EXERCISER HAVING ADJUSTABLE MOVING STROKE

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ABSTRACT

An exerciser includes two rails pivotally attached to a base, two handles pivotally attached to the base, two foot supports having one end pivotally coupled to the handles and the other end slidably engaged with the rail, and a tilting device may tilt the rails relative to the base to different angular positions in order to adjust the moving strokes of the foot supports. A bolt may be rotatably attached to the base and threaded with a follower, and a motor coupled to the bolt for rotating the bolt relative to the base, and for adjusting the follower along the bolt, and the follower is coupled to the rails for tilt the rails relative to the base to different angular positions.
EXERCISER HAVING ADJUSTABLE MOVING STROKE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention
[0002] The present invention relates to a stationary exerciser, and more particularly to a stationary exerciser including an improved structure adjustable to different moving stroke for different users or according to the users’ requirement.
[0003] 2. Description of the Prior Art
[0004] Typical stationary exercisers comprise a pair of foot supports or foot pedals including one end pivotally or rotatably attached or coupled to a base support with a pair of cranks, and including the other end slidably engaged on and supported by a pair of trails or tracks.
[0005] For example, U.S. Pat. No. 5,352,169 to Eschenbach discloses one of the typical exercise machines also comprising a base support including two rotatable cranks pivotally or rotatably attached or coupled to one end of two elongate pedals by crank pins, and the elongate pedals each include the other end slidably engaged on and supported by a trail or track.
[0006] However, the trails or tracks are stationarily disposed or supported on the base support and may not be adjust to different angular positions relative to the base support, such that the elongate pedals of the typical exercise machines may not be adjusted to different moving strokes.
[0007] U.S. Pat. No. 5,772,558 to Rodgers, Jr. discloses another apparatus also comprising two reciprocating members including one end pivotally or rotatably attached or coupled to a base with cranks and a pulley, and including the other end slidably engaged on and supported by rollers or slidably engaged with the lower portion of a frame.
[0008] However, similarly, the lower portion of the frame is also stationarily disposed or supported on the base and may not be adjusted or moved or tilted to different angular positions relative to the base such that the reciprocating members of the typical stationary exercise apparatus also may not be adjusted to different moving strokes.
[0009] U.S. Pat. No. 5,846,166 to Kuo discloses a further typical stepping exercise machine also comprising two foot supports including one end pivotally attached or coupled to a pair of handles respectively, and including the other end slidably engaged on and supported by a pair of tracks.
[0010] However, similarly, the tracks are also stationarily disposed or supported on the base and may not be adjust to different angular positions relative to the base such that the foot supports of the typical stationary exercise apparatus also may not be adjusted to different moving strokes.
[0011] The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the conventional stationary exercisers or machines.

SUMMARY OF THE INVENTION

[0012] The primary objective of the present invention is to provide an exerciser including an improved structure adjustable to different moving stroke according to the users’ requirement for allowing the users to conduct the stepping or walking exercise with different or suitable moving strokes.
[0013] In accordance with one aspect of the invention, there is provided an exerciser comprising a base, two rails pivotally attached to the base and rotatable relative to the base to different angular positions, two handles pivotally attached to the base and rotatable relative to the base, two foot supports each including a first end pivotally coupled to the handle, and each including a second end slidably engaged with the rail, a coupling device for coupling the handles to the foot supports respectively, and a tilting device for tilting the rails relative to the base to different angular positions.
[0014] The foot supports each include a foot pedal pivotally attached to the foot support with a pivot pin for allowing the foot pedal to be tilted relative to the foot support. The handles each include a lower portion, and the coupling device includes two levers pivotally coupling the lower portions of the handles to the foot pedals of the foot support respectively.
[0015] The levers each include a free end folded or bent relative to the lever and perpendicular to the lever and acted as a pivot rod for pivotally coupling to the foot pedal and offset from the pivot pin for allowing the foot pedal to be tilted relative to the foot support by the handles and the levers.
[0016] The tilting device includes a bolt rotatably attached to the base, and a motor coupled to the bolt for rotating the bolt relative to the base, and device for connecting the bolt to the rails. The connecting device includes a follower threadedly engaged with the bolt for being moved and adjusted along the bolt when the bolt is rotated by the motor.
[0017] The connecting device includes an arm pivotally attached to the base and having a rear end movable up and down relative to the base and pivotally coupled to the follower. The connecting device includes a coupler secured between the rails, and includes a seat extended from the coupler and pivotally coupling to the arm with such as a bar which may be pivotally coupled to a middle portion of the arm with such as a pivot pin.
[0018] The foot supports each include a roller attached to the second end of the foot support for slidably engaging with the rails. The rails each include two rods disposed parallel to each other, and a link securing the rods together.
[0019] Further objectives and advantages of the present invention will become apparent from a careful reading of the detailed description provided hereinafter, with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] FIG. 1 is a rear perspective view of an exerciser in accordance with the present invention;
[0021] FIG. 2 is a rear perspective view of the exerciser similar to FIG. 1, in which a portion of the exerciser has been removed for showing the inner structure of the exerciser;
[0022] FIG. 3 is a side plan schematic view of the exerciser;
[0023] FIG. 4 is a side plan schematic view similar to FIG. 3, illustrating the operation of the exerciser;
[0024] FIG. 5 is an enlarged partial perspective view illustrating the moving stroke adjusting device of the exerciser, and
[0025] FIG. 6 is a partial side plan schematic view of the exerciser as shown in FIG. 5.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0026] Referring to the drawings, and initially to FIGS. 1-4, a stationary exerciser 1 in accordance with the present invention comprises a base 10 including an upright post 11 extended upwardly from the front portion 12 thereof for supporting a control box or control panel 13 and/or for supporting one or more stationary handgrips 14, and including one or
more (such as two) tracks or rails 15 provided on the rear portion 16 of the base 10, and a crank device 20 including such as two crank members (not shown) or a wheel 21 rotatably attached or coupled to the post 11 or the front portion 12 of the base 10 with a spindle 22 for allowing the wheel 21 to be rotated relative to the post 11 or the base 10, and including two eccentric shafts 23 attached or coupled to the wheel 21 and offset from the spindle 22.

[0027] Two foot supports 30 each include a first end or front portion 31 pivotally or rotatably attached or coupled to the eccentric shafts 23 for allowing the front portions 31 of the foot supports 30 to be moved cyclically or circularly in reciprocating action relative to the base 10 by the wheel 21 and/or the eccentric shafts 23, and each include one or more rollers 32 rotatably attached the second end or the rear portion 33 of the respective foot supports 30 for slidable engaging with the rails 15, and each include a foot pedal 34 pivotally attached or supported on the foot support 30 with a pivot pin 35 for allowing the foot pedals 34 or the foot supports 30 to be moved in an elliptical moving path or moving stroke relative to the base 10.

[0028] Two handles 40 each include a middle portion 41 pivotally or rotatably attached or coupled to the post 11 or the base 10 with a pivot rod 42 (FIG. 2), and each include a hand grip 43 provided on top thereof for being held or grasped by the users, and each include a lower portion 44 pivotally attached or coupled to the foot support 30 with a lever 45, for allowing the handles 40 to be pivotally coupled to the foot support 30 with the lever 45. The above-described structure is typical and will not be described in further details. The levers 45 may include a rear end or a free end 46 bent relative to the lever 45 and acted or operated as a pivot rod 46 which is pivotally or rotatably attached or coupled to the foot pedal 34 and offset from the pivot pin 35 for allowing the foot pedal 34 to be rotated or tilted relative to the foot support 30 with the lever 45 and/or by the handles 40. The levers 45 and the foot pedals 34 may be formed or acted or operated as a coupling means or device for pivotally coupling the handles 40 to the foot supports 30.

[0029] The stationary exerciser 1 in accordance with the present invention further includes an actuating or adjusting or tilting means or device 5 for tilting or adjusting the rails 15 relative to the base 10 to different angular positions (FIGS. 3-6), and thus for adjusting the foot supports 30 and/or the foot pedals 34 to different moving strokes relative to the base 10. For example, the rails 15 are pivotally or rotatably attached or coupled to the rear portion 16 of the base 10 with an axle 17 for allowing the rails 15 to be pivoted or rotated or adjusted relative to the base 10 to different angular positions and for allowing the rails 15 to be tilted or adjusted relative to the base 10 to different angular positions with or by the tilting device 5.

[0030] As shown in FIGS. 2 and 5, the rails 15 each may include two rods 18 disposed or arranged parallel to each other and having a middle portion coupled or secured together with a link 19 for forming an elongate and stable structure and for slidably engaging with the rollers 32 that are provided on the rear portion 33 of the foot supports 30. The tilting means or device 5 includes one or more (such as two) arms 50 having one end or front end or first end 51 pivotally or rotatably attached or coupled to the base 10 with a pivot pin 52 and having the other end or rear end or second end 53 (FIGS. 5, 6) movable up and down relative to the base 10. A threaded member or bolt 54 is rotatably attached or secured to the base 10 and coupled to a driving device 55, such as a motor 55 which may rotate the bolt 54 relative to the base 10.

[0031] A follower 56 is threaded or engaged with the threaded member or bolt 54 and is pivotally coupled to the other or second end 53 of the arm 50 with another pivot pin 57, and the follower 56 is movable or adjustable along the threaded member or bolt 54 when the threaded member or bolt 54 is rotated or driven by the motor 55 such that the arm 50 may be pivoted or rotated or tilted relative to the base 10 by the motor 55 and the bolt 54 and the follower 56. A coupler 60 is straddled or coupled or secured to or between the rails 15 for securing or coupling the rails 15 together, and includes a bracket or seat 61 extended or provided on top thereof for pivotally coupling to the middle portion 58 of the arm 50 with a bar 62 which is pivotally coupled to the middle portion 58 of the arm 50 with a further pivot pin 59. The coupler 60 and/or the seat 61 and/or the bar 62 and/or the arms 50 and/or the follower 56 may be formed or acted or operated as a connecting means or device for pivotally connecting the motor 55 and/or the bolt 54 to the rails 15.

[0032] In operation, as shown in FIGS. 5 and 6, when the bolt 54 is rotated or driven by the motor 55, the follower 56 may be moved or adjusted along the bolt 54 in order to pivot or rotate or tilt or adjust the arm 50 relative to the base 10 to different angular positions as shown in FIGS. 3 and 4, such that the movement of the rollers 32 of the foot supports 30 along the rails 15 may be adjusted, and such that the foot pedals 34 or the foot supports 30 may be moved or adjusted to different elliptical moving paths or moving strokes relative to the base 10. It is to be noted that the typical stationary exercise devices or machines failed to provide a rail that may be pivoted or rotated or tilted or adjusted relative to the base 10 to different angular positions.

[0033] Accordingly, the stationary exerciser in accordance with the present invention includes an improved structure adjustable to different moving stroke according to the users’ requirement for allowing the users to conduct the stepping or walking exercise with different or suitable moving strokes.

[0034] Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that numerous changes in the detailed construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

1. An exerciser comprising:
   a base, two rails pivotally attached to said base and rotatable relative to said base to different angular positions, two handles pivotally attached to said base and rotatable relative to said base, said handles each including a lower portion, two foot supports each including a first end pivotally coupled to said handle, and each including a second end slidable engaged with said rail, a foot pedal pivotally attached to each of said foot supports with a pivot pin for allowing said foot pedal to be tilted relative to said foot support, two levers pivotally coupling said lower portions of said handles to said foot pedals of said foot support respectively, an arm pivotally attached to said base and pivotally coupled to said rails, and having a rear end movable up and down relative to said base, a bolt rotatably attached to said base,
a motor coupled to said bolt for rotating said bolt relative to said base, and
a follower threadedly engaged with said bolt for being moved and adjusted along said bolt when said bolt is rotated by said motor, said follower being pivotally coupled to said arm for moving said rear end of said arm up and down relative to said base and for tilting said rails relative to said base to different angular positions.

2-3. (canceled)

4. The exerciser as claimed in claim 1, wherein said levers each include a free end bent relative to said lever and acted as a pivot rod for pivotally coupling to said foot pedal and offset from said pivot pin for allowing said foot pedal to be tilted relative to said foot support by said handles and said levers.

5-7. (canceled)

8. The exerciser as claimed in claim 1, wherein a coupler is secured between said rails, and a seat is extended from said coupler and pivotally coupling to said arm with a bar.

9. The exerciser as claimed in claim 8, wherein said bar is pivotally coupled to a middle portion of said arm.

10. The exerciser as claimed in claim 1, wherein said foot supports each include a roller attached to said second end of said foot support for slidably engaging with said rails.

11. The exerciser as claimed in claim 1, wherein said rails each include two rods disposed parallel to each other, and a link securing said rods together.

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