterweight units.

[0018] Other features and advantages of the disclosure will become apparent in the following detailed description of the embodiments with reference to the accompanying drawings, in which:

FIG. 1 is a schematic front view of a fast-switching comprehensive training device according to the first

embodiment of the present disclosure;

FIG. 2 is a perspective view of the first embodiment; FIG. 3 is a schematic side view of the first embodiment;

FIG. 4 is an enlarged view of an encircled portion A of FIG. 3;

FIG. 5 is a view similar to FIG. 4, but with a first end of a cable member being positioned on a first sliding seat;

FIG. 6 is a schematic side view of a fast-switching comprehensive training device according to the second embodiment of the present disclosure; and FIGS. 7 to 18 depict different exercises that can be performed using the fast-switching comprehensive training device of this disclosure.

[0019] Before the present disclosure is described in greater detail with reference to the accompanying embodiments, it should be noted herein that like elements are denoted by the same reference numerals throughout the disclosure.

[0020] Referring to FIGS. 1 to 3, a fast-switching comprehensive training device 100 according to the first embodiment of the present disclosure is shown to comprise a main frame 10, two cable and pulley assemblies 20, a barbell unit 30, two counterweight units 50, a plurality of handles or handgrips 70, and two tension rope units 80.

[0021] The main frame 10 includes a middle portion 11, two side frame portions 12 connected to two opposite ends of the middle portion 11 and cooperating with the middle portion 11 to form a U-shaped frame body, two pairs of counterweight guide rods 13 respectively disposed on the side frame portions 12, and two pairs of cushion pads 14 respectively disposed on bottom portions of the pairs of counterweight guide rods 13. Each side frame portion 12 includes a bottom rod 121, a top rod 122 opposite to the bottom rod 121, a vertical rod 123 connected between the bottom and top rods 121, 122 at inner ends thereof, a vertical rod 123' connected between the bottom and top rods 121, 122 in proximity to outer ends thereof, two spaced-apart fixed plates 124 disposed on the bottom rod 121, two storage hooks 125 respectively connected to the vertical rods 123, 123' and located between the bottom and top rods 121, 122, a cross rod 126 connected between the vertical rods 123, 123' and located adjacent to and spaced apart from the top rod 122, a pair of first upper pulley brackets 127 having three sides respectively connected to the top rod 122, the cross rod 126 and the vertical rod 123', a pair of second upper pulley brackets 128 connected to the top rod 122 and located between the outer end of the top rod 122 and the vertical rod 123', and a pair of lower pulley brackets 129 connected to the bottom rod 121.

[0022] Each pair of counterweight guide rods 13 is connected between the bottom rod 121 and the cross rod 126 and is located between the vertical rods 123, 123'. The vertical rod 123' is formed with a plurality of hanging holes 1231 spaced apart from each other along a length

thereof. Each fixed plate 124 is located between one of the vertical rods 123, 123' and a corresponding one of the pair of counterweight guide rods 13, and is formed with a plurality of fixing holes 1241. The storage hooks 125 are respectively proximate to the fixed plates 124. The lower pulley brackets 129 have major portions located between the outer end of the bottom rod 121 and the vertical rod 123', and minor portions extending through the vertical rod 123'.

[0023] The cable and pulley assemblies 20 are symmetrically disposed on the side frame portions 12. Each cable and pulley assembly 20 includes an adjustment tube 21 connected between the pair of lower pulley brackets 129 and the pair of second upper pulley brackets 128 of a respective one of the side frame portions 12 and spaced apart from and parallel to the vertical rod 123', a first sliding seat 22 slidably sleeved on the adjustment tube 21, an adjustment pin 23 removably inserted into the first sliding seat 22, two first upper pulleys 24, two second upper pulleys 25, two lower pulleys 26, a cable member 60, and a retaining unit. The adjustment tube 21 has a plurality of height adjustment holes 211 spaced apart from each other along a length thereof. One of the first upper pulleys 24 is pivotally connected to the pair of first upper pulley brackets 127 at one side thereof that is connected to the top rod 122, while the other first upper pulley 24 is pivotally connected to the pair of second upper pulley brackets 128. The second upper pulleys 25 are pivotally connected to the pair of first upper pulley brackets 127 at the other two sides thereof that are respectively connected to the cross rod 126 and the vertical rod 123'. The lower pulleys 26 are pivotally connected to the pair of lower pulley brackets 129.

[0024] Referring to FIGS. 4 and 5, in combination with FIGS. 1 to 3, the first sliding seat 22 includes a first sliding seat body 221 slidably sleeved on the adjustment tube 21, a pivoting member 222 connected to one side of the first sliding seat body 221, a pair of pulleys 223 pivotally connected to and disposed side by side in the pivoting member 222, a U-shaped first fixing member 224 connected to the other side of the first sliding seat body 221 and opposite to the pivoting member 222, and a first positioning plate 225 connected to the first sliding seat body 221 and located below the first fixing member 224. The first fixing member 224 has a pair of first pin holes 226. The first positioning plate 225 has a first positioning hole 227 defined by a C-shaped wall and tapering inwardly from a top surface of the first positioning plate 225. When the adjustment pin 23 is inserted into the first sliding seat body 221 and extends into a corresponding one of the height adjustment holes 211, the first sliding seat 22 is fixed to the adjustment tube 21 at a desired height.

[0025] The cable member 60 has a first end 61, a second end 62 opposite to the first end 61, and an intermediate section 63 connected between the first and second ends 61, 62. The retaining unit includes a retaining ball 613 connected to the first end 61, a fastening piece 611 fixed on top of the retaining ball 613, and an insert pin

612. The intermediate section 63 is looped around the lower pulleys 26, the second upper pulleys 25, a counterweight pulley 522 of the counterweight unit 50, and the first upper pulleys 24. The second end 62 passes between the pair of pulleys 223, and is connected with a retaining ball 621 to retain externally of the pivoting member 222 for connection with one of the handles 70.

[0026] The barbell unit 30 includes two sliding guide rods 32, two second sliding seats 33, an exercise bar 40 and two hook members 34. Each sliding guide rod 32 is connected between the pair of second upper pulley brackets 128 and the pair of lower pulley brackets 129, and is parallel to and located between the vertical rod 123' and the adjustment tube 21.

[0027] Each second sliding seat 33 includes a second sliding seat body 331 sleeved slidably on a respective one of the sliding guide rods 32, a U-shaped second fixing member 332 fixed to one side of the second sliding seat body 331 that is proximate to the adjustment tube 21, and a second positioning plate 333 connected to the second sliding seat body 331 and located below the second fixing member 332. The second fixing member 333 has a pair of second pin holes 334. The second positioning plate 333 has a second positioning hole 335 defined by a C-shaped wall and tapering inwardly from a top surface of the second positioning plate 335. The one side of the first sliding seat body 221 is distal to a corresponding one of the sliding guide rods 32. That is, the pivoting member 222 is located distal to the corresponding sliding guide rod 32.

[0028] The first end 61 of the cable member 60 is movable between a first position and a second position. In the first position, as shown in FIG. 5, the first end 61 of the cable member 60 is positioned on the first sliding seat 22 to place the comprehensive training device 100 in a first exercise mode, in which various cable machine exercises may be performed. In the second position, as shown in FIG. 4, the first end 61 of the cable member 60 is positioned on the second sliding seat 33 to place the comprehensive training device 100 in a second exercise mode, in which various Smith machine exercises may be performed.

[0029] The insert pin 612 of the retaining unit is configured for positioning the first end 61 of the cable member 60 in the first position or the second position. Specifically, the insert pin 612 is removably inserted into the pair of first pin holes 226 and a hole in the fastening piece 611 to position the first end 61 of the cable member 60 at the first position, and is removably inserted into the pair of second pin holes 334 and the hole in the fastening piece 611 to position the first end 61 of the cable member 60 at the second position. The retaining ball 613 abuts against the first positioning plate 225 when the first end 61 of the cable member 60 is at the first position, and abuts against the second positioning plate 333 when the first end 61 of the cable member 60 is at the second position.

[0030] The exercise bar 40 has two opposite ends con-

nected fixedly and respectively to the second sliding seat bodies 331 of the second sliding seats 33. The hook members 34 are rotatably disposed on the exercise bar 40 in proximity to the two opposite ends thereof. Each hook member 34 is removably hooked to a selected one of the hanging holes 311 in the vertical rod 123' of the respective side frame portion 12 so as to position each second sliding seat 33 relative to the vertical rod 123' of the respective side frame portion 12 and a corresponding one of the sliding guide rods 32.

[0031] The counterweight units 50 are respectively disposed on the side frame portions 12, and are respectively movable along the pairs of counterweight guide rods 13. Each counterweight unit 50 includes a tension rope selection rack 51 sleeved on a corresponding one pair of the counterweight guide rods 13, a selection rod 52 inserted into the tension rope selection rack 51 at a central portion thereof and transverse to the bottom rod 121 and the top rod 122, a plurality of counterweights 53 sleeved on the selection rod 52 and the corresponding one pair of the counterweight guide rods 13, and a selection pin 54. The tension rope selection rack 51 has a pair of hangers 511 located at two opposite sides thereof which respectively face the vertical rods 123, 123'. The selection rod 52 has a plurality of insertion holes 523 spaced apart from each other along a length thereof, and a pulley bracket 521 disposed on top thereof. The counterweight pulley 522 is pivotally connected to the pulley bracket 521. Each counterweight 53 has a rectangular shape, and is formed with a through hole 531 at a central portion thereof and extending in a width direction thereof. The selection pin 54 is removably inserted into the through hole 531 of a selected one of the counterweights 53 and a corresponding one of the insertion holes 523 in the selection rod 52.

[0032] The handles or handgrips 70 are removably and selectively connected to the second ends 62 of the cable members 60, and may include two triangular handgrips, a short grip bar, a U-shaped handgrip, a long grip bar, etc.

[0033] Each tension rope unit 80 includes a plurality of tension ropes 81 equally disposed on the two opposite sides of the tension rope selection rack 51. Each tension rope 81 has one end hooked to one of the fixing holes 1241 in a corresponding one of the fixing plates 124, and the other end which may be selectively hooked to one of the hangers 511 or one of the storage hooks 125. That is, during exercise, the other end of each tension rope 81 is hooked to one of the hangers 511 so that each tension rope 81 can provide an elastic resistance. Because each user needs different elastic resistance, the number of the tension ropes 81 hooked to the hangers 511 may be adjusted. The other ends of the tension ropes 81 that are not needed may be hooked to the corresponding storage hooks 125.

[0034] With reference to FIGS. 1 and 2, when the adjustment pin 23 of each cable and pulley assembly 20 is pulled out from the first sliding seat 22 of the respective cable and pulley assembly 20, the height of the first slid-

ing seat 22 relative to the adjustment tube 21 can be adjusted by sliding the first sliding seat 22 along the length of the adjustment tube 21. After a desired height of the first sliding seat 22 relative to the adjustment tube 21 is reached, the adjustment pin 23 is then inserted into the first sliding seat 22 and the corresponding height adjustment hole 211 to fix the first sliding seat 22 to the adjustment tube 21. Hence, since the height of the first sliding seat 22 of each cable and pulley assembly 20 can be adjusted, a prestressed force provided by each tension rope unit 80 to the cable member 60 of each cable and pulley assembly 20 can also be adjusted.

[0035] Further, when a user pulls the handles 70, through the intermediate section 63 of the cable member 60 of each cable and pulley assembly 20 that loops around the counterweight pulley 522 of the corresponding counterweight unit 50, each counterweight unit 50 can be moved, and through the weight of each counterweight unit 50 and the elasticity of each tension rope unit 80, the first exercise mode can be performed. At this time, the barbell unit 30 is not connected to the counterweight units 50.

[0036] With reference to FIGS. 2 and 4, when the first end 61 of the cable member 60 is positioned on the second positioning plate 333 through the retaining ball 613 and through the insertion of the insert pin 612 into the pair of second pin holes 334 of the second fixing member 332 and the hole in the fastening piece 611, the second end 62 of the cable member 60 is retained externally of the pivoting member 222 through the retaining ball 621, and the intermediate section 63 of the cable member 60 is looped around the the lower pulleys 26, the second upper pulleys 25, the counterweight pulley 522 and the first upper pulleys 24. Through this, the first sliding seat 22, the first end 61 of the cable member 60, the lower pulleys 26, the second upper pulleys 25, the counterweight pulley 522, the first upper pulleys 24, and the second end 62 of the cable member 60 disposed on each side frame portion 12 form a loop.

[0037] When the height of each second sliding seat 33 relative to the respective sliding guide rod 32 is adjusted, and each hook member 34 is hooked to a selected one of the hanging holes 1231, each second sliding seat 33 can be fixed to the respective sliding guide rod 32 at a desired height. Since the height of each second sliding seat 33 can be adjusted, the prestressed force provided by each tension rope unit 80 to the cable member 60 of the respective cable and pulley assembly 20 can also be adjusted.

[0038] When each hook member 34 is removed from the selected one of the hanging holes 1231, and the user pulls the exercise bar 40, through the intermediate section 63 of the cable member 60 of each cable and pulley assembly 20 that loops around the counterweight pulley 522 of the corresponding counterweight unit 50, each counterweight unit 50 can be moved, and through the weight of each counterweight unit 50 and the elasticity of each tension rope unit 80, the second exercise mode

can be performed. At this time, since the length of the cable member 60 of each cable and pulley assembly 20 is fixed, it is not advisable to use the cable and pulley assemblies 20.

[0039] Therefore, through the configurations of the cable and pulley assemblies 20 and the barbell unit 30, and with the first end 61 of the cable member 60 of each cable and pulley assembly 20 being able to be moved and positioned on the first fixing member 224 or the second fixing member 332, the comprehensive training device 100 of this disclosure can be quickly switched between the first exercise mode and the second exercise mode. To switch between the exercise modes, it is only necessary to pull out the insert pin 612 from one of the pair of first pin holes 226 and the pair of second pin holes 334 and then insert it to the other one of the pair of first pin holes 226 and the pair of second pin holes 334. By combining two devices into one, this disclosure has a reduced cost, and does not occupy a substantial area.

[0040] Furthermore, according to the needs of the user, the selection pin 54 can be inserted into the through hole 531 of a selected one of the counterweights 513 and a corresponding one of the insertion holes 523 in the selection rod 52, and the number of the tension ropes 81 can be selected by hooking each tension rope 81 between one of the hangers 511 and one of the fixing holes 1241 in the corresponding fixed plate 124.

[0041] Referring to FIG. 6, the second embodiment of the fast-switching comprehensive training device 100 of this disclosure differs from the first embodiment in that each counterweight unit 50' includes a plurality of the tension rope selection racks 51' sleeved on the selection rod 52 and the pair of counterweight guide rods 13, and the selection pin 54 is removably inserted into a selected one of the tension rope selection racks 51' and a corresponding one of the insertion holes 523 (see FIG. 2) in the selection rod 52. The counterweights 53 (see FIGS. 1 and 2) are not provided in this embodiment. Each tension rope selection rack 51' is similarly provided with a pair of hangers 511 at the two opposite sides thereof. Each tension rope 81 of the tension rope unit 80 has the one end hooked to one of the fixing holes 1241 in a corresponding one of the fixed plates 124, and the other end hooked to one of the hangers 511 of a corresponding one of the tension rope selection racks 51'. Each pair of counterweight guide rods 13 is fixedly connected with a pair of cushion pads 14. The second embodiment can achieve the same operation purpose and fitness effect as the first embodiment.

[0042] The operation of this disclosure is described below.

[0043] Referring to FIGS. 7 and 8, in combination with FIG. 4, when the first end 61 of the cable member 60 of each cable and pulley assembly 20 is positioned on the second fixing member 332 of the corresponding second sliding seat 33, and each hook member 34 is removed from the corresponding hanging hole 1231, the user can perform a squat exercise, as shown in FIG. 7, and a dead

lift exercise, as shown in FIG. 8. During use, each second sliding seat 33 is slidable along the length of the respective sliding guide rod 32, and with the middle section 63 of the cable member 63 of each cable and pulley assembly 20 looping around the respective counterweight pulley 522 so that each counterweight unit 50 can be moved, and through the weight of each counterweight unit 50 and the elasticity of each tension rope unit 80, the Smith machine exercises can be performed by the user.

[0044] Referring to FIGS. 9 to 18, in combination with FIG. 5, when the comprehensive training device 100 of this disclosure is switched from the Smith machine exercise mode to the cable machine exercise mode, the first end 61 of the cable member 60 of each cable and pulley assembly 20 is positioned on the first fixing member 224 of the first sliding seat 22 of the corresponding cable and pulley assembly 20, each hook member 34 is hooked to a selected one of the hanging holes 1231, and the height of the first sliding seat 22 of each cable and pulley assembly 20 is adjusted by the user according to his requirement. In cooperation with the different handles 70 connected to the second end 62 of the cable member 60 of each cable and pulley assembly 20, the cable member 60 can be driven when the handle 70 is pulled, and with the middle section 63 of the cable member 63 of each cable and pulley assembly 20 looping around the counterweight pulley 522 of the corresponding counterweight unit 50 so as to move the same, and through the weight of each counterweight unit 50 and the elasticity of each tension rope unit 80, the user can perform a stand biceps curls exercise, as shown in FIG. 9, a front raise exercise, as shown in FIG. 10, a cable one-hand front laterals exercise, as shown in FIG. 11, a triceps extension exercise, as shown in FIG. 12, a triceps push down exercise, as shown in FIG. 13, a one-hand pull down exercise, as shown in FIG. 14, an incline pectoral fly exercise, as shown in FIG. 15, a side pull exercise, as shown in FIG. 16, a cable kickback exercise, as shown in FIG. 17, and a bar pull exercise, as shown in FIG. 18.

[0045] In summary, the effect of this disclosure resides in that, when the first and second ends 61, 62 of the cable member 60 of each cable and pulley assembly 20 are positioned on the first sliding seat 22 of the corresponding cable and pulley assembly 20, the cable machine exercises can be performed by the user; and, when the first end 61 of the cable member 60 of each cable and pulley assembly 20 is positioned on the corresponding second sliding seat 33, the Smith machine exercises can be performed by the user.

Claims

1. A fast-switching comprehensive training device (100) comprising:
 - a main frame (10) including a middle portion (11), two side frame portions (12) connected to

two opposite ends of said middle portion (11), and two pairs of counterweight guide rods (13) respectively disposed on said side frame portions (12), each of said side frame portions (12) including a bottom rod (121), a top rod (122) opposite to said bottom rod (121), and at least one vertical rod (123') having a plurality of hanging holes (1231) spaced apart from each other along a length thereof; and two counterweight units (50) respectively disposed on said side frame portions (12) and respectively movable along said pairs of counterweight guide rods (13), each of said counterweight units (50) including a pulley bracket (521) disposed on top thereof, and a counterweight pulley (522) pivotally connected to said pulley bracket (521);

characterized in that

said main frame (10) further including two pairs of cushion pads (14) respectively disposed on bottom portions of said pairs of said counterweight guide rods (13), said at least one vertical rod (123') being connected between said bottom rod (121) and said top rod (122) in proximity to outer ends thereof and spaced apart from and parallel to a corresponding one pair of said counterweight guide rods (13);

each of said side frame portions (12) further including a pair of first upper pulley brackets (127), a pair of second upper pulley brackets (128) connected to said top rod (122) and located between said outer end of said top rod (122) and said at least one vertical rod (123'), and a pair of lower pulley brackets (129) connected to said bottom rod (121), said pair of first upper pulley brackets (127) having one side connected to said top rod (122), another side connected to said at least one vertical rod (123'), and a third side between said one side and said another side;

said fast-switching comprehensive training device (100) further comprises:

two cable and pulley assemblies (20) symmetrically disposed on said side frame portions (12), each of said cable and pulley assemblies (20) including an adjustment tube (21) connected between said pair of lower pulley brackets (129) and said pair of second upper pulley brackets (128) of a respective one of said side frame portions (12) and spaced apart from and parallel to said at least one vertical rod (123'), a first sliding seat (22) slidably sleeved on said adjustment tube (21), an adjustment pin (23) removably inserted into said first sliding seat (22), two spaced-apart first upper pulleys (24) mounted on said top rod (122), two second upper pulleys (25) disposed below said

first upper pulleys (24), two lower pulleys (26) mounted on said bottom rod (121), and a cable member (60) having a first end (61), a second end (62) opposite to said first end (61), and an intermediate section (63) connected between said first end (61) and said second end (62) of said cable member (60), said adjustment tube (21) having a plurality of height adjustment holes (211) spaced apart from each other along a length thereof, one of said first upper pulleys (24) being pivotally connected to said pair of first upper pulley brackets (127), the other one of said first upper pulleys (24) being pivotally connected to said pair of second upper pulley brackets (128), said second upper pulleys (25) being pivotally connected to said pair of first upper pulley brackets (127) at said another side and said third side, respectively;

a barbell unit (30) including two sliding guide rods (32) respectively disposed on said side frame portions (12), two second sliding seats (33) sleeved slidably and respectively on said sliding guide rods (32), an exercise bar (40) having two opposite ends connected fixedly and respectively to said second sliding seats (33), and two hook members (34) rotatably disposed on said exercise bar (40) in proximity to said two opposite ends thereof, each of said sliding guide rods (32) being connected between said pair of lower pulley brackets (129) and said pair of second upper pulley brackets (128) of a respective one of said side frame portions (12), and being located between said at least one vertical rod (123') and said adjustment tube (21), each of said hook members (34) being removably hooked to a selected one of said hanging holes (311) in said at least one vertical rod (123') of the respective one of said side frame portions (12) so as to position each of said second sliding seats (33) relative to said at least one vertical rod (123') of the respective one of said side frame portions (12) and a corresponding one of said sliding guide rods (32); and

two tension rope units (80), each of said tension rope units (80) including a plurality of tension ropes (81);

wherein, when said adjustment pin (23) is inserted into said first sliding seat (22) and extends into a corresponding one of said height adjustment holes (211), said first sliding seat (22) is fixed to said adjustment tube (21) at a desired height;

wherein said first end (61) of said cable member (60) is movable between a first po-

- sition, in which said first end (61) of said cable member (60) is positioned on said first sliding seat (22) to place said fast-switching comprehensive training device (100) in a first exercise mode, and a second position, in which said first end (61) of said cable member (60) is positioned on said second sliding seat (33) to place said fast-switching comprehensive training device (100) in a second exercise mode; wherein said second end (62) of said cable member (60) is positioned on said first sliding seat (22) opposite to said first end (61), and said intermediate section (63) of said cable member (60) is looped around said lower pulleys (26), said second upper pulleys (25), said counterweight pulley (522) and said first upper pulleys (24); and wherein each of said tension ropes (81) has one end hooked to said bottom rod (121), and the other end removably hooked to a corresponding one of said counterweight units (50).
2. The fast-switching comprehensive training device (100) as claimed in Claim 1, wherein:
 - each of said side frame portions (12) has at least one fixed plate (124) disposed on said bottom rod (121);
 - each of said counterweight units (50) further includes at least one tension rope selection rack (51, 51') sleeved on the corresponding one pair of said counterweight guide rods (13), and a selection rod (52) inserted into said at least one tension rope selection rack (51, 51') and transverse to said bottom rod (121) and said top rod (122);
 - said pulley bracket (521) of each of said counterweight units (50) is disposed on top of said selection rod (52); and
 - said one end of each of said tension ropes (81) is hooked to said at least one fixed plate (124), and said other end of each of said tension ropes (81) is removably hooked to said at least one tension rope selection rack (51, 51').
 3. The fast-switching comprehensive training device (100) as claimed in Claim 2, wherein each of said counterweight units (50) further includes a plurality of counterweights (53) sleeved on said selection rod (52) and the corresponding one pair of said counterweight guide rods (13), and a selection pin (54) removably inserted into a selected one of said counterweights (53) and said selection rod (52).
 4. The fast-switching comprehensive training device (100) as claimed in Claim 2, wherein said at least

one tension rope selection rack includes a plurality of tension rope selection racks (51') sleeved on said selection rod (52) and the corresponding one pair of said counterweight guide rods (13), each of said counterweight units (50) further including a selection pin (54) removably inserted into a selected one of said tension rope selection racks (51') and said selection rod (52), said other end of each of said tension ropes (81) being removably hooked to a corresponding one of said tension rope selection racks (51').

5. The fast-switching comprehensive training device (100) as claimed in Claim 1, wherein:

said first sliding seat (22) of each of said cable and pulley assemblies (20) includes a first sliding seat body (221) slidably sleeved on said adjustment tube (21), a pivoting member (222) connected to one side of said first sliding seat body (221) that is distal to a corresponding one of said sliding guide rods (32), a pair of pulleys (223) pivotally connected to said pivoting member (222) for passing of said second end (62) of said cable member (60) therebetween, a U-shaped first fixing member (224) connected to the other side of said first sliding seat body (221) and opposite to said pivoting member (222), and a first positioning plate (225) connected to said first sliding seat body (221) and located below said first fixing member (224), said first fixing member (224) having a pair of first pin holes (226), said first positioning plate (225) having a first positioning hole (227) defined by a C-shaped wall and tapering inwardly from a top surface of said first positioning plate (225); and each of said cable and pulley assemblies (20) further includes a retaining unit, said retaining unit including a retaining ball (613) connected to said first end (61) of said cable member (60), a fastening piece (611) fixed on top of said retaining ball (613), and an insert pin (612) for positioning said first end (61) of said cable member (60) in one of said first position and said second position.

6. The fast-switching comprehensive training device (100) as claimed in Claim 5, wherein:

each of said second sliding seats (33) includes a second sliding seat body (331) sleeved slidably on a respective one of said sliding guide rods (32), a U-shaped second fixing member (332) fixed to one side of said second sliding seat body (331) that is proximate to said adjustment tube (21), and a second positioning plate (333) connected to said second sliding seat body (331) and located below said second fixing member (332), said second fixing member (333) having

a pair of second pin holes (334), said second positioning plate (333) having a second positioning hole (335) defined by a C-shaped wall and tapering inwardly from a top surface of said second positioning plate (335);

said insert pin (612) is removably inserted into said pair of first pin holes (226) and said fastening piece (611) to position said first end (61) of said cable member (60) at said first position, and is removably inserted into said pair of second pin holes (334) and said fastening piece (611) to position said first end (61) of said cable member (60) at said second position; and

said retaining ball (613) abuts against said first positioning plate (225) when said first end (61) of said cable member (60) is at said first position, and abuts against said second positioning plate (333) when said first end (61) of said cable member (60) is at said second position.

Patentansprüche

1. Schnell schaltende umfassende Trainingsvorrichtung (100) umfassend:

einen Hauptrahmen (10), beinhaltend einen mittleren Abschnitt (11), zwei Seitenrahmenabschnitte (12), die mit zwei gegenüberliegenden Enden des mittleren Abschnitts (11) verbunden sind, und zwei Paare von Gegengewichtsführungsstangen (13), die jeweils an den Seitenrahmenabschnitten (12) angeordnet sind, wobei jeder der Seitenrahmenabschnitte (12) eine untere Stange (121) beinhaltet, eine obere Stange (122), die der unteren Stange (121) gegenüberliegt, und mindestens eine vertikale Stange (123') mit einer Vielzahl von Aufhängelöchern (1231), die entlang ihrer Länge voneinander beabstandet sind; und

zwei Gegengewichtseinheiten (50), die jeweils an den Seitenrahmenabschnitten (12) angeordnet und jeweils entlang der Paare von Gegengewichtsführungsstangen (13) beweglich sind, wobei jede der Gegengewichtseinheiten (50) einen an ihrer Oberseite angeordneten Riemenscheibenhalterung (521) und eine schwenkbar mit der Riemenscheibenhalterung (521) verbundene Gegengewichtsriemenscheibe (522) beinhaltet;

dadurch gekennzeichnet, dass

der Hauptrahmen (10) ferner zwei Paare von Dämpfungspolstern (14) beinhaltet, die jeweils an den unteren Abschnitten der Paare der Gegengewichtsführungsstangen (13) angeordnet sind, wobei die mindestens eine vertikale Stange (123') zwischen der unteren Stange (121) und der oberen Stange (122) in der Nähe von

deren äußeren Enden verbunden ist und von einem entsprechenden Paar der Gegengewichtsführungsstangen (13) beabstandet und parallel zu diesen ist;

jeder der Seitenrahmenabschnitte (12) ferner ein Paar erster oberer Riemenscheibenhalterungen (127) und ein Paar zweiter oberer Riemenscheibenhalterungen (128) beinhaltet, die mit der oberen Stange (122) verbunden und zwischen dem äußeren Ende der oberen Stange (122) und der mindestens einen vertikalen Stange (123') angeordnet sind, und ein Paar unterer Riemenscheibenhalterungen (129), die mit der unteren Stange (121) verbunden sind, wobei das Paar erster oberer Riemenscheibenhalterungen (127) eine Seite, die mit der oberen Stange (122) verbunden ist, eine andere Seite, die mit der mindestens einen vertikalen Stange (123') verbunden ist, und eine dritte Seite zwischen der einen Seite und der anderen Seite aufweist;

wobei die schnell schaltende umfassende Trainingsvorrichtung (100) ferner umfasst:

zwei Seil- und Riemenscheibenbaugruppen (20), die symmetrisch an den Seitenrahmenabschnitten (12) angeordnet sind, wobei jede der Seil- und Riemenscheibenbaugruppen (20) ein Einstellrohr (21) beinhaltet, das zwischen dem Paar unterer Riemenscheibenhalterungen (129) und dem Paar zweiter oberer Riemenscheibenhalterungen (128) eines jeweiligen der Seitenrahmenabschnitte (12) verbunden ist und von der mindestens einen vertikalen Stange (123') beabstandet und parallel zu dieser ist, einen ersten Gleitsitz (22), der auf dem Einstellrohr (21) gleitend gelagert ist, einen Einstellstift (23), der abnehmbar in den ersten Gleitsitz (22) eingesetzt ist, zwei voneinander beabstandete erste obere Riemenscheiben (24), die auf der oberen Stange (122) montiert sind, zwei zweite obere Riemenscheiben (25), die unterhalb der ersten oberen Riemenscheiben (24) angeordnet sind, zwei untere Riemenscheiben (26), die an der unteren Stange (121) montiert sind, und ein Seilelement (60) mit einem ersten Ende (61), einem zweiten Ende (62), das dem ersten Ende (61) gegenüberliegt, und einem Zwischenabschnitt (63), der zwischen dem ersten Ende (61) und dem zweiten Ende (62) des Seilelements (60) verbunden ist, wobei das Einstellrohr (21) eine Vielzahl von Höheneinstelllöchern (211) aufweist, die entlang einer Länge desselben voneinander beabstandet sind, wobei eine der ersten oberen Riemenscheiben

(24) schwenkbar mit dem Paar der ersten oberen Riemenscheibenhalterungen (127) verbunden ist, wobei die andere der ersten oberen Riemenscheiben (24) schwenkbar mit dem Paar der zweiten oberen Riemenscheibenhalterungen (128) verbunden ist, wobei die zweiten oberen Riemenscheiben (25) schwenkbar mit dem Paar erster oberer Riemenscheibenhalterungen (127) an der anderen Seite bzw. der dritten Seite verbunden sind;

eine Hantelstangeneinheit (30) beinhalten zwei Gleitführungsstangen (32), die jeweils an den Seitenrahmenabschnitten (12) angeordnet sind, zwei zweite Gleitsitze (33), die jeweils gleitend auf den Gleitführungsstangen (32) gelagert sind, eine Übungsstange (40) mit zwei gegenüberliegenden Enden, die fest und jeweils mit den zweiten Gleitsitzen (33) verbunden sind, und zwei Hakenelemente (34), die drehbar an der Übungsstange (40) in der Nähe der beiden gegenüberliegenden Enden derselben angeordnet sind, wobei jede der Gleitführungsstangen (32) zwischen dem Paar unterer Riemenscheibenhalterungen (129) und dem Paar zweiter oberer Riemenscheibenhalterungen (128) eines jeweiligen der Seitenrahmenabschnitte (12) verbunden ist, und zwischen der mindestens einen vertikalen Stange (123') und dem Einstellrohr (21) angeordnet ist, wobei jedes der Hakenelemente (34) abnehmbar an einem ausgewählten der Aufhängelöcher (311) in der mindestens einen vertikalen Stange (123') des jeweiligen einen der Seitenrahmenabschnitte (12) eingehängt wird, um jeden der zweiten Gleitsitze (33) relativ zu der mindestens einen vertikalen Stange (123') des jeweiligen der Seitenrahmenteile (12) und einer entsprechenden der Gleitführungsstangen (32) zu positionieren; und zwei Spannseileinheiten (80), wobei jede der Spannseileinheiten (80) eine Vielzahl von Spannseilen (81) beinhaltet;

wobei, wenn der Einstellstift (23) in den ersten Gleitsitz (22) eingesetzt wird und sich in ein entsprechendes der Höheneinstelllöcher (211) erstreckt, der erste Gleitsitz (22) in einer gewünschten Höhe an dem Einstellrohr (21) befestigt wird;

wobei das erste Ende (61) des Seilelements (60) zwischen einer ersten Position, in der das erste Ende (61) des Seilelements (60) auf dem ersten Gleitsitz (22) positioniert ist, um die schnell schaltende umfassende Trainingsvorrichtung (100) in einen ersten Übungsmodus zu versetzen, und einer

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zweiten Position, in der das erste Ende (61) des Seilelements (60) auf dem zweiten Gleitsitz (33) positioniert ist, beweglich ist, um die schnell schaltende umfassende Trainingsvorrichtung (100) in einen zweiten Übungsmodus zu versetzen;

wobei das zweite Ende (62) des Seilelements (60) auf dem ersten Gleitsitz (22) gegenüberliegend dem ersten Ende (61) positioniert ist, und der Zwischenabschnitt (63) des Seilelements (60) um die unteren Riemenscheiben (26), die zweiten oberen Riemenscheiben (25), die Gegengewichtsriemenscheibe (522) und die ersten oberen Riemenscheiben (24) geschlungen ist; und wobei jedes der Spannseile (81) mit einem Ende an der unteren Stange (121) und mit dem anderen Ende abnehmbar an einer entsprechenden der Gegengewichtseinheiten (50) eingehängt ist.

2. Schnell schaltende umfassende Trainingsvorrichtung (100) nach Anspruch 1, wobei:

jedes der Seitenrahmenabschnitte (12) mindestens eine feste Platte (124) aufweist, die an der unteren Stange (121) angeordnet ist;

wobei jede der Gegengewichtseinheiten (50) ferner mindestens eine Spannseilauswahlzahnstange (51, 51'), die auf dem entsprechenden einen Paar der Gegengewichtsführungsstangen (13) gelagert ist, und eine Auswahlstange (52) beinhaltet, die in die mindestens eine Spannseilauswahlzahnstange (51, 51') und quer zu der unteren Stange (121) und der oberen Stange (122) eingesetzt ist;

wobei die Riemenscheibenhalterung (521) jeder der Gegengewichtseinheiten (50) oben auf der Auswahlstange (52) angeordnet ist; und das eine Ende jedes der Spannseile (81) an der mindestens einen festen Platte (124) eingehängt ist, und das andere Ende jedes der Spannseile (81) abnehmbar an der mindestens einen Spannseilauswahlzahnstange (51, 51') eingehängt ist.

3. Schnell schaltende umfassende Trainingsvorrichtung (100) nach Anspruch 2, wobei jede der Gegengewichtseinheiten (50) ferner eine Vielzahl von Gegengewichten (53) beinhaltet, die auf der Auswahlstange (52) und dem entsprechenden einen Paar der Gegengewichtsführungsstangen (13) gelagert sind, und einen Auswahlstift (54), der abnehmbar in ein ausgewähltes der Gegengewichte (53) und der Auswahlstange (52) eingesetzt ist.
4. Schnell schaltende umfassende Trainingsvorrichtung (100) nach Anspruch 2, wobei die mindestens

eine Spannseilauswahlzahnstange eine Vielzahl von Spannseilauswahlzahnstangen (51') beinhaltet, die auf der Auswahlstange (52) und dem entsprechenden Paar der Gegengewichtsführungsstangen (13) gelagert sind, wobei jede der Gegengewichtseinheiten (50) ferner einen Auswahlstift (54) beinhaltet, der abnehmbar in eine ausgewählte der Spannseilauswahlzahnstangen (51') und die Auswahlstange (52) eingesetzt ist, wobei das andere Ende jedes der Spannseile (81) abnehmbar an einem entsprechenden der Spannseilauswahlzahnstangen (51') eingehängt ist.

5. Schnell schaltende umfassende Trainingsvorrichtung (100) nach Anspruch 1, wobei:

der erste Gleitsitz (22) jeder der Seil- und Riemenscheibenbaugruppen (20) einen ersten Gleitsitzkörper (221), der gleitend auf dem Einstellrohr (21) gelagert ist, ein Schwenkelement (222), das mit einer Seite des ersten Gleitsitzkörpers (221) verbunden ist, die sich distal zu einer entsprechenden der Gleitführungsstangen (32) befindet, ein Paar Riemenscheiben (223), die schwenkbar mit dem Schwenkelement (222) verbunden sind, um das zweite Ende (62) des Seilelements (60) dazwischen zu führen, ein U-förmiges erstes Befestigungselement (224), das mit der anderen Seite des ersten Gleitsitzkörpers (221) und gegenüberliegend dem Schwenkelement (222) verbunden ist, und eine erste Positionierungsplatte (225), die mit dem ersten Gleitsitzkörper (221) verbunden ist und unter dem ersten Befestigungselement (224) angeordnet ist, beinhaltet, wobei das erste Befestigungselement (224) ein Paar von ersten Stiftlöchern (226) aufweist, wobei die erste Positionierungsplatte (225) ein erstes Positionierungsloch (227) aufweist, das durch eine C-förmige Wand definiert ist und sich von einer oberen Fläche der ersten Positionierungsplatte (225) nach innen verjüngt; und jede der genannten Seil- und Riemenscheibenbaugruppen (20) ferner eine Rückhalteeinheit beinhaltet, wobei die Rückhalteeinheit eine Rückhaltekegel (613) beinhaltet, die mit dem ersten Ende (61) des Seilelements (60) verbunden ist, ein Befestigungsteil (611), das oben auf der Rückhaltekegel (613) befestigt ist, und einen Einsetzstift (612) zum Positionieren des ersten Endes (61) des Seilelements (60) in der ersten oder der zweiten Position.

6. Schnell schaltende umfassende Trainingsvorrichtung (100) nach Anspruch 5, wobei:

jeder der zweiten Gleitsitze (33) einen zweiten Gleitsitzkörper (331) beinhaltet, der gleitend auf

einer entsprechenden der Gleitführungsstangen (32) gelagert ist, ein U-förmiges zweites Befestigungselement (332), das an einer Seite des zweiten Gleitsitzkörpers (331) befestigt ist, die sich in der Nähe des Einstellrohrs (21) befindet, und eine zweite Positionierungsplatte (333), die mit dem zweiten Gleitsitzkörper (331) verbunden ist und unter dem zweiten Befestigungselement (332) angeordnet ist, wobei das zweite Befestigungselement (332) ein Paar zweiter Stiftlöcher (334) aufweist, wobei die zweite Positionierungsplatte (333) ein zweites Positionierungsloch (335) aufweist, das durch eine C-förmige Wand definiert ist und sich von einer oberen Fläche der zweiten Positionierungsplatte (335) nach innen verjüngt;

wobei der Einsetzstift (612) abnehmbar in das Paar erster Stiftlöcher (226) und das Befestigungsteil (611) eingesetzt wird, um das erste Ende (61) des Seilelements (60) an der ersten Position zu positionieren, und abnehmbar in das Paar von zweiten Stiftlöchern (334) und das Befestigungsteil (611) eingesetzt wird, um das erste Ende (61) des Seilelements (60) an der zweiten Position zu positionieren; und wobei die Rückhaltekegel (613) gegen die erste Positionierungsplatte (225) stößt, wenn sich das erste Ende (61) des Seilelements (60) in der ersten Position befindet, und gegen die zweite Positionierungsplatte (333) stößt, wenn sich das erste Ende (61) des Seilelements (60) in der zweiten Position befindet.

35 Revendications

1. Dispositif d'entraînement complet à commutation rapide (100) comprenant :

un cadre principal (10) comprenant une partie centrale (11), deux parties de cadre latérales (12) raccordées à deux extrémités opposées de ladite partie centrale (11), et deux paires de tiges de guidage de contrepoids (13) respectivement disposées sur lesdites parties de cadre latérales (12), chacune desdites parties de cadre latérales (12) comprenant une tige inférieure (121), une tige supérieure (122) opposée à ladite tige inférieure (121) et au moins une tige verticale (123') ayant une pluralité de trous de suspension (1231) espacés les uns des autres le long de sa longueur ; et deux unités de contrepoids (50) respectivement disposées sur lesdites parties de cadre latérales (12) et respectivement mobiles le long desdites paires de tiges de guidage de contrepoids (13), chacune desdites unités de contrepoids (50) comprenant un support de poulie (521) disposé

sur son sommet, et une poulie de contrepoids (522) raccordée, de manière pivotante, audit support de poulie (521) ;

caractérisé en ce que :

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 ledit cadre principal (10) comprenant en outre deux paires de tampons amortisseurs (14) respectivement disposées sur les parties inférieures desdites paires desdites tiges de guidage de contrepoids (13), ladite au moins une tige verticale (123') étant raccordée entre ladite tige inférieure (121) et ladite tige supérieure (122) à proximité de ses extrémités externes et espacée de et parallèle à une paire correspondante desdites tiges de guidage de contrepoids (13) ;
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 chacune desdites parties de cadre latérales (12) comprenant en outre une paire de premiers supports de poulie supérieure (127), une paire de deuxièmes supports de poulie supérieure (128) raccordée à ladite tige supérieure (122) et positionnée entre ladite extrémité externe de ladite tige supérieure (122) et ladite au moins une tige verticale (123') et une paire de supports de poulie inférieure (129) raccordée à ladite tige inférieure (121), ladite paire de premiers supports de poulie supérieure (127) ayant un côté raccordé à ladite tige supérieure (122), un autre côté raccordé à ladite au moins une tige verticale (123') et un troisième côté entre ledit un côté et ledit autre côté ;
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 ledit dispositif d'entraînement complet à commutation rapide (100) comprend en outre :
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deux ensembles de câble et poulie (20) disposés de manière symétrique sur lesdites parties de cadre latérales (12), chacun desdits ensembles de câble et poulie (20) comprenant un tube de réglage (21) raccordé entre ladite paire de supports de poulie inférieure (129) et ladite paire de deuxièmes supports de poulie supérieure (128) d'une partie respective desdites parties de cadre latérales (12) et espacés de et parallèles à ladite au moins une tige verticale (123'), un premier siège coulissant (22) emmanché, de manière coulissante, sur ledit tube de réglage (21), une goupille de réglage (23) insérée de manière amovible dans ledit premier siège coulissant (22), deux premières poulies supérieures (24) espacées montées sur ladite tige supérieure (122), deux deuxièmes poulies supérieures (25) disposées au-dessous desdites pre-

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mières poulies supérieures (24), deux poulies inférieures (26) montées sur ladite tige inférieure (121), et un élément de câble (60) ayant une première extrémité (61), une deuxième extrémité (62) opposée à ladite première extrémité (61) et une section intermédiaire (63) raccordée entre ladite première extrémité (61) et ladite deuxième extrémité (62) dudit élément de câble (60), ledit tube de réglage (21) ayant une pluralité de trous de réglage de hauteur (211) espacés les uns des autres le long de sa longueur, l'une desdites premières poulies supérieures (24) étant raccordée, de manière pivotante, à ladite paire de premiers supports de poulie supérieure (127), l'autre desdites premières poulies supérieures (24) étant raccordée, de manière pivotante, à ladite paire de deuxièmes supports de poulie supérieure (128), lesdites deuxièmes poulies supérieures (25) étant raccordées, de manière pivotante, à ladite paire de premiers supports de poulie supérieure (127) au niveau dudit autre côté et dudit troisième côté, respectivement ;

une unité de barre à disques (30) comprenant deux tiges de guidage coulissantes (32) respectivement disposées sur lesdites parties de cadre latérales (12), deux deuxièmes sièges coulissants (33) emmanchés, de manière coulissante et respectivement sur lesdites tiges de guidage coulissantes (32), une barre d'exercice (40) ayant deux extrémités opposées raccordées de manière fixe et respective auxdits deuxièmes sièges coulissants (33) et deux éléments de crochet (34) disposés, de manière rotative, sur ladite barre d'exercice (40) à proximité desdites deux extrémités opposées de cette dernière, chacune desdites tiges de guidage coulissantes (32) étant raccordée entre ladite paire de supports de poulie inférieure (129) et ladite paire de deuxièmes supports de poulie supérieure (128) d'une partie respective desdites parties de cadre latérales (12), et étant positionnée entre ladite au moins une tige verticale (123') et ledit tube de réglage (21), chacun desdits éléments de crochet (34) étant accroché, de manière amovible, à un trou sélectionné desdits trous de suspension (311) dans ladite au moins une tige ver-

tical (123') de la partie respective des-
 dites parties de cadre latérales (12) afin
 de positionner chacun desdits deuxiè-
 mes sièges coulissants (33) par rapport
 à ladite au moins une tige verticale 5
 (123') de la partie respective desdites
 parties de cadre latérales (12) et une
 tige correspondante desdites tiges de
 guidage coulissantes (32) ; et
 deux unités de câble de tension (80), 10
 chacune desdites unités de câble de
 tension (80) comprenant une pluralité
 de câbles de tension (81) ;
 dans lequel, lorsque ladite goupille de
 réglage (23) est insérée dans ledit pre- 15
 mier siège coulissant (22) et s'étend
 dans un trou correspondant desdits
 trous de réglage de hauteur (211), ledit
 premier siège coulissant (22) est fixé
 sur ledit tube de réglage (21) à une hau- 20
 teur souhaitée ;
 dans lequel ladite première extrémité
 (61) dudit élément de câble (60) est mo-
 bile entre une première position, dans 25
 laquelle ladite première extrémité (61)
 dudit élément de câble (60) est posi-
 tionnée sur ledit premier siège coulis-
 sant (22) afin de placer ledit dispositif
 d'entraînement complet à commutation 30
 rapide (100) dans un premier mode
 d'exercice, et une deuxième position,
 dans laquelle ladite première extrémité
 (61) dudit élément de câble (60) est po- 35
 sitionnée sur ledit deuxième siège coulis-
 sant (33) afin de placer ledit dispositif
 d'entraînement complet à commutation
 rapide (100) dans un deuxième mode
 d'exercice ;
 dans lequel ladite deuxième extrémité
 (62) dudit élément de câble (60) est po- 40
 sitionnée sur ledit premier siège coulis-
 sant (22) opposé à ladite première ex-
 trémité (61), et ladite section intermé-
 diaire (63) dudit élément de câble (60)
 fait une boucle autour desdites poulies 45
 inférieures (26), desdites deuxièmes
 poulies supérieures (25), de ladite pou-
 lie de contrepoids (522) et desdites pre-
 mières poulies supérieures (24) ; et
 dans lequel chacun desdits câbles de 50
 tension (81) a une extrémité accrochée
 à ladite tige inférieure (121), et l'autre
 extrémité accrochée, de manière amov-
 ible, à une unité correspondante des-
 dites unités de contrepoids (50). 55

2. Dispositif d'entraînement complet à commutation rapide (100) selon la revendication 1, dans lequel :

chacune desdites parties de cadre latérales (12)
 a au moins une plaque fixe (124) disposée sur
 ladite tige inférieure (121) ;
 chacune desdites unités de contrepoids (50)
 comprend en outre au moins une crémaillère de
 sélection de câble de tension (51, 51') emman-
 chée sur une paire correspondante desdites ti-
 ges de guidage de contrepoids (13), et une tige
 de sélection (52) insérée dans ladite au moins
 une crémaillère de sélection de câble de tension
 (51, 51') et transversale par rapport à ladite tige
 inférieure (121) et à ladite tige supérieure (122) ;
 ledit support de poulie (521) de chacune desdi-
 tes unités de contrepoids (50) est disposé sur
 le dessus de ladite tige de sélection (52) ; et
 ladite une extrémité de chacun desdits câbles
 de tension (81) est accrochée à ladite au moins
 une plaque fixe (124), et ladite autre extrémité
 de chacun desdits câbles de tension (81) est
 accrochée à ladite au moins une crémaillère de
 sélection de câble de tension (51, 51').

3. Dispositif d'entraînement complet à commutation rapide (100) selon la revendication 2, dans lequel cha-
 cune desdites unités de contrepoids (50) comprend
 en outre une pluralité de contrepoids (53) emman-
 chés sur ladite tige de sélection (52) et la paire cor-
 respondante desdites tiges de guidage de contre-
 poids (13) et une goupille de sélection (54) insérée,
 de manière amovible, dans un contrepoids sélec-
 tionné desdits contrepoids (53) et ladite tige de sé-
 lection (52).
4. Dispositif d'entraînement complet à commutation ra-
 pide (100) selon la revendication 2, dans lequel ladite
 au moins une crémaillère de sélection de câble de
 tension comprend une pluralité de crémaillères de
 sélection de câble de tension (51') emmanchées sur
 ladite tige de sélection (52) et la une paire corres-
 pondante desdites tiges de guidage de contrepoids
 (13), chacune desdites unités de contrepoids (50)
 comprenant en outre une goupille de sélection (54)
 insérée, de manière amovible, dans une crémaillère
 sélectionnée desdites crémaillères de sélection de
 câble de tension (51') et ladite tige de sélection (52)
 et ladite autre extrémité de chacun desdits câbles
 de tension (81) étant accrochée, de manière amovi-
 ble, à une crémaillère correspondante desdites cré-
 maillères de sélection de câble de tension (51').
5. Dispositif d'entraînement complet à commutation ra-
 pide (100) selon la revendication 1, dans lequel :

ledit premier siège coulissant (22) de chacun
 desdits ensembles de câble et poulie (20) com-
 prend un premier corps de siège coulissant
 (221) emmanché, de manière coulissante, sur
 ledit tube de réglage (21), un élément de pivo-

tement (222) raccordé à un côté dudit premier corps de siège coulissant (221) qui est distal par rapport à une tige correspondante desdites tiges de guidage coulissantes (32), une paire de poulies (223) raccordée de manière pivotante audit élément de pivotement (222) pour le passage de ladite deuxième extrémité (62) dudit élément de câble (60) entre elles, un premier élément de fixation en forme de U (224) raccordé à l'autre côté dudit premier corps de siège coulissant (221) et opposé audit élément de pivotement (222), et une première plaque de positionnement (225) raccordée audit premier corps de siège coulissant (221) et positionnée au-dessous dudit premier élément de fixation (224), ledit premier élément de fixation (224) ayant une paire de premiers trous de goupille (226), ladite première plaque de positionnement (225) ayant un premier trou de positionnement (227) défini par une paroi en forme de C et se rétrécissant progressivement vers l'intérieur à partir d'une surface supérieure de ladite première plaque de positionnement (225) ; et

chacun desdits ensembles de câble et poulie (20) comprend en outre une unité de retenue, ladite unité de retenue comprenant une bille de retenue (613) raccordée à ladite première extrémité (61) dudit élément de câble (60), une pièce de fixation (611) fixée sur le dessus de ladite bille de retenue (613), et une goupille d'insert (612) pour positionner ladite première extrémité (61) dudit élément de câble (60) dans l'une parmi ladite première position et ladite deuxième position.

6. Dispositif d'entraînement complet à commutation rapide (100) selon la revendication 5, dans lequel :

chacun desdits deuxièmes sièges coulissants (33) comprend un deuxième corps de siège coulissant (331) emmanché, de manière coulissante, sur une tige respective desdites tiges de guidage coulissantes (32), un deuxième élément de fixation en forme de U (332) fixé sur un côté dudit deuxième corps de siège coulissant (331) qui est à proximité dudit tube de réglage (21), et une deuxième plaque de positionnement (333) raccordée audit deuxième corps de siège coulissant (331) et positionnée au-dessous dudit deuxième élément de fixation (332), ledit deuxième élément de fixation (333) ayant une paire de deuxièmes trous de goupille (334), ladite deuxième plaque de positionnement (333) ayant un deuxième trou de positionnement (335) défini par une paroi en forme de C et se rétrécissant progressivement vers l'intérieur à partir d'une surface supérieure de ladite deuxième plaque de positionnement (335) ;

ladite goupille d'insert (612) est insérée, de manière amovible, dans ladite paire de premiers trous de goupille (226) et ladite pièce de fixation (611) afin de positionner ladite première extrémité (61) dudit élément de câble (60) dans ladite première position, et est insérée, de manière amovible, dans ladite paire de deuxièmes trous de goupille (334) et ladite pièce de fixation (611) afin de positionner ladite première extrémité (61) dudit élément de câble (60) dans ladite deuxième position ; et

ladite bille de retenue (613) vient en butée contre ladite première plaque de positionnement (225) lorsque ladite première extrémité (61) dudit élément de câble (60) est dans ladite première position, et vient en butée contre ladite deuxième plaque de positionnement (333) lorsque ladite première extrémité (61) dudit élément de câble (60) est dans ladite deuxième position.

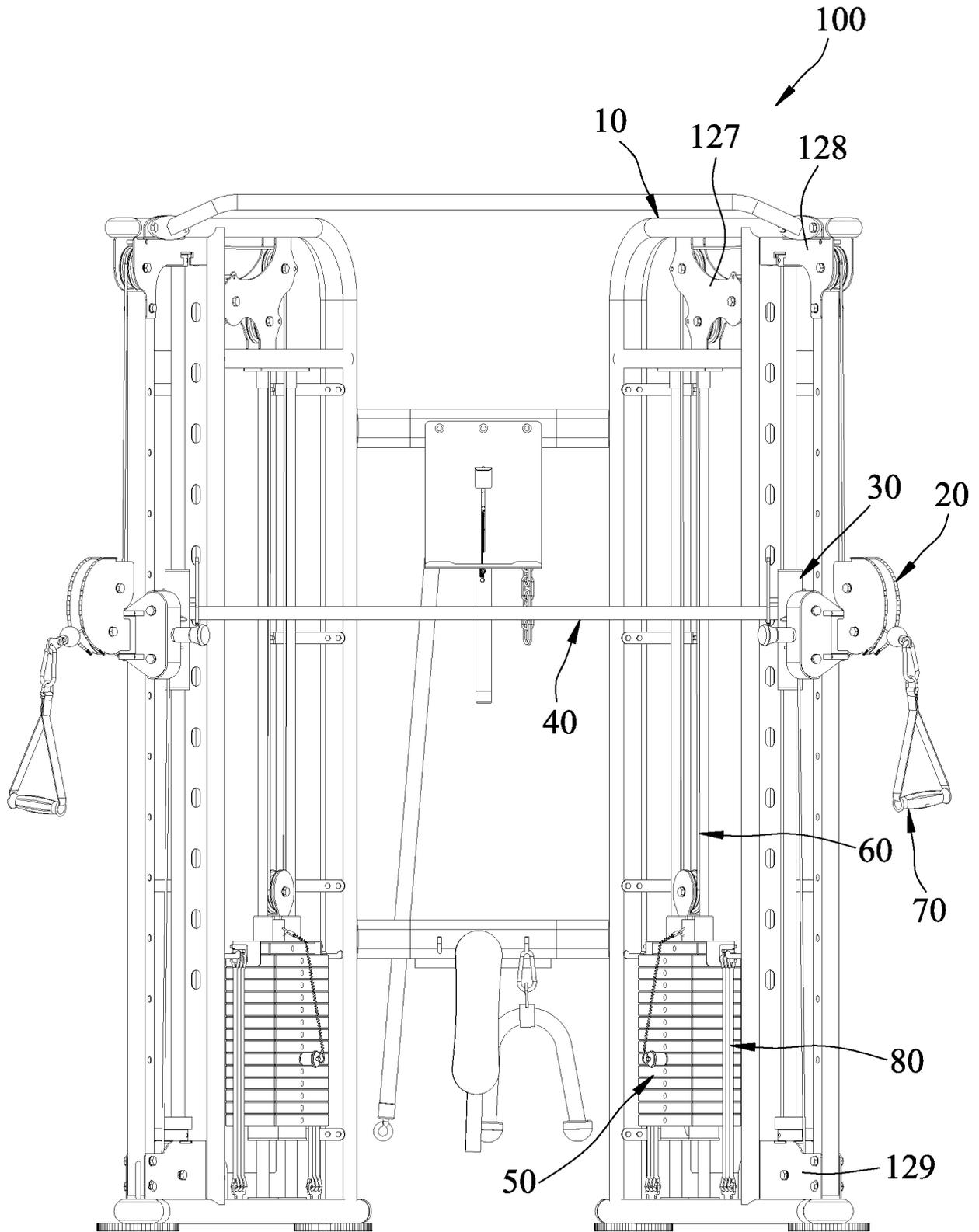


FIG. 1

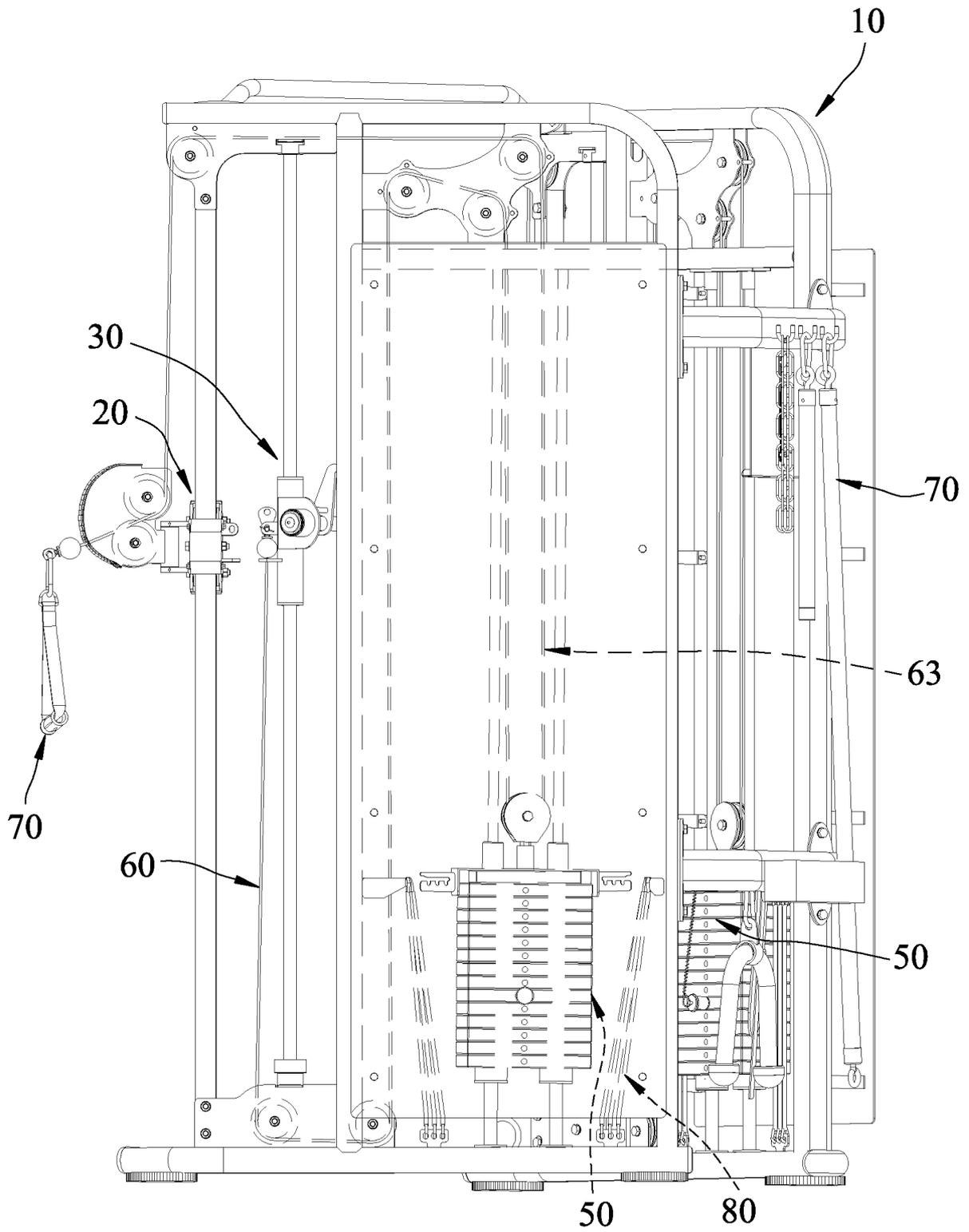


FIG.3

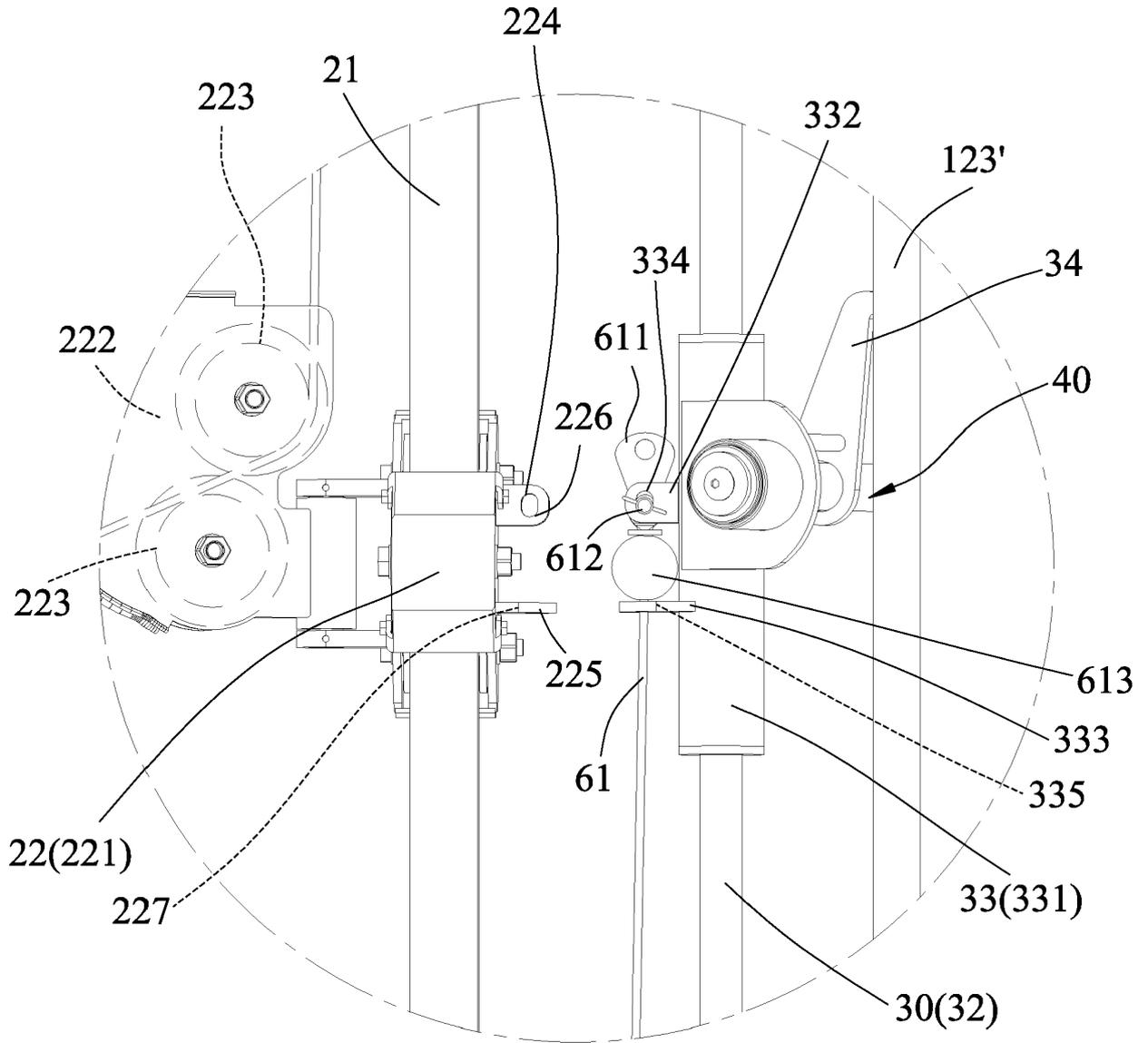


FIG.4

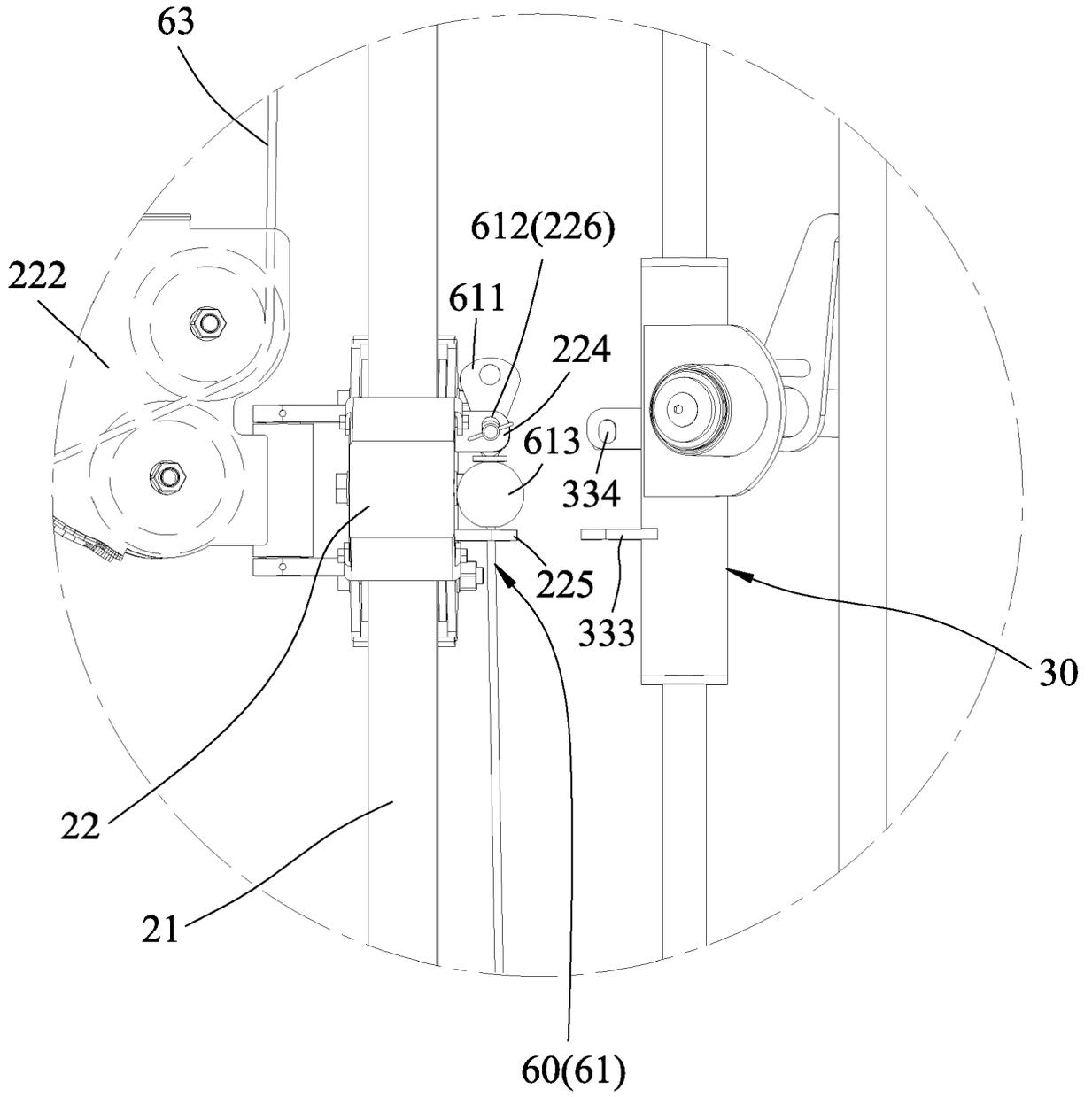


FIG. 5

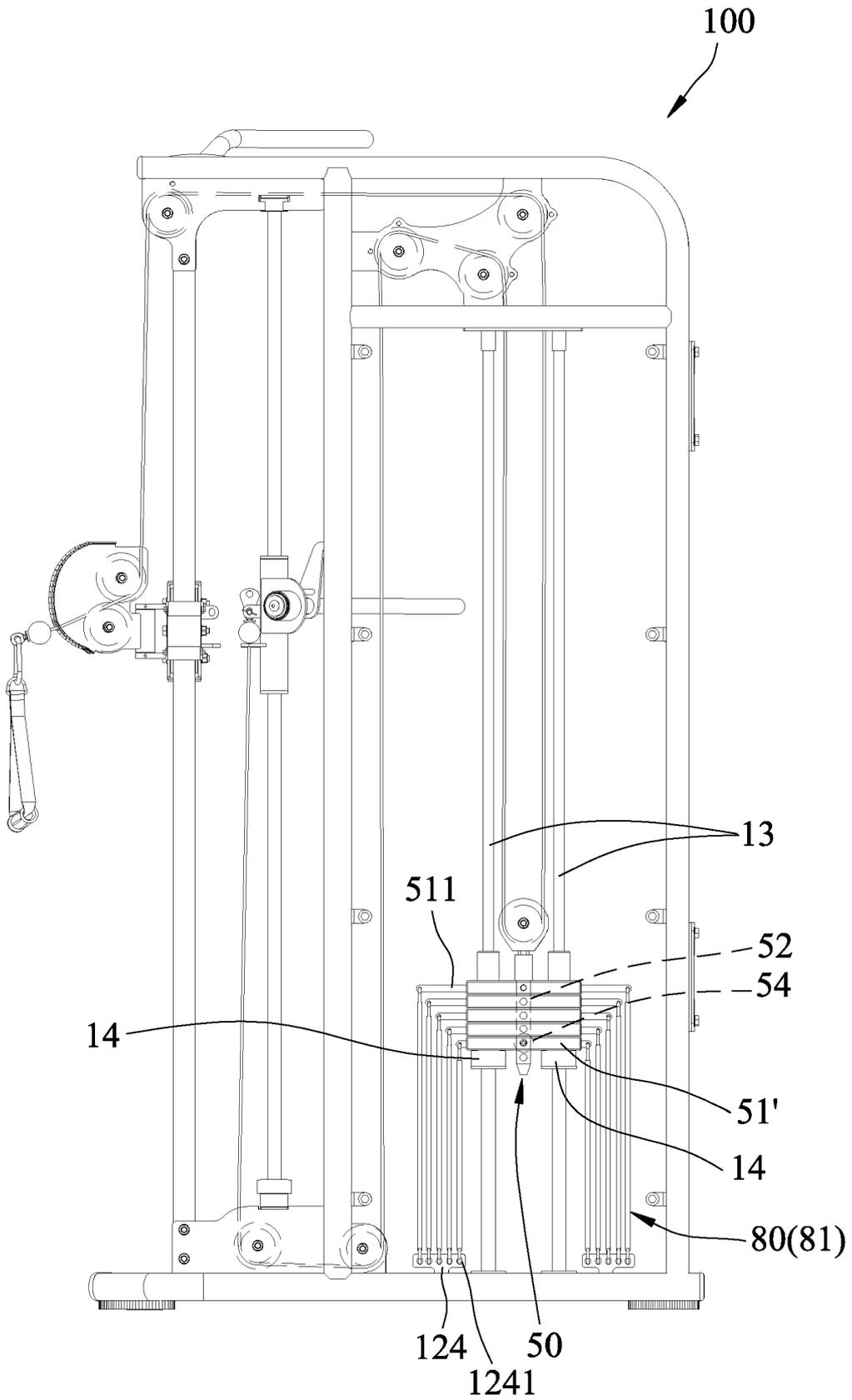


FIG.6

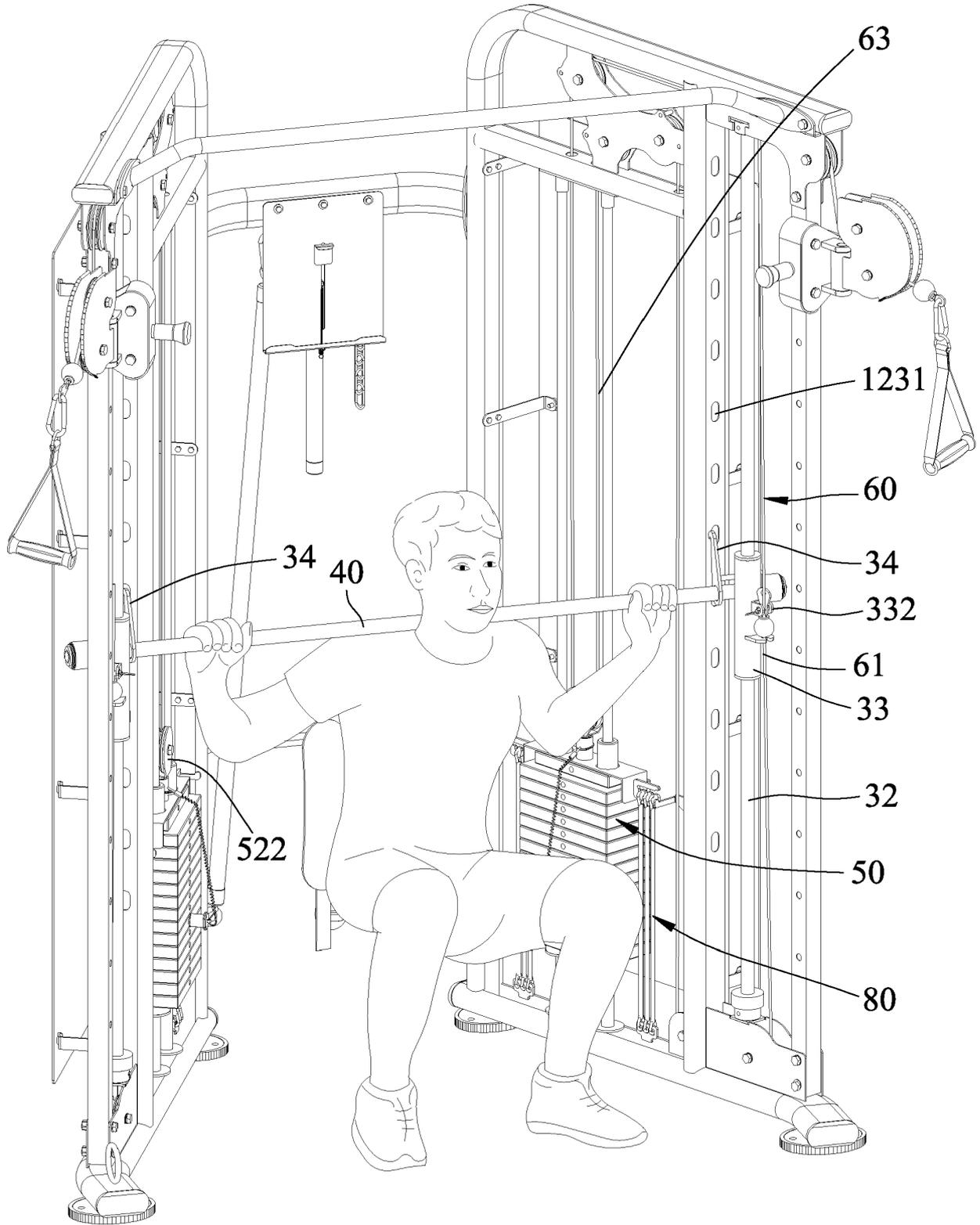


FIG.7

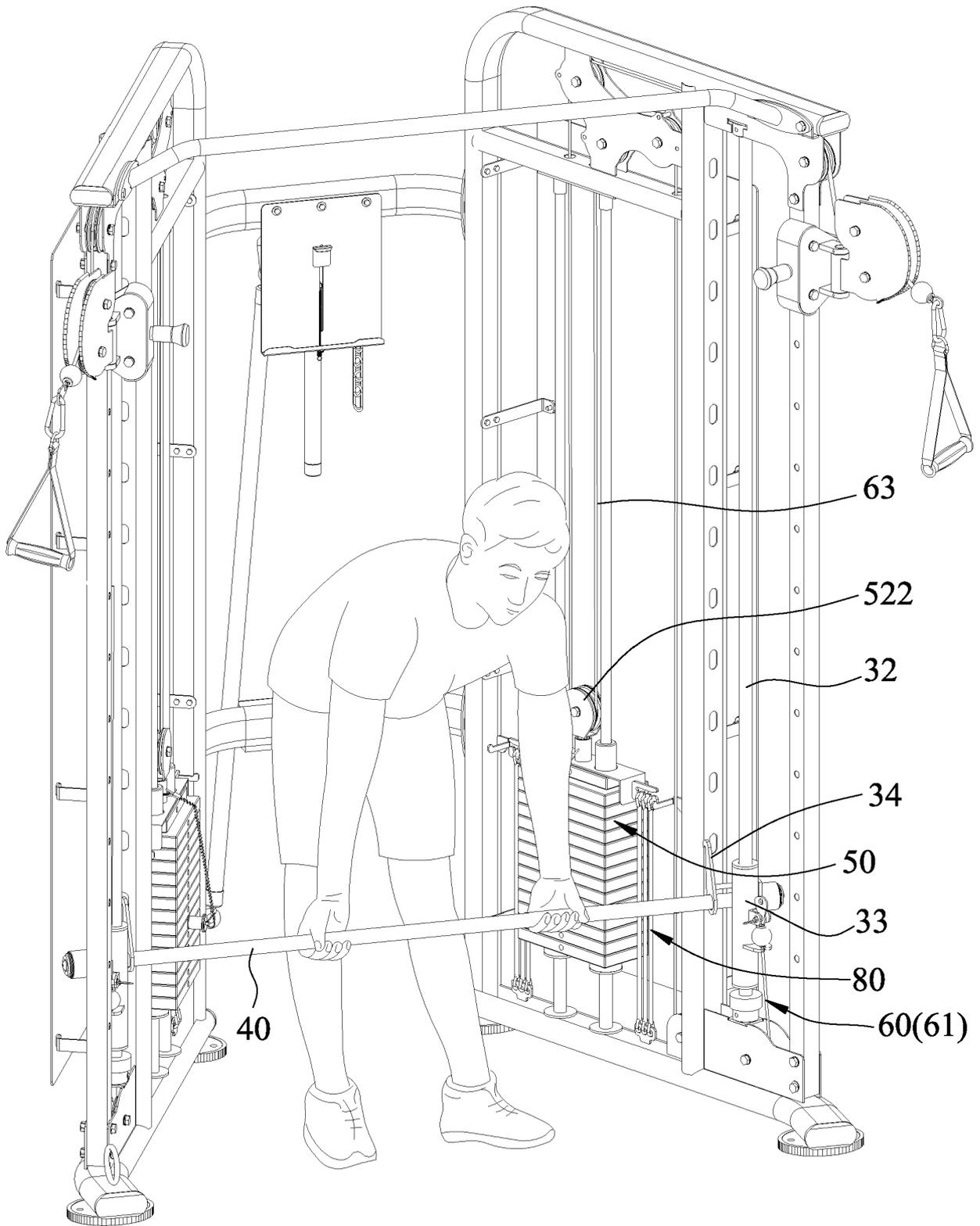


FIG.8

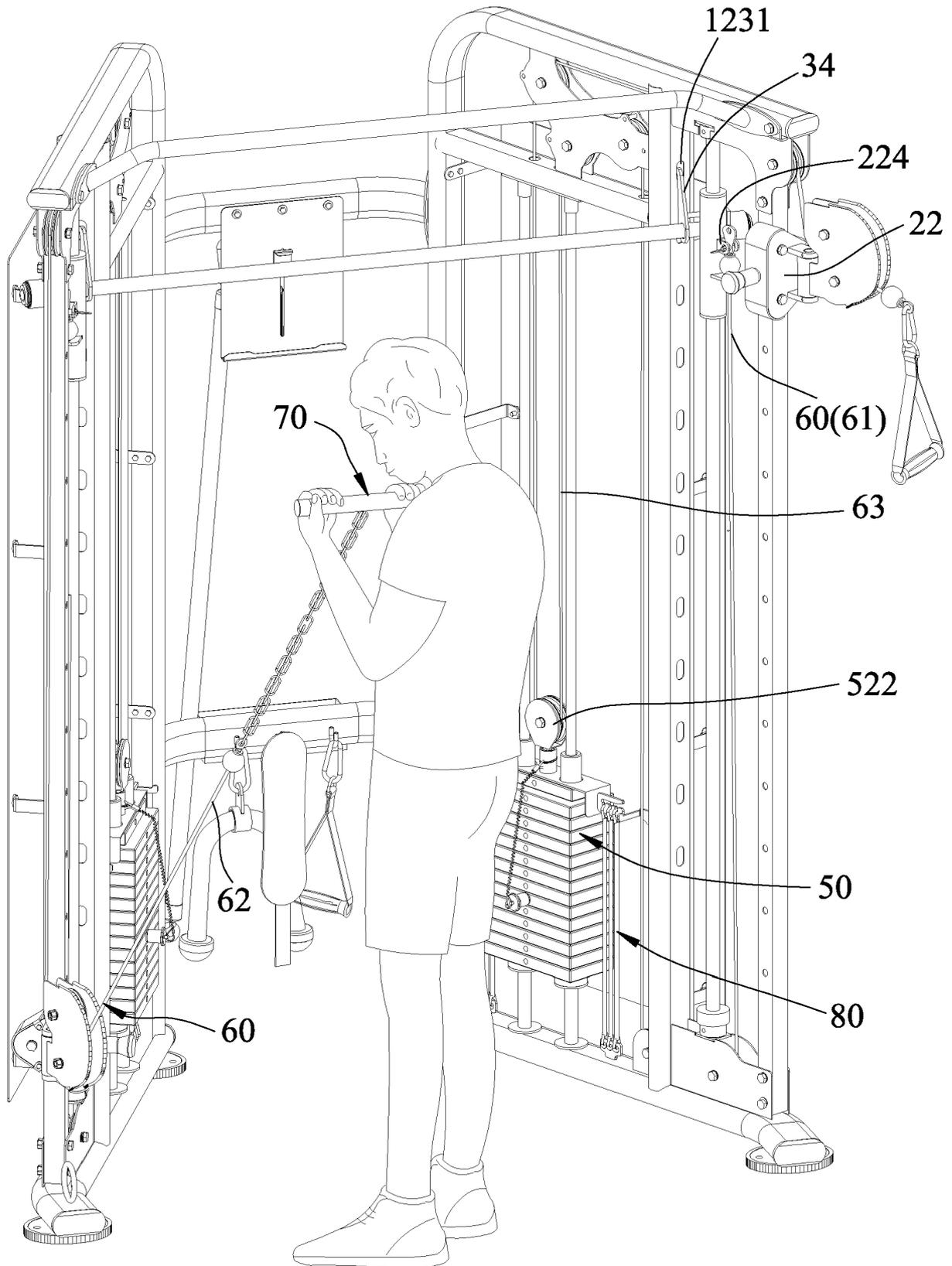


FIG.9

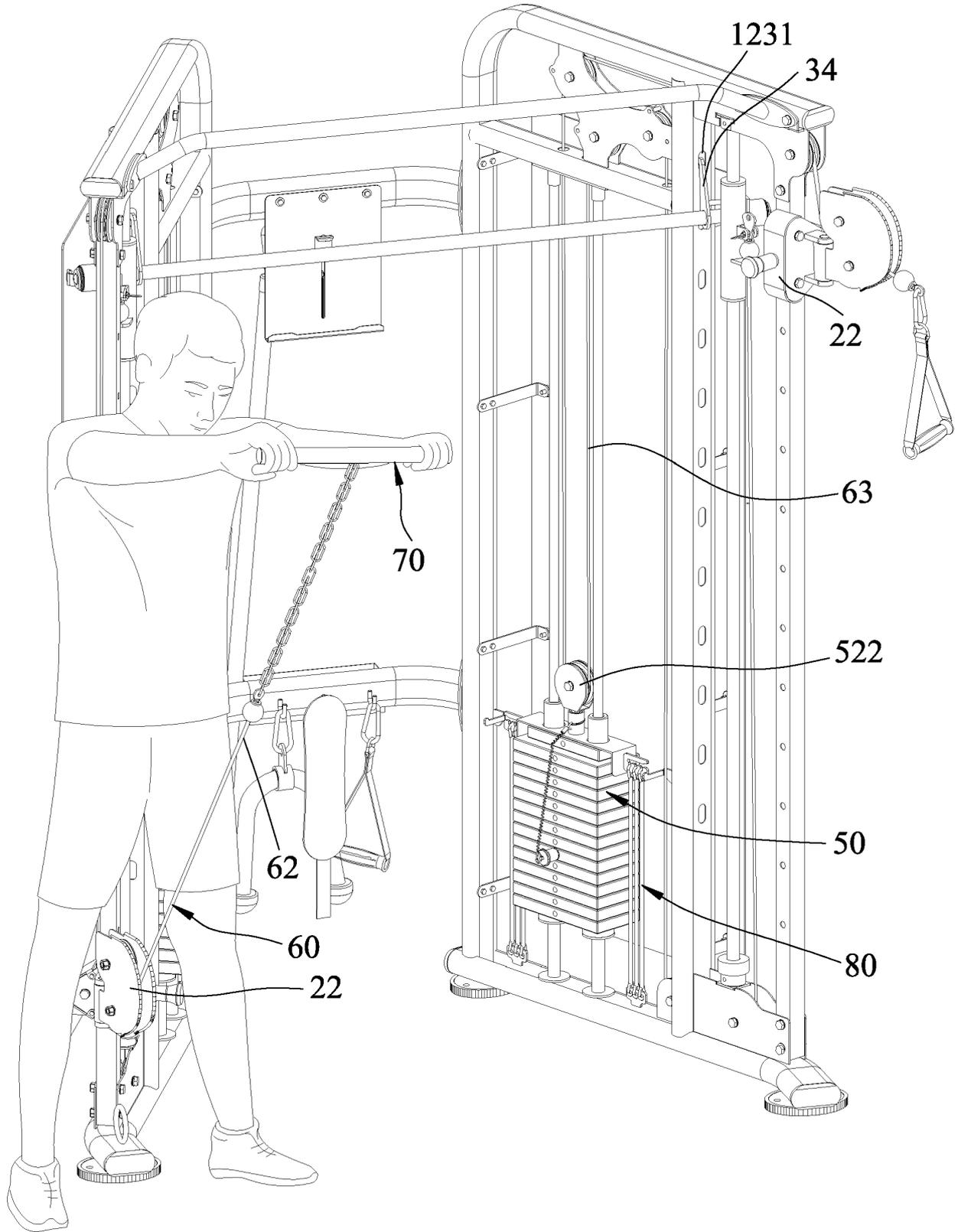


FIG.10

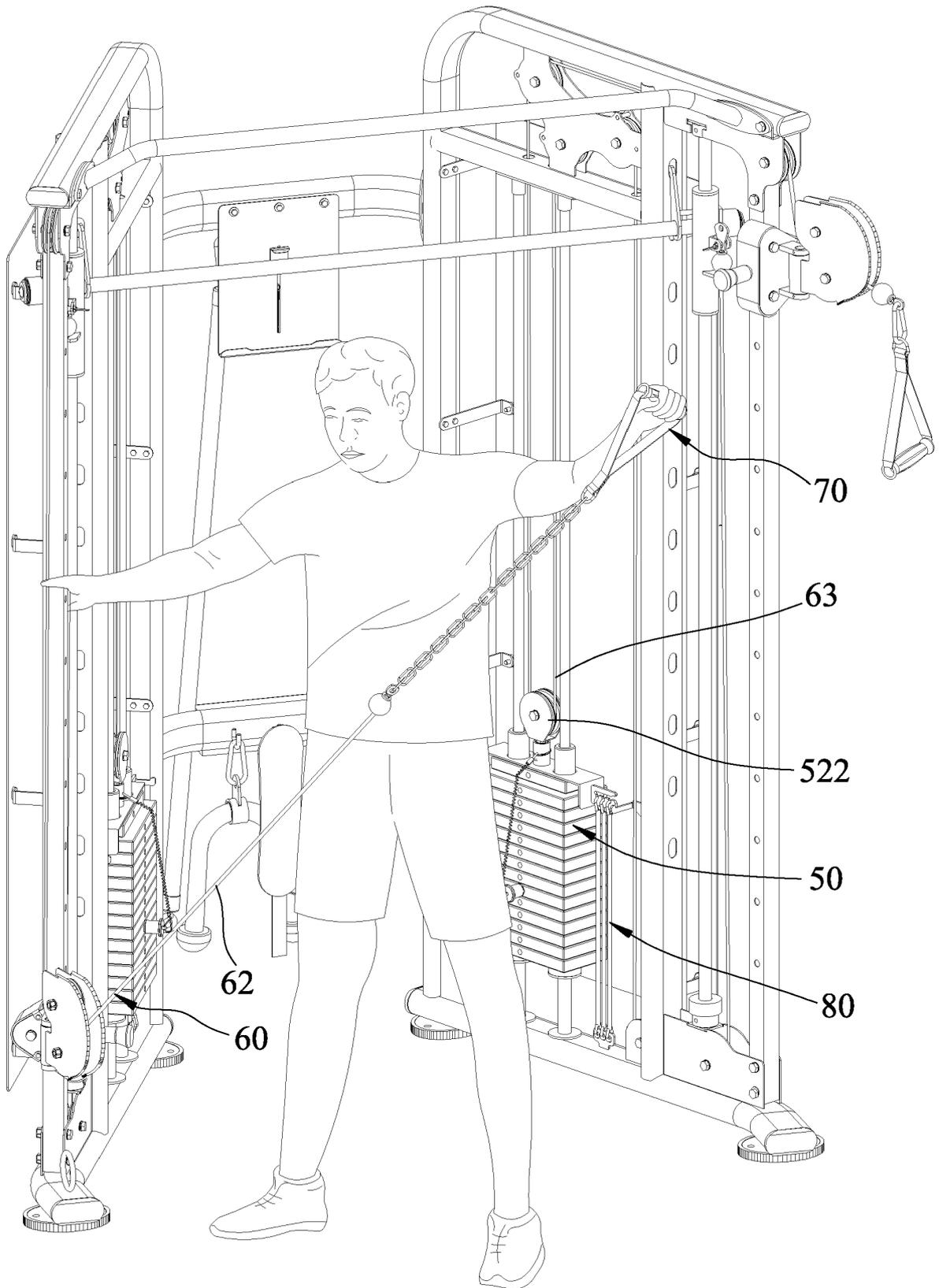


FIG.11

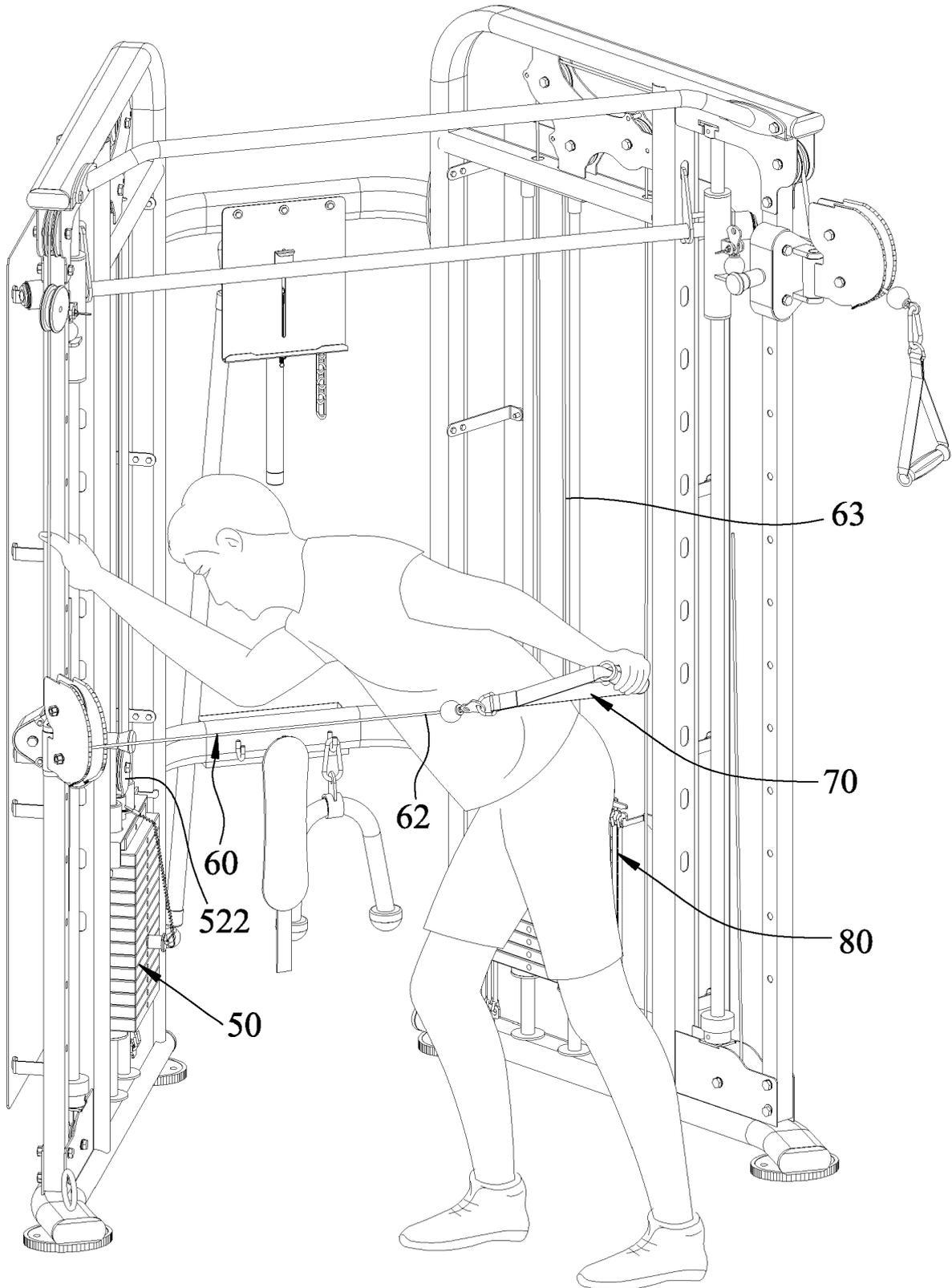


FIG.12

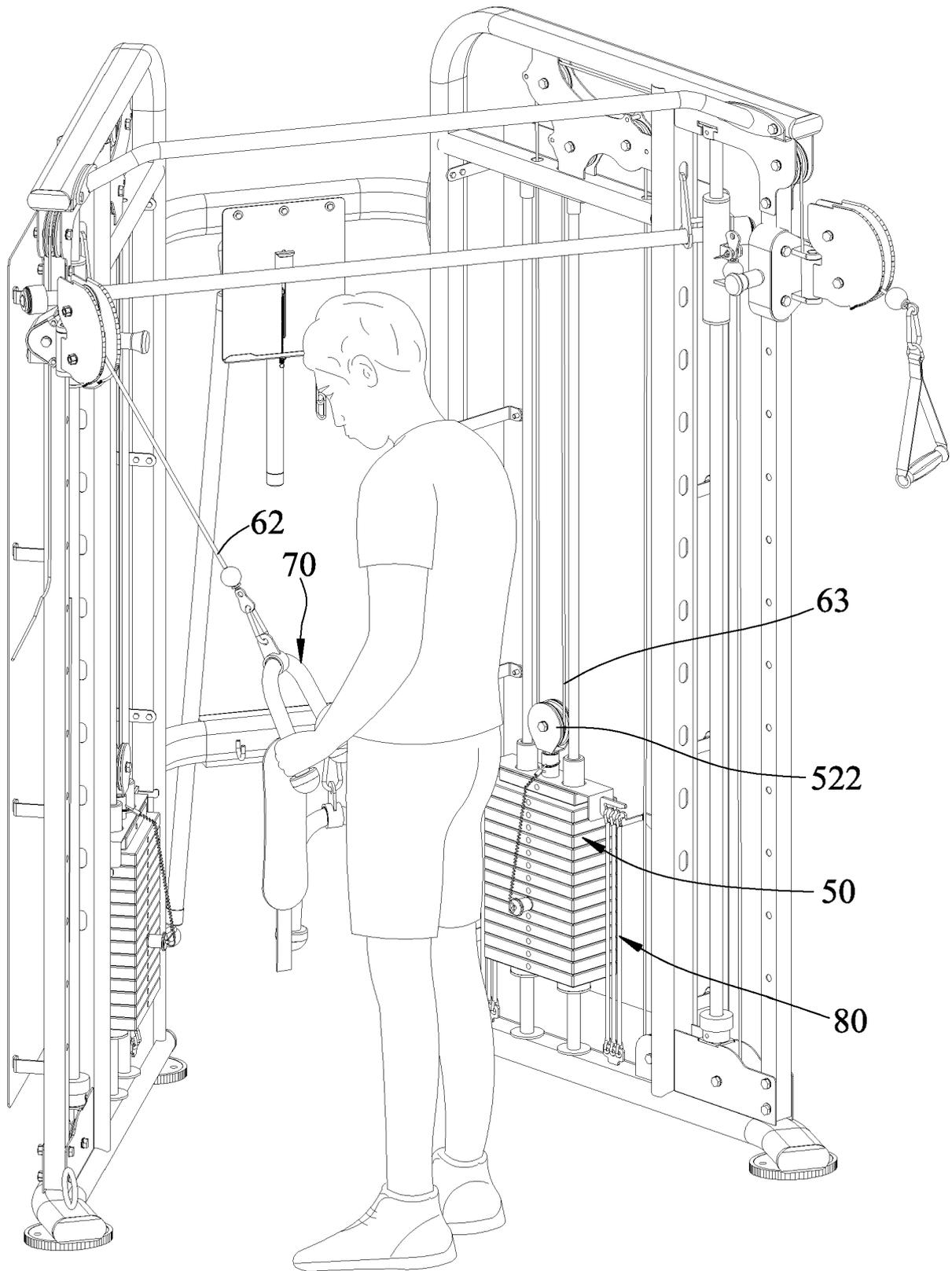


FIG.13

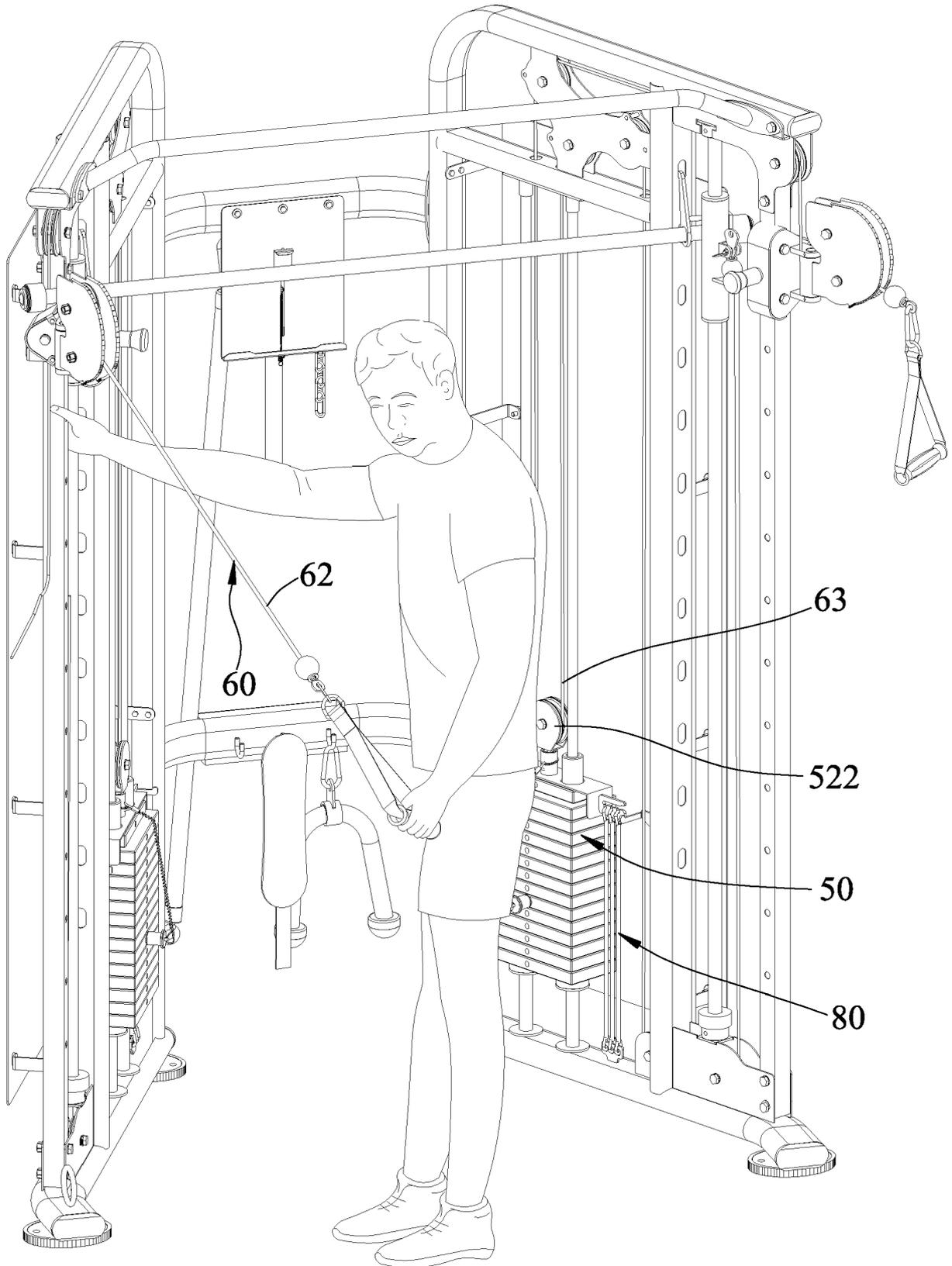


FIG.14

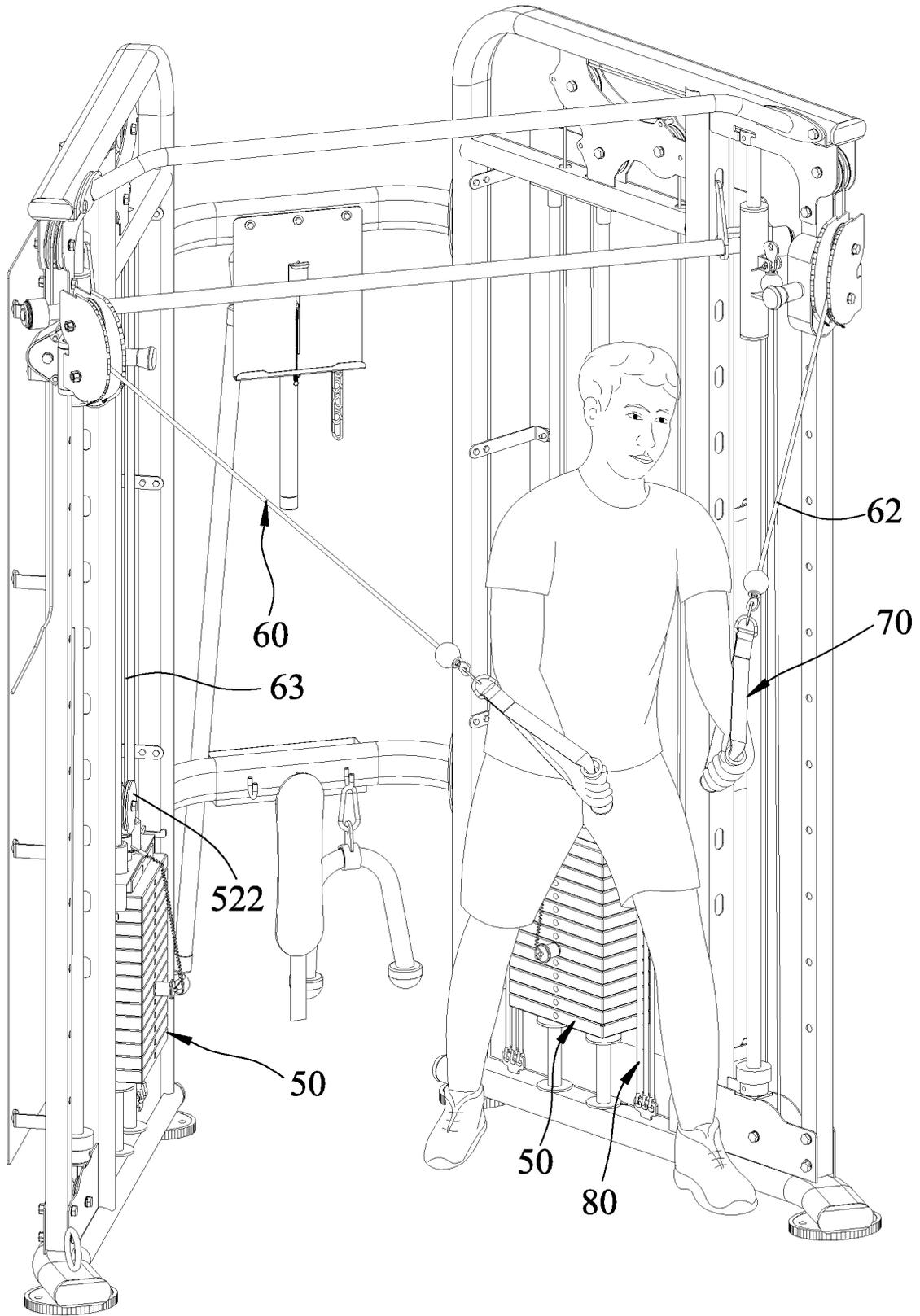


FIG.15

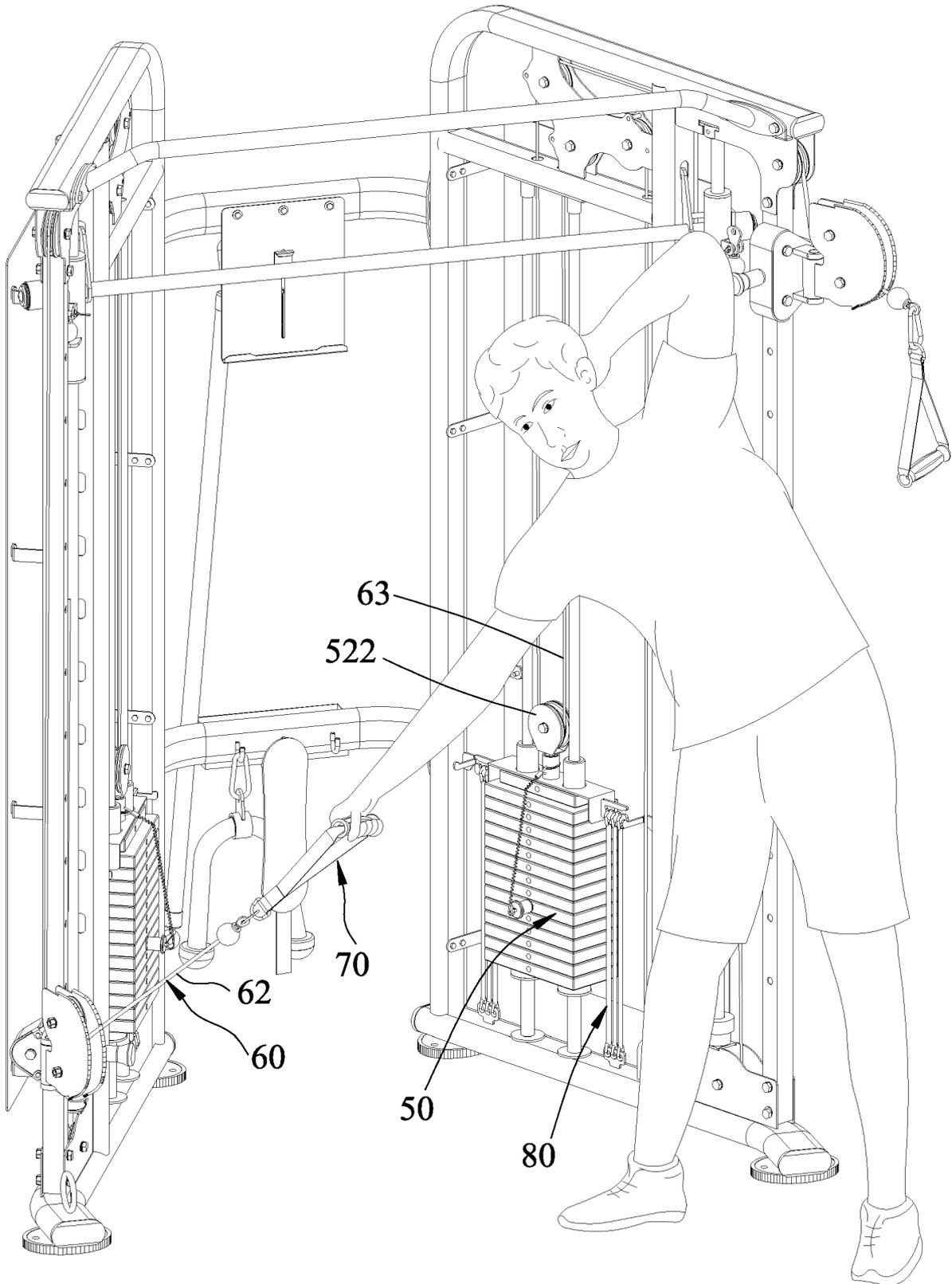


FIG.16

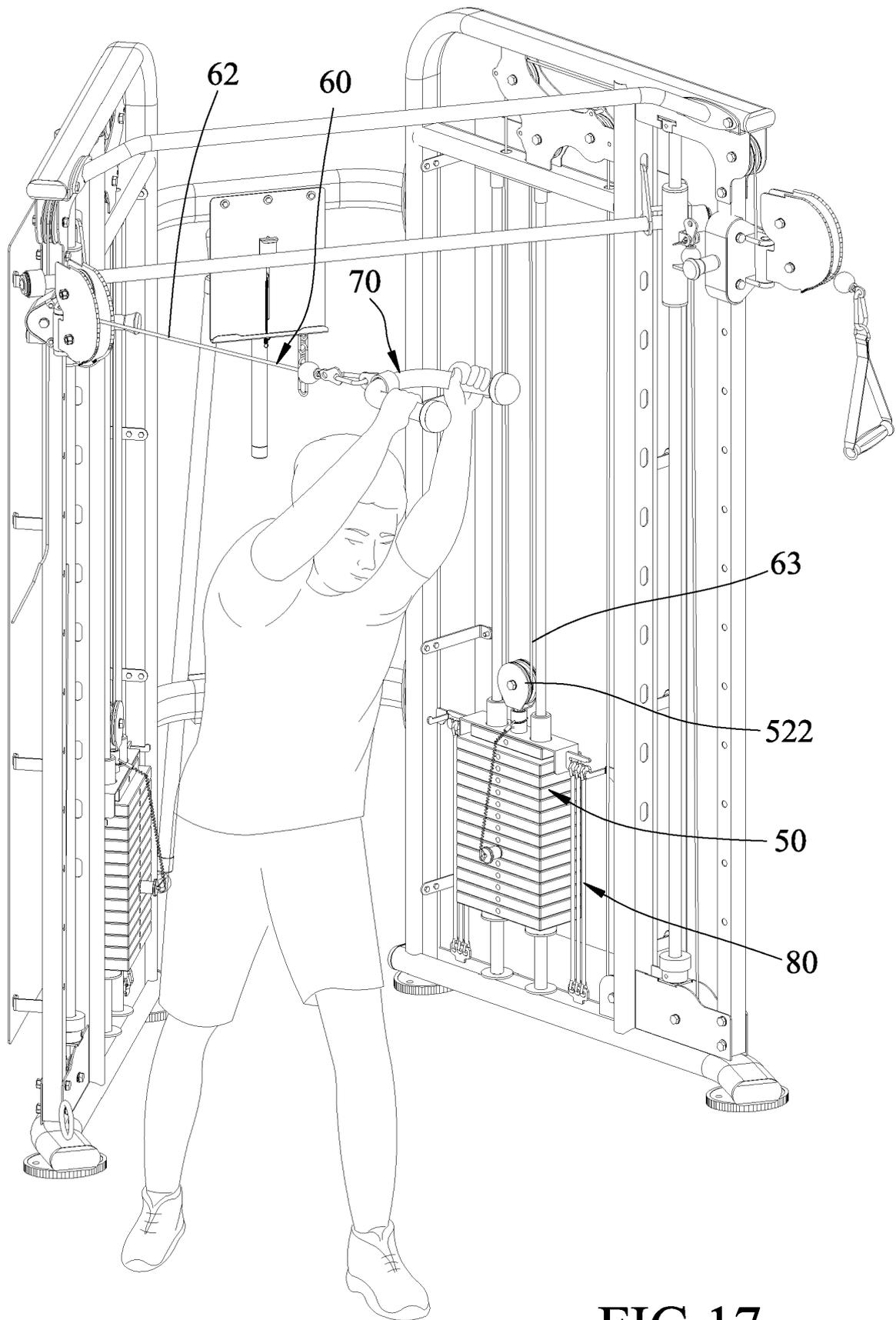


FIG.17

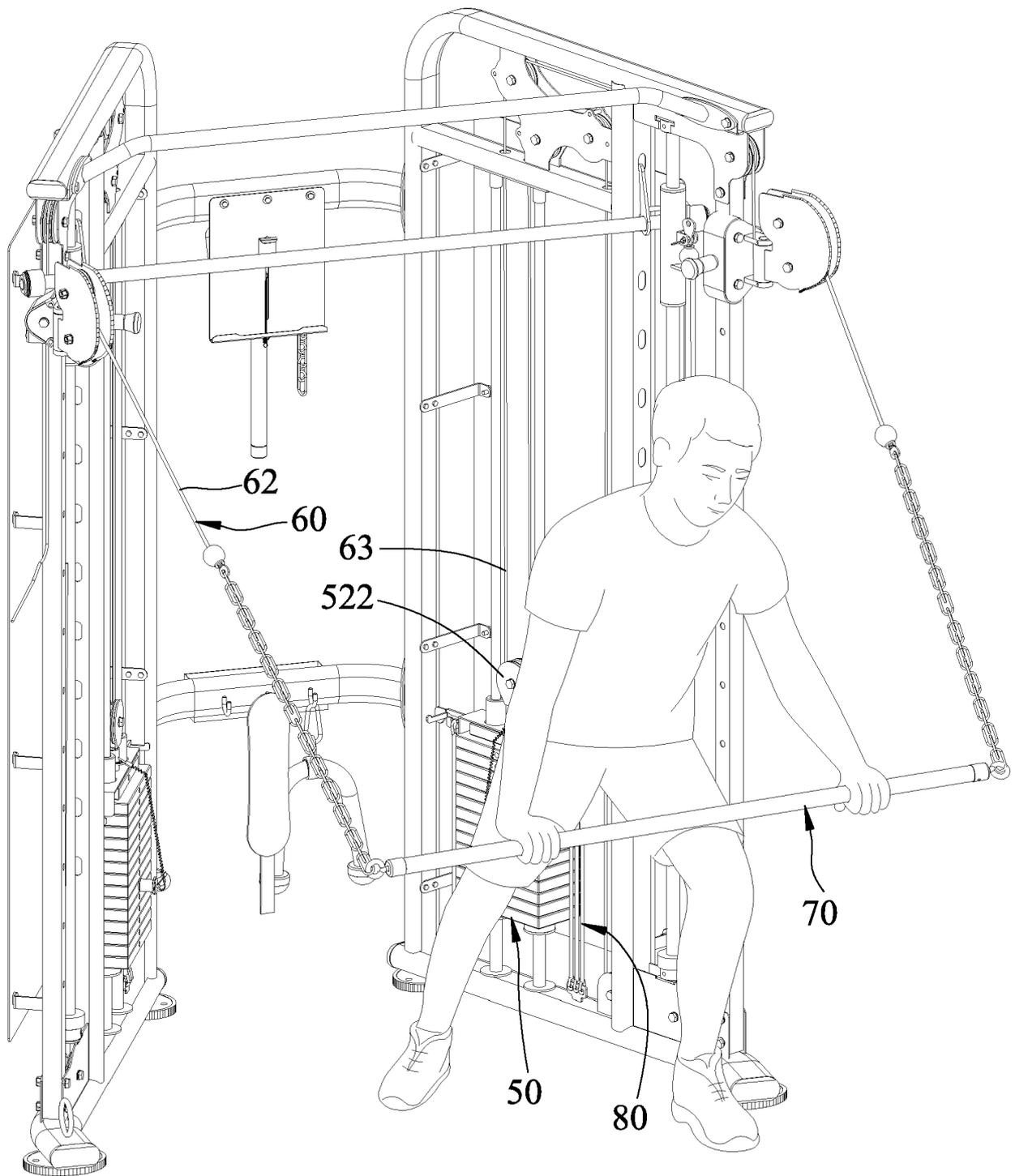


FIG.18

REFERENCES CITED IN THE DESCRIPTION

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