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(54) **Elliptical exercise machine with adjustable stride**

Maschine für elliptische Übungen mit Schritteinstellung

Machine d'exercice elliptique dotée d'une foulée réglable

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Description

[0001] This invention relates to an exercise apparatus, and more particularly to an elliptical exercise machine with adjustable stride.

[0002] Various stride adjustable elliptical exerciser machines have been proposed to meet the consumer's needs. For example, Taiwanese patent Number M286688 discloses an elliptical exerciser machine including a threaded rod and a threaded sleeve that engages the threaded rod. Relative rotation between the threaded rod and the threaded sleeve results in a change in a maximum distance between two pedals. Such a stride-adjusting arrangement, however, is complicated in structure, and is difficult to adjust.

[0003] US-2004/097339-A and US-6719666-B both disclose exercise apparatus according to the preamble of claim 1.

[0004] The object of this invention is to provide a stride adjustable elliptical exercise machine that has a simple structure and that is easy to adjust.

[0005] Accordingly, the elliptical exercise machine of this invention is defined by claim 1, and includes two swing rods connected pivotally to a base, a flywheel, two supporting rods connected pivotally between the flywheel and the swing rods, two pedal rods slidable respectively on the supporting rods, and a motion transmitting device. The device includes a fixed member fixed on the base, a rotatable member locked releaseably on the fixed member at a selected angular position, two cranks connected pivotally to the rotatable member, and two links each having a first pivot portion connected pivotally to the corresponding pedal rod, a second pivot portion connected pivotally to the corresponding swing rod, and a third pivot portion connected pivotally to the corresponding crank. The links are driven by the cranks to move the pedal rods forwardly and rearwardly on the supporting rods, respectively.

[0006] These and other features and advantages of this invention will become apparent in the following detailed description of a preferred embodiment of this invention, with reference to the accompanying drawings, in which:

Fig. 1 is a front perspective view of the preferred embodiment of a stride adjustable elliptical exercise machine according to this invention;

Fig. 2 is a rear perspective view of the preferred embodiment;

Fig. 3 is a partly exploded perspective view of the preferred embodiment;

Fig. 4 is a fragmentary schematic view of a link of the preferred embodiment;

Fig. 5 is a schematic side view of a fixed member, a rotatable member, and a locking member of the preferred embodiment, illustrating that the rotatable member is disposed at a first angular position;

Figs. 6 and 7 are side views of the preferred embod-

iment, illustrating respectively maximum and minimum distances between centers of a sliding wheel and a flywheel when the rotatable member is disposed at the first angular position;

Fig. 8 is a schematic side view of the fixed member, the rotatable member, and the locking member of the preferred embodiment, illustrating that the rotatable member is disposed at a second angular position; and

Figs. 9 and 10 are side views of the preferred embodiment, illustrating respectively maximum and minimum distances between centers of a sliding wheel and a flywheel when the rotatable member is disposed at the second angular position.

[0007] Referring to Figs. 1 and 2, the preferred embodiment of a stride adjustable elliptical exercise machine 100 according to this invention includes a base 1, two swing rods 2, a flywheel 3, two supporting rods 4, two pedal rods 5, and a motion transmitting device 6.

[0008] With further reference to Fig. 3, the base 1 is disposed on a supporting surface, such as the ground surface, and includes a main body 11, and two posts 12 disposed fixedly on a front end of the main body 11. The swing rods 2 are connected pivotally to the base 11, and are spaced apart from each other in a left-to-right direction. Each of the swing rods 2 includes a horizontal pivot rod portion 21 connected rotatably on the post 12, an upright rod portion 22 extending perpendicularly from and disposed under the horizontal pivot rod portion 21, and a grip portion 23 extending from and disposed above the horizontal pivot rod portion 21 and aligned with the upright rod portion 22. As such, the grip portions 23 can be operated to pivot the upright rod portions 22 forwardly and rearwardly about the horizontal pivot rod portions 21.

[0009] The flywheel 3 is disposed rotatably on a rear end portion of the base 11. Each of the supporting rods 4 is straight, and has a front end 41 connected pivotally to a bottom end of the upright rod portion 22 of the corresponding swing rod 2, and a rear end 42 is slightly higher than the front end 41 and connected pivotally to the flywheel 3. The rear ends 42 of the two supporting rods 4 are connected respectively and pivotally to two opposite sides of the flywheel 3. The pedal rods 5 are disposed respectively on top surfaces of the supporting rods 4 for permitting the feet of the user to step thereon such that, when the flywheel 3 is rotated, each of the feet is moved in an elliptical path of motion simulating natural walking or running foot movement.

[0010] The motion transmitting device 6 includes a fixed member 61 and a rotatable member 62. The fixed member 61 is disposed fixedly on and in front of the post 12, and includes two vertical sidewalls 611 spaced apart from each other in a left-to-right direction. The rotatable member 62 includes two vertical pivot walls 621 respectively adjacent to outer side surfaces of the sidewalls 611. The pivot walls 621 are connected respectively and pivotally to the sidewalls 611 by a pivot pin unit including

two pivot pins 622. In this embodiment, each of the pivot pins 622 is a rivet. As such, the rotatable member 62 is rotatable relative to the fixed member 61 about the pivot pins 622. The motion transmitting device 6 further includes two cranks 63 and two links 64. The two cranks 63 have upper ends 631 connected respectively and pivotally to left and right sides of the rotatable member 61, and lower ends 632. In this embodiment, the upper end 631 of each of the cranks 63 is formed with a pivot hole 633. The rotatable member 62 includes a pivot rod 623 extending through the pivot walls 621 and into the pivot holes 633 in the cranks 63, respectively. As such, the cranks 63 are rotatable relative to the rotatable member 62 about the pivot rod 623, and the position of the pivot rod 623 relative to the fixed member 61 can be changed by rotating the rotatable member 62 relative to the fixed member 61.

[0011] Each of the links 64 has a first pivot portion 641 connected pivotally to the corresponding pedal rod 5, a second pivot portion 642 disposed above the first pivot portion 641 and connected pivotally to the upright rod portion 22 of the corresponding swing rod 2, and a third pivot portion 643 spaced apart from the second pivot portion 642 and connected pivotally to the lower end 632 of the corresponding crank 63. Each of the pedal rods 5 has a pivot rod portion 51 connected pivotally to the first pivot portion 641 of the corresponding link 64 at a front end thereof, and a pedal portion 52 disposed behind and connected to the pivot rod portion 51 and having a bottom end provided with a sliding wheel 53 slidable forwardly and rearwardly on the top surface of the corresponding supporting rod 4, such that the corresponding pedal rod 5 rotates about a central axis of the sliding wheel 53. As such, when the rotatable member 62 is rotated relative to the fixed member 61, the links 64 are driven respectively by the cranks 63 to pivot forwardly or rearwardly to change travel of the pedal portions 52 of the pedal rods 5, thereby adjusting the user's stride.

[0012] With further reference to Fig. 4, in this embodiment, each of the links 64 includes an inverted L-shaped first rod member 644 and a second rod member 645. Each of the first rod members 644 includes a lower rod body 646 having the first pivot portion 641 at a bottom end thereof, and an upper rod body constituting the second pivot portion 642 and extending perpendicularly from a top end portion of the lower rod body 646. The upright rod portion 22 of each of the swing rods 2 is formed with a horizontal pivot hole 221 permitting the second pivot portion 642 of the corresponding link 64 to extend there-through, so that the corresponding link 64 can rotate relative to the corresponding upright rod portion 22. The second rod member 645 of each of the links 64 has the third pivot portion 643 at an upper end thereof, and a non-circular horizontal engaging hole 647 at a bottom end thereof. An engaging block 648 is disposed fixedly on an end of each of the second pivot portions 642, has a non-circular cross-section, and is received fittingly within the engaging hole 647 in the corresponding second

rod member 645, so that the corresponding second pivot portion 642 is connected fixedly to the bottom end of the corresponding second rod member 645. As such, when the second rod members 645 are activated by the cranks 53, the first rod members 644 co-rotate with the second rod members 645. In this embodiment, the first and second rod members 644, 645 of each of the links 64 form an angle θ therebetween. The angle θ is an obtuse angle.

[0013] With further reference to Fig. 5, the fixed member 61 further includes a curved wall 612 interconnecting the sidewalls 611, and the rotatable member 62 further includes a curved wall 624 interconnecting the pivot walls 621. A positioning unit is disposed for maintaining the rotatable member 62 at a desired position relative to the fixed member 61. The positioning unit includes a plurality of curvedly arranged positioning holes 613, a through hole 625, and a locking member 65. The positioning holes 613 are formed through the curved wall 612, are vertically spaced apart from each other, and are spaced apart from a common axis of the pivot pins 622 by the same distance (i.e., the positioning holes 613 are arranged in a circumferential direction with respect to the common axis of the pivot pins 622). The through hole 625 is formed in the curved wall 624 of the rotatable member 62. The locking member 65 extends through the through hole 625 in the rotatable member 62 to engage a selected one of the positioning holes 613 in the fixed member 61, thereby locking the rotatable member 62 releaseably on the fixed member 61 at a selected one of a plurality of angular positions.

[0014] In this embodiment, the through hole 625 in the rotatable member 62 is a threaded hole. The locking member 65 has a rotary knob portion 651 exposed outwardly of the rotatable member 62 for manual operation, a threaded rod portion 652 engaging the through hole 625 in the rotatable member 62 and having an end connected to the rotary knob portion 651, and an engaging rod portion 653 connected to an opposite end of the threaded rod portion 652 and engaging the selected positioning hole 613 in the fixed member 61 to lock the rotatable member 62 on the fixed member 61. The rotary knob portion 651 can be operated to remove the engaging rod portion 653 from the selected positioning hole 613 to thereby release the rotatable member 62 from the fixed member 61.

[0015] One of the swing rods 2, one of the supporting rods 4, one of the pedal rods 5, one of the cranks 63, and one of the links 64 at the same side will be described in the succeeding paragraphs.

[0016] With particular reference to Figs. 5, 6, and 7, when the locking member 65 is inserted into the third (counted from the top) positioning hole 613 so that the rotatable member 62 is disposed at a first angular position, as shown in Fig. 5, each of the pedal rods 5 is movable between a front limit position whereat the centers of the sliding wheel 53 the flywheel 3 are spaced apart from each other by a maximum distance (D1) (see Fig. 6), and a rear limit position shown in Fig. 7 whereat the

centers of the sliding wheel 53 and the flywheel 3 are spaced apart from each other by a minimum distance (D2) (see Fig. 7) . When the rotatable member 62 is disposed at the first angular position, D1 is 578 mm, and D2 is 163 mm. As a consequence, the travel of the pedal portion 52 is $D1 - D2 = 578 \text{ mm} - 163 \text{ mm} = 415 \text{ mm}$ (approximate to 16 inches).

[0017] With particular reference to Figs. 8, 9, and 10, when it is desired to slightly increase the travel of the pedal rod 5, the locking member 65 is first operated to separate from the third positioning hole 613. Next, the rotatable member 62 is rotated relative to the fixed member 61 in a counterclockwise direction (I) (see Fig. 8) to align the locking member 65 with the fourth (counted from the top) positioning hole 613. Afterwards, the rotary knob portion 651 is operated to engage the fourth positioning hole 613 to thereby lock the rotatable member 62 on the fixed member 61 at a second angular position. During counterclockwise rotation of the rotatable member 62, the third pivot portion 643 is pivoted downwardly about the second pivot portion 642 to thereby rotate the first rod member 644 in a direction (II), thus moving the pedal rod 5 forwardly on the corresponding supporting rod 4. Hence, an angle formed between the link 64 and the upright rod portion 22 of the swing rod 2 and, thus, the travel of the pedal rod 5 are increased. In this embodiment, when the rotatable member 62 is disposed at the second angular position, the travel of the pedal rod 5 is about 17 inches. To reduce the travel of the pedal rod 5, the locking member 65 can be operated to engage the first or second (counted from the top) positioning hole 613.

[0018] In this embodiment, when the locking member 65 engages the first positioning hole 613, the travel of the pedal portion 52 is about 14 inches; when the locking member 65 engages the second positioning hole 613, the travel of the pedal portion 52 is about 15 inches; when the locking member 65 engages the fifth positioning hole 613, the travel of the pedal portion 52 is about 18 inches; when the locking member 65 engages the sixth positioning hole 613, the travel of the pedal portion 52 is about 19 inches; and when the locking member 65 engages the seven positioning hole 613, the travel of the pedal portion 52 is about 20 inches.

[0019] Alternatively, the number and positions of the positioning holes 613 may be changed. In addition, the positioning holes 613 may be replaced with a plurality of positioning grooves. If this occurs, the rotatable member 62 may be provided with a spring-biased engaging member or ball that is engageable within a selected one of the positioning grooves.

[0020] In view of the above, the elliptical exercise machine 100 of this invention has a simple structure, and is easy and convenient to adjust the stride. Thus, the object of this invention is achieved.

Claims

1. An elliptical exercise machine (100) comprising:

a base (1);
two swing rods (2) connected pivotally to said base (1) and spaced apart from each other in a left-to-right direction;
a flywheel (3) disposed rotatably on said base (1);
two supporting rods (4) connected respectively and pivotally to bottom ends of said swing rods (2) and connected to said flywheel (3);
two pedal rods (5) disposed respectively, pivotally, and movably on said supporting rods (4);
characterised by
a motion transmitting device (6) including

a fixed member (61) disposed fixedly on said base (1),
a rotatable member (62) disposed rotatably on said fixed member (61) and locked releasably on said fixed member (61) at a selected one of a plurality of angular positions,
two cranks (63) having upper ends (631) connected respectively and pivotally to left and right sides of said rotatable member (62), and lower ends (632) opposite to said upper ends (631), and
two links (64) each having a first pivot portion (641) connected pivotally to a respective one of said pedal rods (5), a second pivot portion (642) disposed above said first pivot portion (641) and connected pivotally to a respective one of said swing rods (2), and a third pivot portion (643) spaced apart from said second pivot portion (642) and connected pivotally to said lower end of a respective one of said cranks (63), said links (64) being driven by said cranks (63) to move said pedal rods (5) forwardly and rearwardly on said supporting rods (4), respectively.

2. The elliptical exercise machine (100) as claimed in Claim 1, **characterized in that:**

said fixed member (61) has a plurality of curvedly arranged positioning holes (613) vertically spaced apart from each other;
said rotatable member (62) has a through hole (625); and
said motion transmitting device (6) further includes a locking member (65) extending through said through hole (625) in said rotatable member (62) to engage a selected one of said positioning holes (613) in said fixed member (61), thereby

locking said rotatable member (62) at the selected one of the angular positions.

3. The elliptical exercise machine (100) as claimed in Claim 1, **characterized in that** each of said links (64) includes an inverted L-shaped first rod member (644) and having said first and second pivot portions (641, 642), and a second rod member (645) having the third pivot portion (643) at an upper end thereof and connected fixedly to said first rod member (644).
4. The elliptical exercise machine (100) as claimed in Claim 3, further **characterized in that** each of said swing rods (2) has a pivot hole (221) such that said second pivot portion (642) of said first rod member (644) of a corresponding one of said links (64) extends through said pivot hole (221) to connect with a lower end of a corresponding one of said second rod members (645) of said links (64).
5. The elliptical exercise machine (100) as claimed in Claim 2, further **characterized in that** said motion transmitting device (6) further includes a pivot pin unit extending into said rotatable member (62) and said fixed member (61) for connecting said rotatable member (62) pivotally to said fixed member (61), and said fixed member (61) further includes a curved wall (612), said positioning holes (613) being formed through said curved wall (612) and being spaced apart from said pivot pin unit by the same distance.
6. The elliptical exercise machine (100) as claimed in Claim 1, **characterized in that** said through hole (625) in said rotatable member (62) is a threaded hole, said locking member (65) having a rotary knob portion (651) exposed outwardly of said rotatable member (62) for manual operation, a threaded rod portion (652) engaging said through hole (625) and having an end connected to said rotary knob portion (651), and an engaging rod portion (653) connected to an opposite end of said threaded rod portion (652) and engaging the selected one of said positioning holes (613) in said fixed member (61).

Patentansprüche

1. Elliptische Trainingsvorrichtung (100) umfassend:

eine Basis (1),
zwei voneinander in links-nach-rechts-Richtung beabstandete drehbar mit der Basis (1) verbundene Schwungstangen (2);
ein rotierbar an der Basis (1) angeordnetes Schwungrad (3);
zwei Auflagestangen (4), welche jeweils drehbar mit unteren Enden der Schwungstangen (2) und dem Schwungrad (3) verbunden sind;

zwei Pedalstangen (5), welche jeweils drehbar und bewegbar an den Auflagestangen (4) angeordnet sind,

gekennzeichnet durch

eine Bewegungsübertragungseinrichtung (6), umfassend ein fixiert an der Basis (1) angeordnetes feststehendes Element (61),
ein rotierbares Element (62), welches rotierbar an dem feststehenden Element (61) angeordnet ist und lösbar an dem feststehenden Element (61) in einer ausgewählten von mehreren Winkelpositionen verriegelt ist,
zwei Kurbelwellen (63), welche oberen Enden (631), die drehbar mit einer linken bzw. einer rechten Seite des rotierbaren Elementes (62) verbunden sind, und den oberen Enden (631) gegenüberliegende untere Enden (632) aufweist, und zwei Verbindungen (64), die jeweils einen ersten Gelenkabschnitt (641), der drehbar mit einer korrespondierenden der Pedalstangen (5) verbunden ist, einen zweiten Gelenkabschnitt (642), der oberhalb des ersten Gelenkabschnitts (641) angeordnet ist und drehbar mit einer korrespondierenden der Schwungstangen (2) verbunden ist, und einen dritten Gelenkabschnitt (643) aufweisen, der von dem zweiten Gelenkabschnitt (642) beabstandet ist und drehbar mit dem unteren Ende einer korrespondierenden der Kurbelwellen (63) verbunden ist,
wobei die Verbindungen (64) jeweils über die Kurbelwellen (63) angetrieben werden, um die jeweiligen Pedalstangen (5) entsprechend vorwärts und rückwärts auf den Auflagestangen (4) zu bewegen.

2. Elliptische Trainingsvorrichtung (100) nach Anspruch 1, **dadurch gekennzeichnet, dass** das feststehende Element (61) eine Vielzahl bogenförmig angeordneter Positionierungslöcher (613) aufweist, welche vertikal voneinander beabstandet sind; wobei das rotierbare Element (62) ein Durchgangsloch (625) aufweist; und wobei die Bewegungsübertragungseinrichtung (6) ferner ein sich durch das Durchgangsloch (625) des rotierbaren Elementes (62) erstreckendes Verriegelungselement (65) umfasst, um in ein ausgewähltes der Positionierungslöcher (613) des feststehenden Elementes (61) einzugreifen und dadurch das rotierbare Element (62) an der ausgewählten Winkelposition zu verriegeln.
3. Elliptische Trainingsvorrichtung (100) nach Anspruch 1, **dadurch gekennzeichnet, dass** jede der Verbindungen (64) ein umgedreht L-förmiges erstes Stangenelement (644) umfasst und die ersten und zweiten Gelenkabschnitte (641, 642) aufweist und ein zweites Stangenelement (645) an einem oberen Ende den dritten Gelenkabschnitt (643) aufweist und

fest mit dem ersten Stangenelement (644) verbunden ist.

4. Elliptische Trainingsvorrichtung (100) nach Anspruch 3, **dadurch gekennzeichnet, dass** jede der Schwungstangen (2) ein Drehloch (221) aufweist, so dass sich der zweite Gelenkabschnitt (642) des ersten Stangenelements (644) einer korrespondierenden Verbindung (64) zum Verbinden mit einem unteren Ende des korrespondierenden zweiten Stangenelements (645) der Verbindung (64) durch das Drehloch (221) erstreckt. 5
5. Elliptische Trainingsvorrichtung (100) nach Anspruch 2, **dadurch gekennzeichnet, dass** die Bewegungsübertragungseinrichtung (6) ferner einen durch das rotierbare Element (62) und das feststehende Element (61) eingreifenden Drehstift umfasst, um das rotierbare Element (62) drehbar mit dem feststehenden Element (61) zu verbinden, und wobei das feststehende Element (61) ferner eine bogenförmige Wand (612) umfasst, wobei die Positionierungslöcher (613) durch die bogenförmige Wand (612) hindurch ausgebildet sind und von dem Drehstift im gleichen Abstand entfernt sind. 10 20 25
6. Elliptische Trainingsvorrichtung (100) nach Anspruch 1, **dadurch gekennzeichnet, dass** das Durchgangsloch (625) in dem rotierbaren Element (62) ein Gewindeloch ist, wobei das Verriegelungselement (65) zur manuellen Betätigung einen außen am rotierbaren Element (62) liegenden Drehknopfbereich (651) und eine Eingriffsstange (653) aufweist, wobei eine Gewindestange (652) in das Durchgangsloch (625) eingreift und mit einem Ende mit dem Drehknopfbereich (651) verbunden ist, und wobei die Eingriffsstange (653), welche mit dem entgegengesetzten Ende der Gewindestange (652) verbunden ist, in ein ausgewähltes der Positionierungslöcher (613) des feststehenden Elementes (61) eingreift. 30 35 40

Revendications

1. Machine d'exercice elliptique (100) comprenant :

une base (1) ;
 deux barres oscillantes (2) reliées de manière pivotante à ladite base (1) et espacées l'une de l'autre dans une direction allant de la gauche vers la droite ;
 un rotor (3) disposé de manière rotative sur ladite base (1) ;
 deux barres de support (4) reliées respectivement et de manière pivotante aux extrémités inférieures desdites barres oscillantes (2) et reliées audit rotor (3) ; 50 55

deux barres de pédale (5) disposées respectivement, de manière pivotante et mobile, sur lesdites barres de support (4) ; **caractérisée par** un dispositif transmetteur de mouvement (6) incluant

un élément fixe (61) disposé fixement sur ladite base (1),
 un élément rotatif (62) disposé de manière rotative sur ledit élément fixe (61) et verrouillé de façon libérable sur ledit élément fixe (61) à une position choisie parmi une pluralité de positions angulaires,
 deux manivelles (63) ayant des extrémités supérieures (631) reliées respectivement et de manière pivotante aux côtés gauche et droit dudit élément rotatif (62), et des extrémités inférieures (632) opposées auxdites extrémités supérieures (631), et
 deux biellettes (64) ayant chacune une première partie pivotante (641) reliée de manière pivotante à une barre respective desdites barres de pédale (5), une deuxième partie pivotante (642) disposée au-dessus de ladite première partie pivotante (641) et reliée de manière pivotante à une barre respective desdites barres oscillantes (2), et une troisième partie pivotante (643) espacée de ladite deuxième partie pivotante (642) et reliée de manière pivotante à ladite extrémité inférieure d'une manivelle respective desdites manivelles (63), lesdites biellettes (64) étant entraînées par lesdites manivelles (63) pour déplacer lesdites barres de pédale (5) vers l'avant et vers l'arrière sur lesdites barres de support (4), respectivement.

2. Machine d'exercice elliptique (100) selon la revendication 1, **caractérisée en ce que** :

ledit élément fixe (61) comporte une pluralité de trous de positionnement disposés en courbe (613) espacés verticalement les uns des autres ;
 ledit élément rotatif (62) comporte un trou traversant (625) ; et
 ledit dispositif transmetteur de mouvement (6) inclut en outre un élément de verrouillage (65) s'étendant à travers ledit trou traversant (625) dans ledit élément rotatif (62) pour se mettre en prise avec un trou choisi parmi lesdits trous de positionnement (613) dans ledit élément fixe (61), verrouillant ainsi ledit élément rotatif (62) dans la position choisie parmi les positions angulaires.

3. Machine d'exercice elliptique (100) selon la revendication 1, **caractérisée en ce que** chacune desdites biellettes (64) inclut un premier élément de barre en forme de L inversé (644) et comportant lesdites

première et deuxième parties pivotantes (641, 642), et un second élément de barre (645) comportant la troisième partie pivotante (643) à une extrémité supérieure de celui-ci et relié de manière fixe audit premier élément de barre (644).

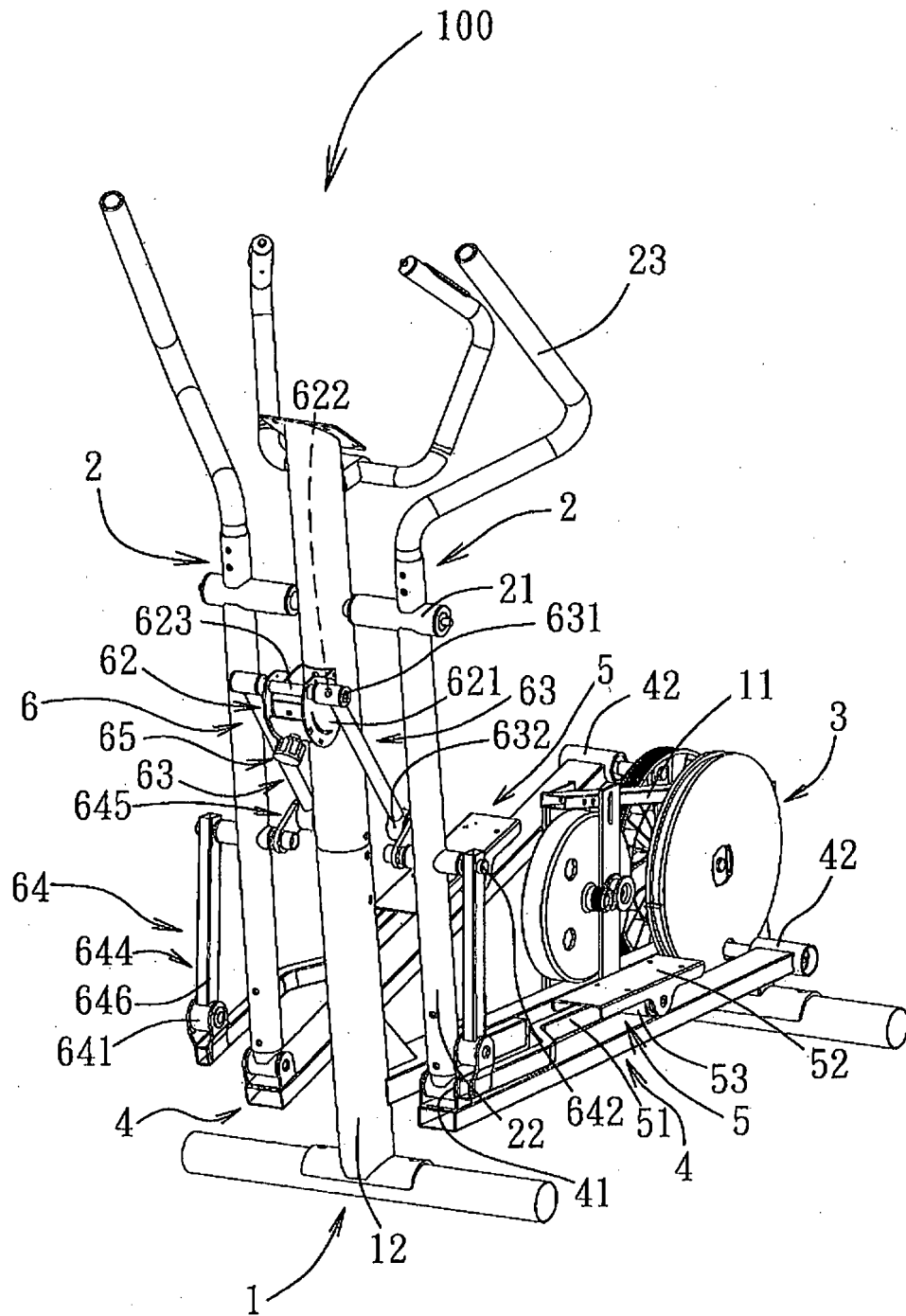
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4. Machine d'exercice elliptique (100) selon la revendication 3, **caractérisée en outre en ce que** chacune desdites barres d'oscillation (2) comporte un trou de pivot (221) de telle sorte que ladite deuxième partie pivotante (642) dudit premier élément de barre (644) d'une biellette correspondante parmi lesdites biellettes (64) s'étend à travers ledit trou de pivot (221) pour être relié à une extrémité inférieure d'un élément correspondant parmi lesdits seconds éléments de barre (645) desdites biellettes (64). 10 15
5. Machine d'exercice elliptique (100) selon la revendication 2, **caractérisée en outre en ce que** ledit dispositif transmetteur de mouvement (6) inclut en outre une unité formant axe de pivot s'étendant dans ledit élément rotatif (62) et ledit élément fixe (61) pour relier ledit élément rotatif (62) de manière pivotante audit élément fixe (61), et ledit élément fixe (61) inclut en outre une paroi incurvée (612), lesdits 20 25 trous de positionnement (613) étant formés à travers ladite paroi incurvée (612) et étant éloignés de ladite unité formant axe de pivot de la même distance.
6. Machine d'exercice elliptique (100) selon la revendication 1, **caractérisée en ce que** ledit trou traversant (625) dans ledit élément rotatif (62) est un trou fileté, ledit élément de verrouillage (65) comportant une partie de bouton rotatif (651) exposée vers l'extérieur dudit élément rotatif (62) pour un fonctionnement manuel, une partie de barre filetée (652) se mettant en prise avec ledit trou traversant (625) et ayant une extrémité reliée à ladite partie de bouton rotatif (651), et une partie de barre de mise en prise (653) reliée à une extrémité opposée de ladite partie de barre filetée (652) et se mettant en prise avec le trou choisi parmi lesdits trous de positionnement (613) dans ledit élément fixe (61). 30 35 40

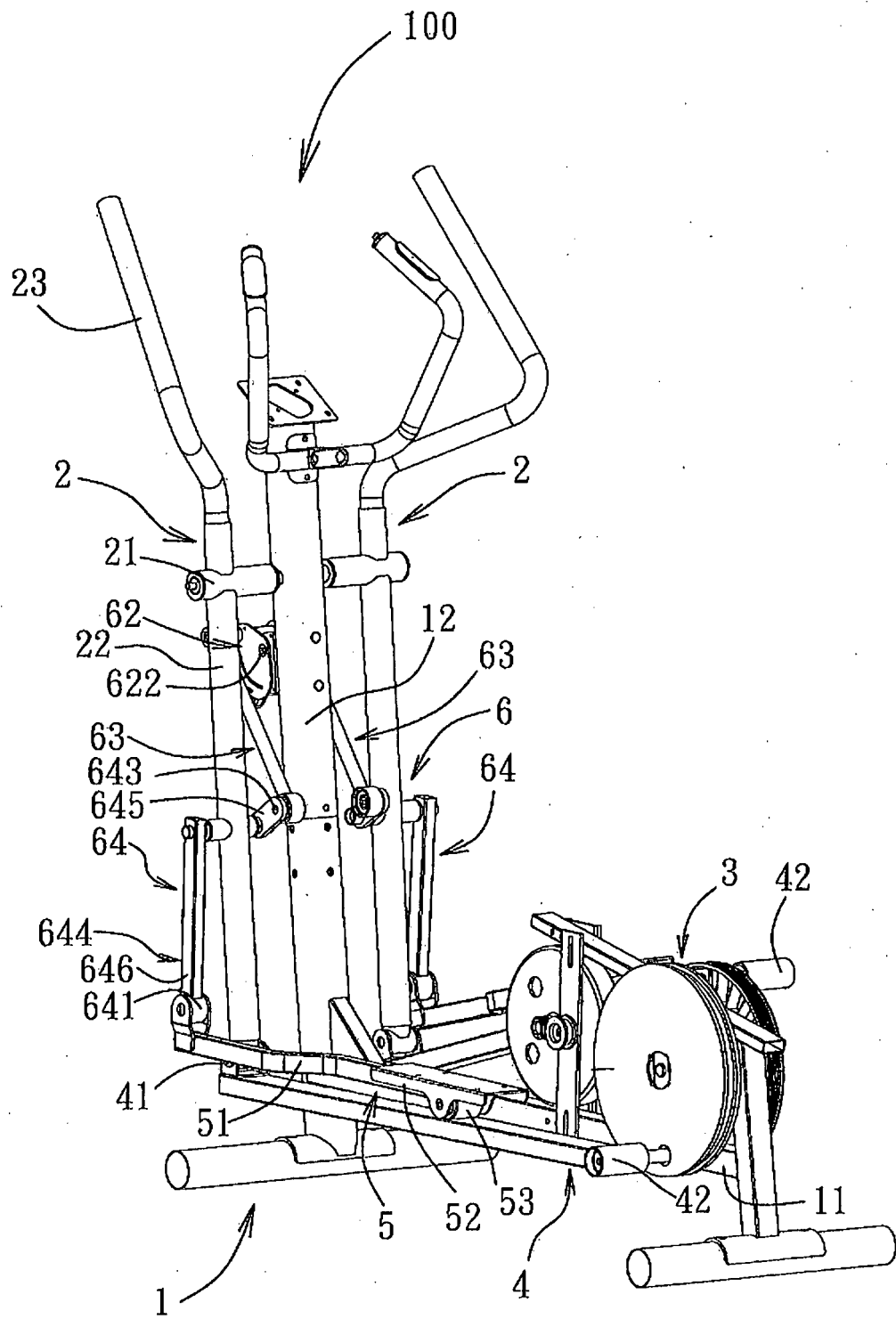
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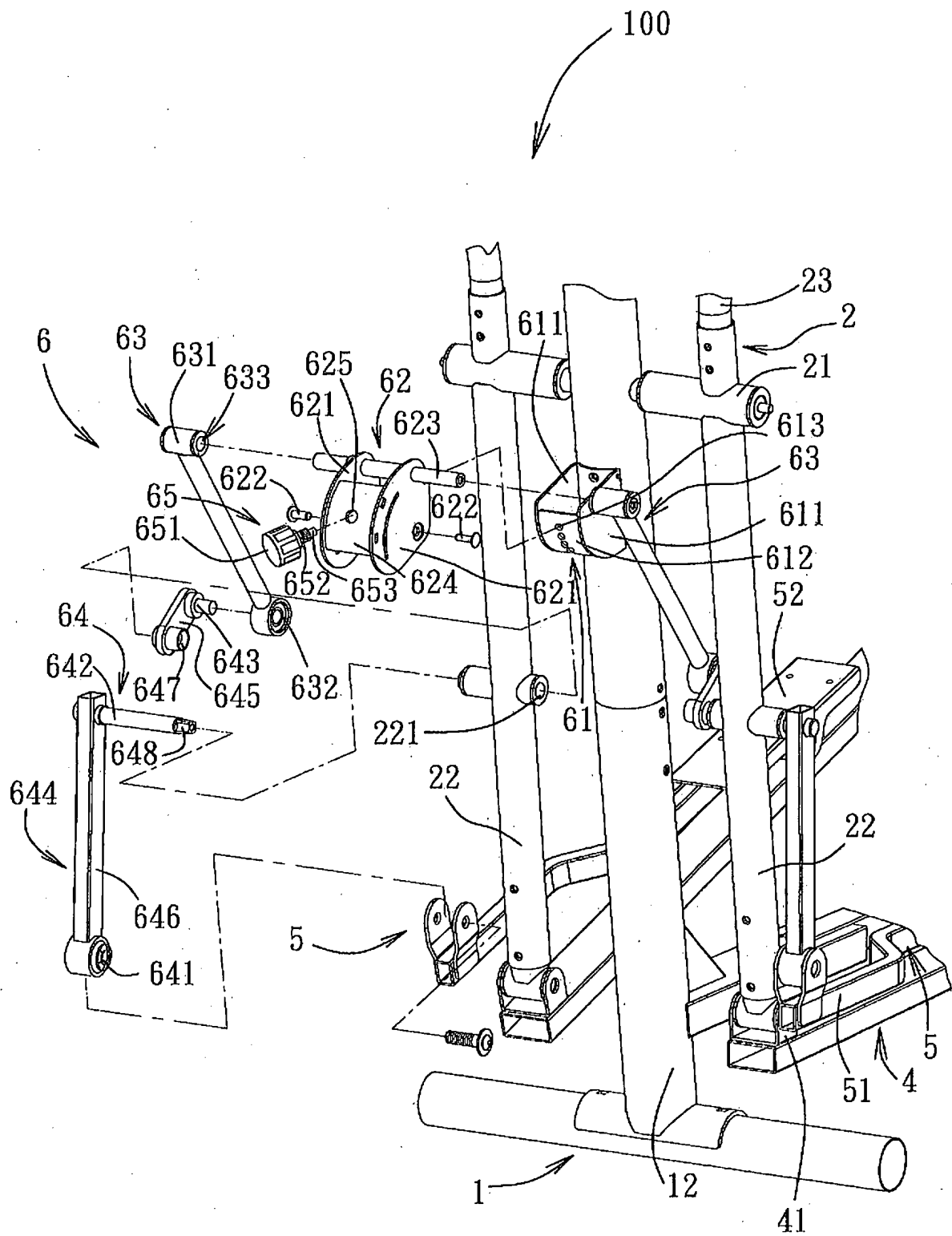
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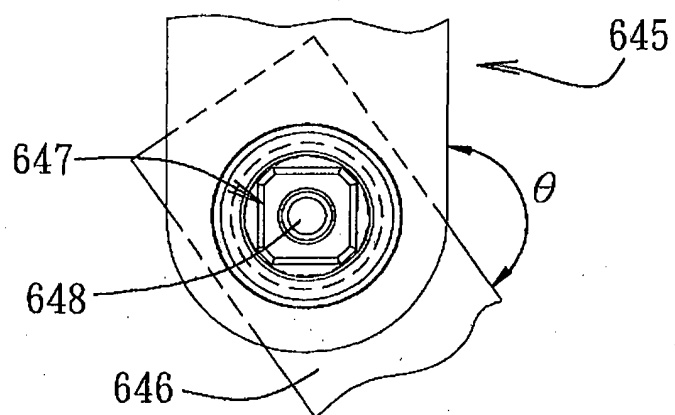
F I G. 1



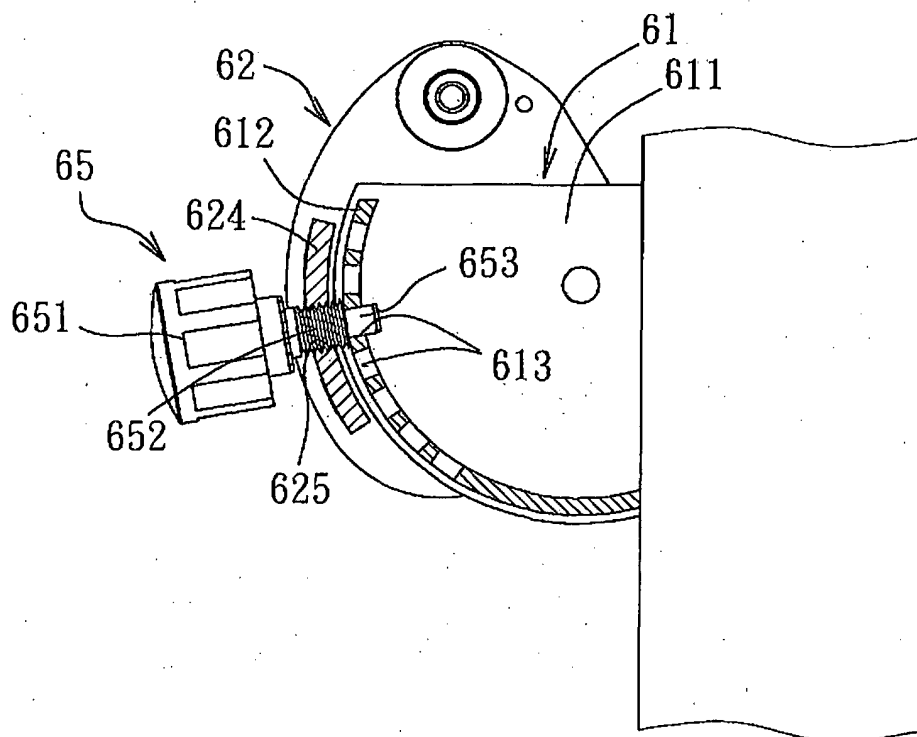
F I G. 2



F I G. 3



F I G. 4



F I G. 5

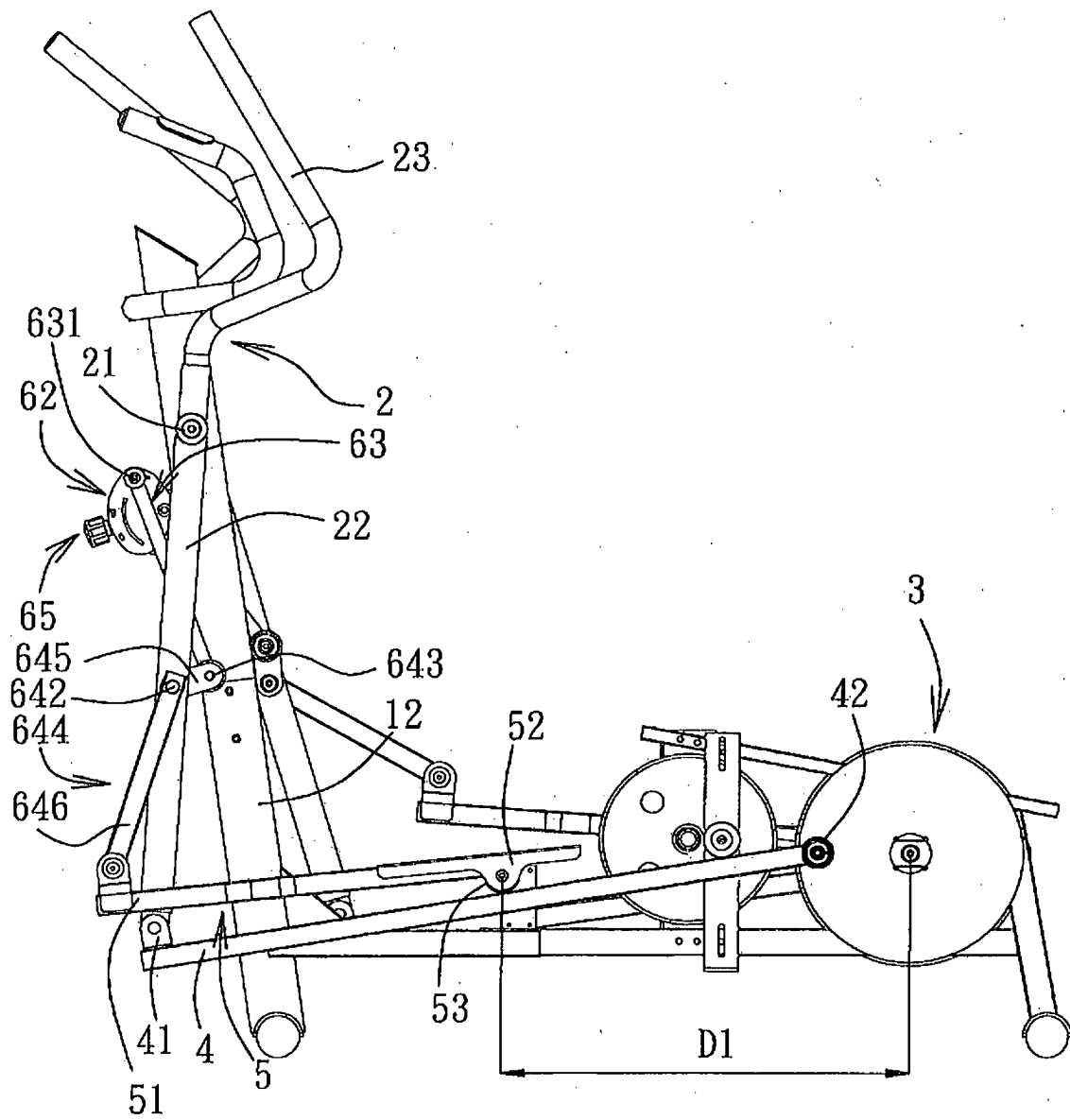


FIG. 6

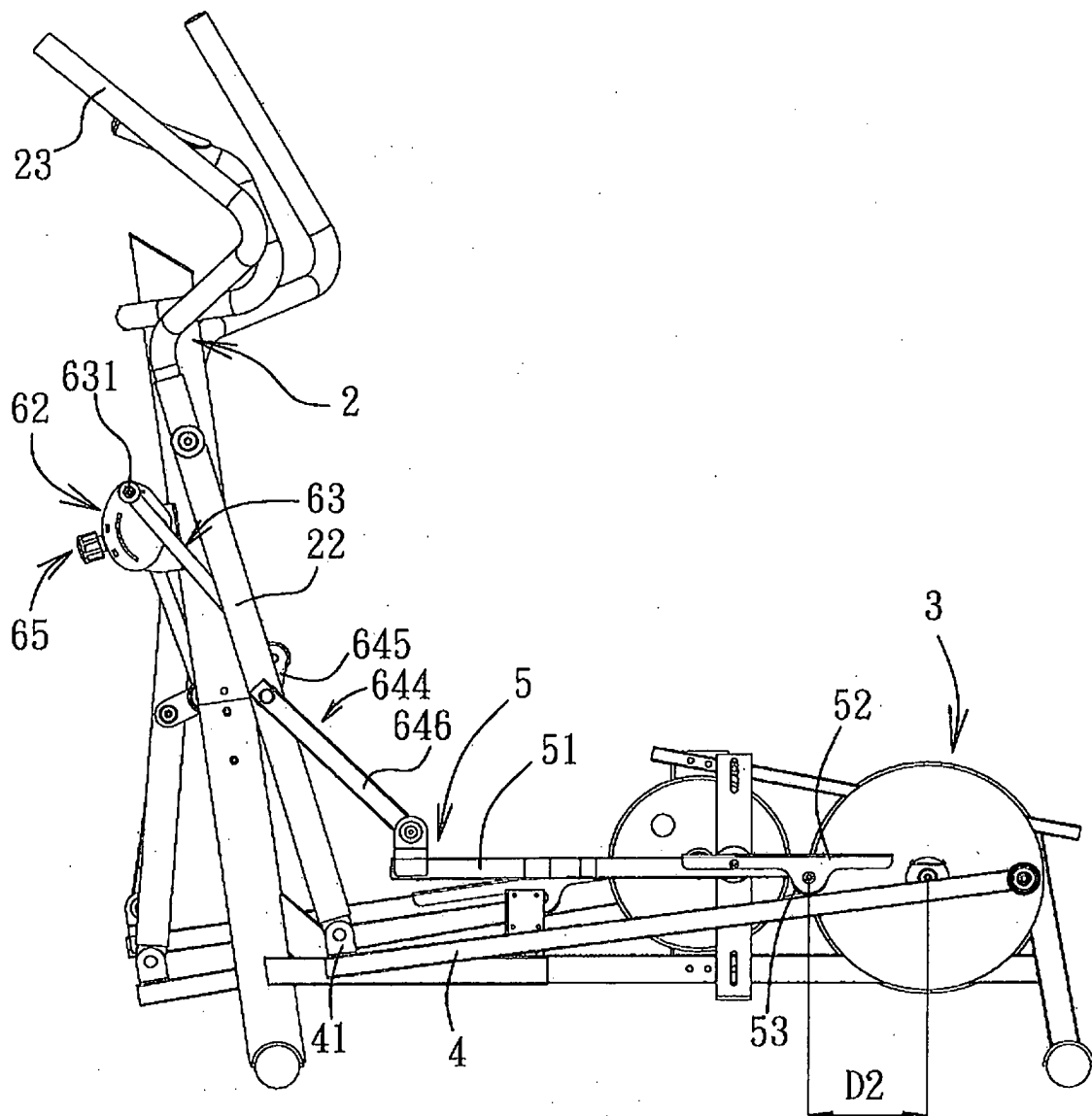


FIG. 7

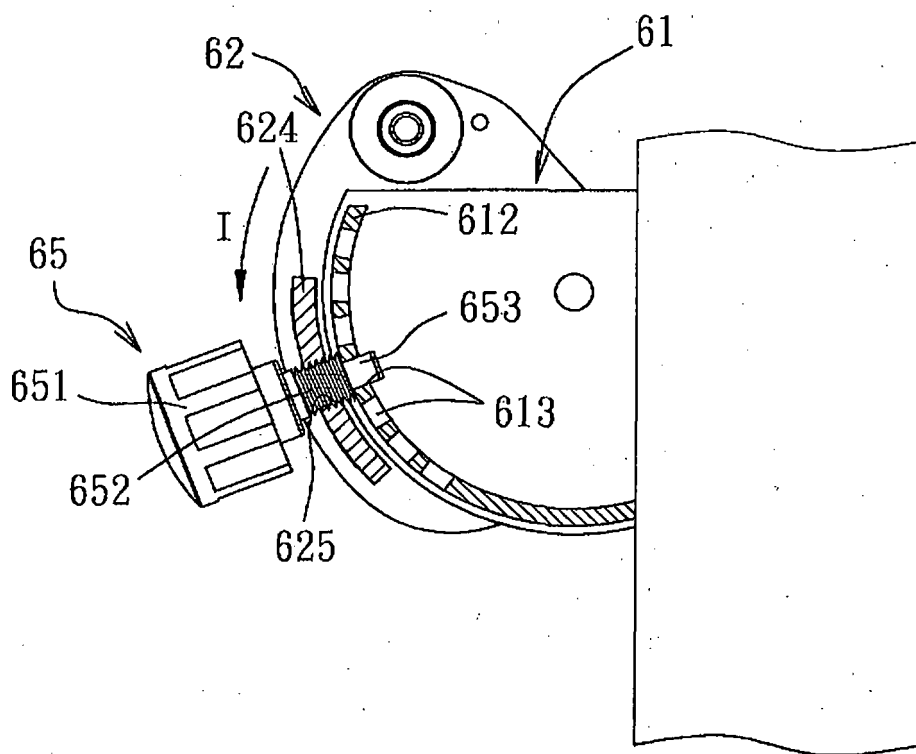


FIG. 8

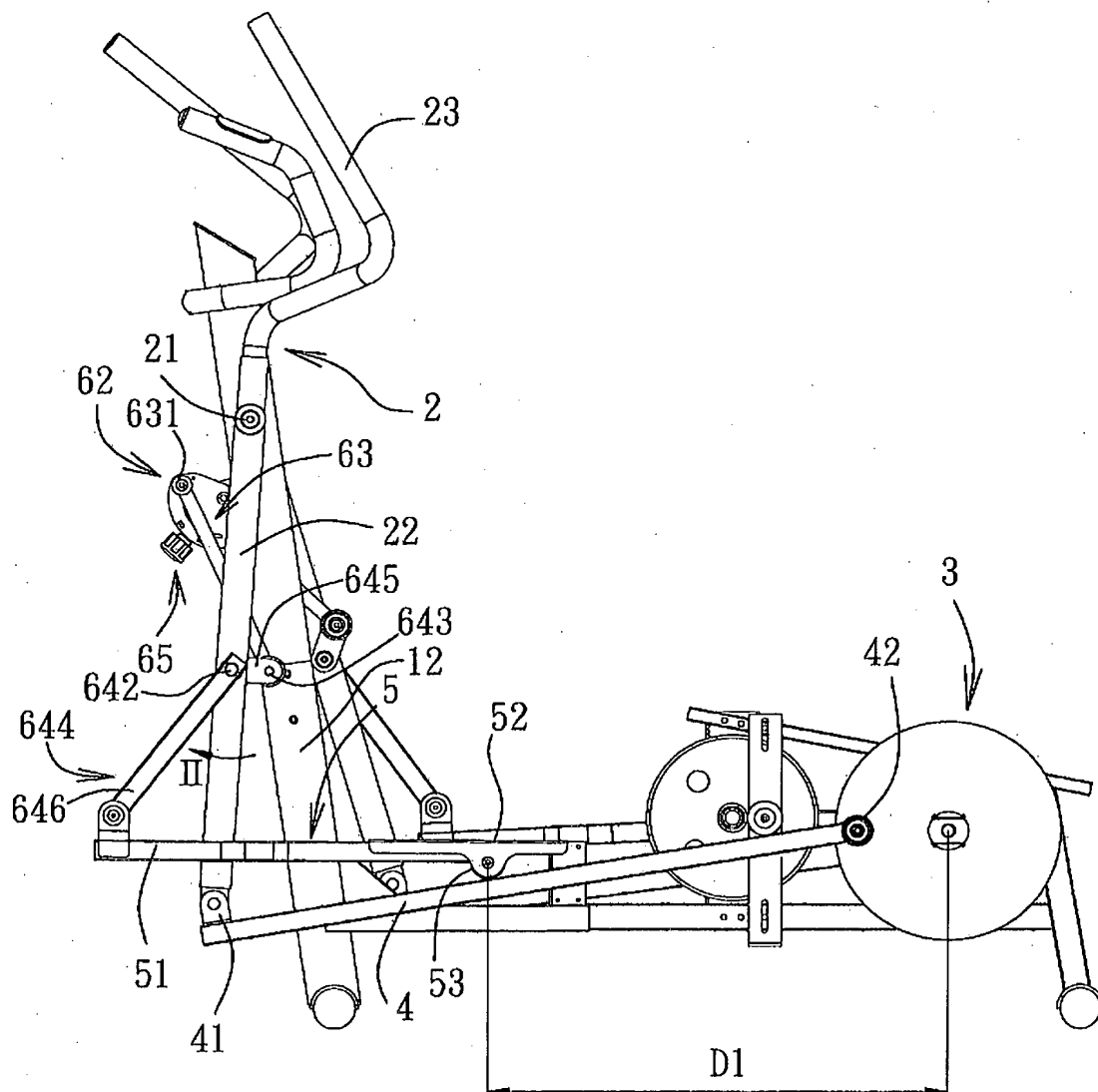
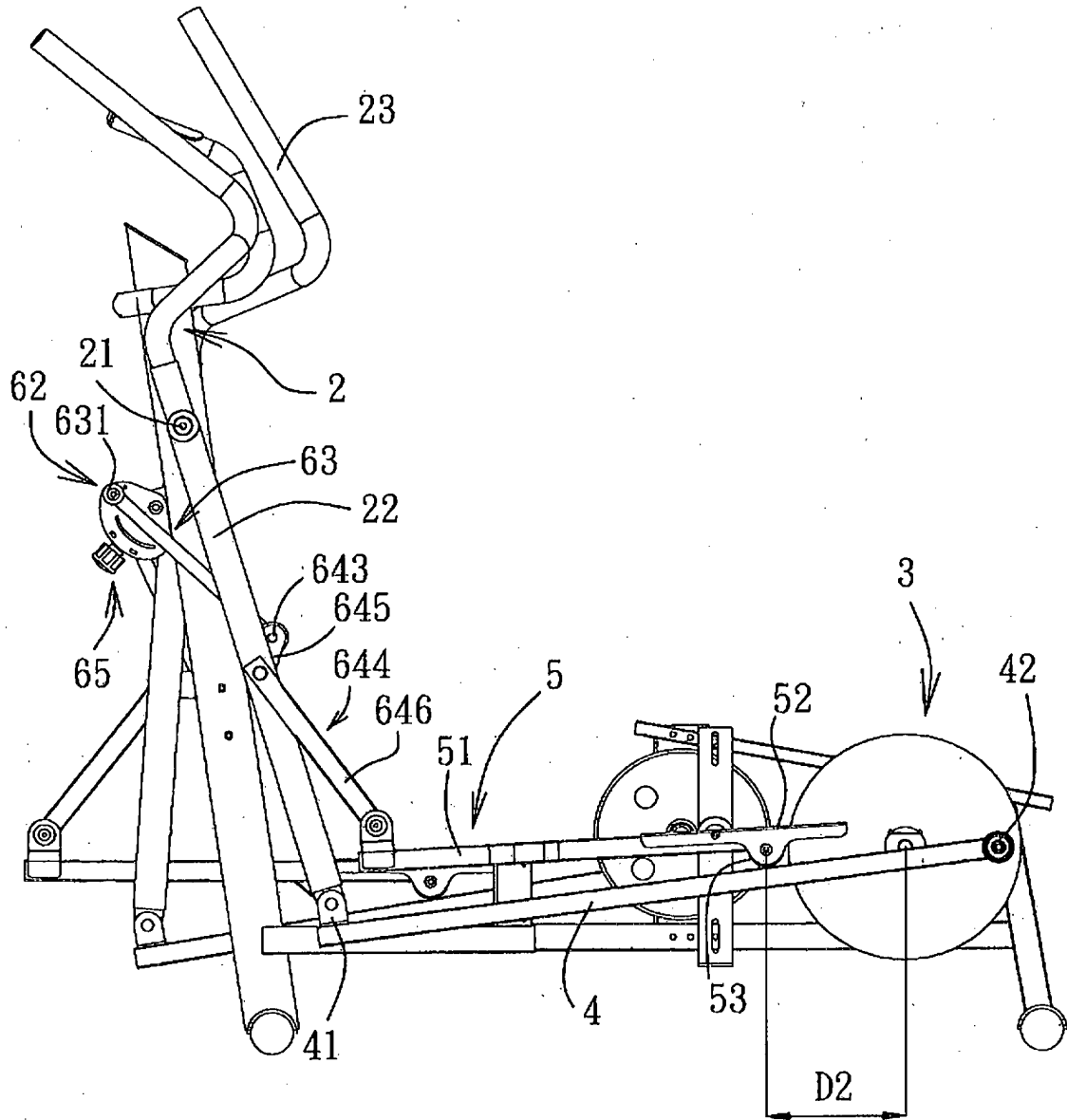


FIG. 9



F I G. 10

REFERENCES CITED IN THE DESCRIPTION

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