HAND DRIVING CYCLE EXERCISER

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ABSTRACT

A hand driving cycle exerciser includes a base having a front wheel device and a rear fork to support a rear wheel with an axle. Two rotary members are rotatably attached onto the rear wheel with unidirectional bearings, two followers are rotatably engaged onto the axle and coupled to the rotary members, for unidirectionally rotating the rear wheel via the rotary members and the unidirectional bearings, two handles are rotatably attached to the base and connected to the followers, to unidirectionally rotate the rear wheel via the followers and the rotary members and the unidirectional bearings with the handles.
HAND DRIVING CYCLE EXERCISER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a cycle exerciser, and more particularly to a hand driving cycle exerciser to be driven by hands of users.

2. Description of the Prior Art

Various kinds of typical cycle exercisers have been developed, and comprise a pair of arm cranks to assist in the propulsion of the exerciser by utilizing power of the arms of the users.

For example, U.S. Pat. No. 4,417,742 to Intengan discloses one of the typical cycle exercisers comprising a pair of arm cranks coupled to a pawl mechanism, in order to drive a rear wheel via a flexible shaft, in order to assist in the propulsion of the exerciser by utilizing power of the arms of the users. However, when rotating the arm cranks, the cycle exerciser may be unstable and the front portion of the cycle exerciser may swing or vibrate sideways.

U.S. Pat. No. 4,664,400 to Date discloses another typical cycle exerciser comprising a treadle-shaft crank coupled to a short crank and a long crank, and a handle coupled to the long crank, in order to form a see saw exercise vehicle, and to allow the exercise vehicle to be driven by hands of users.

However, when the handle should be forced forward and rearwardly by the two hands of the users simultaneously, such that the center of gravity of the users may be moved forwardly and rearwardly, and such that some of the moving force of the cycle exerciser may be overcome by the forward and rearward movement of the users.

U.S. Pat. No. 4,685,692 to Fullilove et al. discloses a further typical riding cycle exerciser driven over terrain by foot pedals operating on a sprocket shaft, and comprising hand cranks which operate through a flexible drive on foot operated sprocket shaft. However, similarly, when rotating the hand cranks, the cycle exerciser may be unstable and the front portion of the cycle exerciser may swing or vibrate sideways.

The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the conventional hand driving cycle exercisers.

SUMMARY OF THE INVENTION

The primary objective of the present invention is to provide a hand driving cycle exerciser for being stably driven by hands of users.

The other objective of the present invention is to provide a hand driving cycle exerciser including a steering mechanism operable by twisting or turning or rotating operation of users.

In accordance with one aspect of the invention, there is provided a hand driving cycle exerciser comprising a base including a front portion having a front wheel device attached thereto, and including a rear fork attached thereto, a rear wheel rotatably attached to the fork of the base with an axle, to allow the rear wheel to be rotated relative to the fork of the base, two rotary members rotatably attached onto the rear wheel with unidirectional bearings, to allow the rotary members to be rotated relative to the rear wheel unidirectionally, two followers rotatably engaged onto the axle, and coupled to the rotary members, for unidirectionally rotating the rear wheel via the rotary members and the unidirectional bearings, two handles rotatably attached to the base, and a connecting device for connecting the handles to the followers respectively, to unidirectionally rotate the rear wheel via the followers and the rotary members and the unidirectional bearings with the handles.

The base includes a pair of posts extended therefrom and each having a pin laterally extended therefrom to rotatably attach the handles to the base. Each of the handles includes a sleeve provided thereon and rotatably engaged onto the pins of the posts of the base respectively, to allow the handles to be rotated relative to the base in reciprocating action. Each of the handles includes an extension adjustably secured thereon, and having a hand grip provided on top thereof, for being grasped by users.

Each of the followers includes a pole extended therefrom, and the connecting device includes two cranks secured to the poles and rotated in concert with the poles respectively, and a pair of levers coupled between the handles and the cranks, to allow the handles to drive the followers and the poles relative to the axle by the levers and the cranks.

Each of the rotary members includes a plurality of notches formed therein, and each of the followers includes a plurality of teeth extended therefrom and engaged into the notches of the rotary members, to unidirectionally rotate the rear wheel via the rotary members and the unidirectional bearings.

The base includes a front tube secured to the front portion thereof and extended vertically, a shaft rotatably secured in the front tube of the base to attach the front wheel device thereto, and a rotating device for rotating the shaft relative to the front tube of the base.

The front wheel device includes at least one front wheel rotatably attached to the front portion of the base with a pivot rod, and coupled to the shaft with a link. The shaft includes a bar secured thereto and extended forwardly from the shaft, for coupling to the link.

The rotating device includes a platform rotatably attached to the base, and device for coupling the platform to the shaft. The coupling device includes a connector coupled between the platform to the shaft.

Further objectives and advantages of the present invention will become apparent from a careful reading of the detailed description provided hereinbelow, with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded view of a hand driving cycle exerciser in accordance with the present invention;

FIG. 2 is another exploded view of the hand driving cycle exerciser, illustrating the other embodiment of a wheel driving mechanism for the hand driving cycle exerciser;
FIG. 3 is a perspective view of the hand driving cycle exerciser;

FIG. 4 is a partial cross sectional view taken along lines 4-4 of FIG. 3;

FIG. 5 is a partial cross sectional view taken along lines 5-5 of FIG. 3;

FIG. 6 is a side view of the hand driving cycle exerciser;

FIG. 7 is a side view similar to FIG. 6, illustrating the operation of the hand driving cycle exerciser; and

FIGS. 8, 9 are top plan views of the hand driving cycle exerciser as shown in FIGS. 6 and 7 respectively.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, and initially to FIGS. 1-6, a hand driving cycle exerciser in accordance with the present invention comprises a base 10 including a front tube 11 secured to the front portion thereof and extended vertically, and including a fork 12 secured to the rear portion thereof, and including a hole 13 formed in the middle portion thereof.

A shaft 14 is rotatably secured in the front tube 11 of the base 10. The front tube 11 includes two arms 15 laterally and/or forwardly extended thereinfrom, and each having a barrel 16 secured thereto and extended vertically. A bar 17 is secured to the bottom of the shaft 14 and extended forwardly from or beyond the shaft 14. The base 10 further includes a pair of posts 18 extended upwardly therefrom, and each having a pin 19 laterally extended therefrom.

A front wheel device 2 includes one or more, such as two front wheels 20 rotatably attached to the barrels 16 of the front tube 11 with pivot rods 21 respectively, and pivotedally coupled to the shaft 14 with links 22 and/or the bar of the shaft 14, for allowing the front wheels 20 to be rotated relative to the barrels 16 by a rotation of the shaft 14 relative to the front tube 11. Relatively, the front wheels 20 may be rotated relative to the barrels 16 when the shaft 14 is rotated relative to the front tube 11.

A table or a platform 23 includes a spindle 24 rotatably engaged through the hole 13 of the base 10, and rotatably secured or attached to the base 10 with a bearing 25, for allowing the platform 23 to be smoothly rotated relative to the base 10. A connector 26 has one end secured or attached to the platform 23, and a coupler 27 attached to the other end thereof for engaging onto the shaft 14, and for securing to the shaft 14 with such as fasteners 28.

In operation, as shown in FIGS. 8 and 9, when the platform 23 is rotated relative to the base 10 by such as twisting or turning or rotating operation of users, the shaft 14 may also be caused to be rotated relative to the front tube 11 by the connector 26, such that the front wheels 20 may be rotated relative to the front tube 11 with the pivot rods 21 respectively, for steering or maneuvering the cycle exerciser.

A rear wheel 30 is rotatably attached to the fork 12 of the base 10 with an axle 31. Two rotary members 32 are rotatably secured or attached onto a hub 34 of the rear wheel 30 with unidirectional bearings 33, to allow the rotary members 32 to be rotated relative to the hub 34 of the rear wheel 30 unidirectionally. Each of the rotary members 32 includes a number of notches 35 (FIG. 1) or orifices 36 (FIG. 2) formed therein.

Two followers 37 are rotatably engaged onto the axle 31, and each includes a number of projections or teeth 38 extended therefrom and engaged into the notches 35 (FIG. 1) or the orifices 36 (FIG. 2) of the rotary members 32, for unidirectionally rotating or driving the rear wheel 30 via the rotary members 32 and the unidirectional bearings 33, and each includes a pole 39 extended therefrom and engaged or extended outwardly through the fork 12 of the base 10.

A pair of cranks 40 are secured to the poles 39 and rotated in concert with the poles 39 respectively. A pair of handles 41 each includes a sleeve 42 provided thereon and rotatably engaged or attached to the laterally extended pins 19 of the posts 18 of the base 10, to allow the handles 41 to be rotated or swung relative to the base 10 in reciprocating action. Each of the handles 41 may include an extension 43 adjustably secured thereon, and having a hand grip 44 provided on top thereof, for being grasped or held by the users.

A pair of levers 45 are coupled between the handles 41 and the cranks 40, to allow the handles 41 to rotate or to drive the followers 37 and the poles 39 relative to the axle 31 by the levers 45 and the cranks 40, and then to unidirectionally rotate or drive the rear wheel 30 via the rotary members 32 and the unidirectional bearings 33, such that the cycle exerciser may be driven forwardly by rotating or swinging the handles 41 relative to the base 10 in reciprocating action.

It is to be noted that the handles 41 may be easily rotated or swung relative to the base 10 in reciprocating action by the hands of the users without changing the center of gravity of the users, such that the hand driving cycle exerciser may be smoothly and stably moved or driven forwardly by the hand operated handles 41.

In addition, the users may twist or rotate or turn their bodies, in order to rotate the platform 23, and then to rotate the front wheels 20 relative to the front tube 11 with the pivot rods 21 respectively, to allow the users to exercise their bodies in order to steer or to maneuver the cycle exerciser.

Accordingly, the hand driving cycle exerciser in accordance with the present invention may be used for being stably driven by hands of users, and may include a steering mechanism operable by twisting or turning or rotating operation of users.

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. A hand driving cycle exerciser comprising:

a base including a front portion having a front wheel device attached thereto, and including a rear fork attached thereto,
a rear wheel rotatably attached to said fork of said base with an axle, to allow said rear wheel to be rotated relative to said fork of said base,
two rotary members rotatably attached onto said rear wheel with unidirectional bearings, to allow said rotary members to be rotated relative to said rear wheel unidirectionally,
two followers rotatably engaged onto said axle, and coupled to said rotary members, for unidirectionally rotating said rear wheel via said rotary members and said unidirectional bearings,
two handles rotatably attached to said base, and
means for connecting said handles to said followers respectively, to unidirectionally rotate said rear wheel via said followers and said rotary members and said unidirectional bearings with said handles.

2. The hand driving cycle exerciser as claimed in claim 1, wherein each of said followers includes a plurality of notches formed therein, and each of said followers includes a plurality of teeth extended therefrom and engaged into said notches of said rotary members, for unidirectionally rotate said rear wheel via said rotary members and said unidirectional bearings.

3. The hand driving cycle exerciser as claimed in claim 2, wherein each of said handles includes a sleeve provided thereon and rotatably engaged onto said pins of said posts of said base respectively, to allow said handles to be rotated relative to said base in reciprocating action.

4. The hand driving cycle exerciser as claimed in claim 1, wherein each of said handles includes an extension adjustably secured thereon, and having a hand grip provided on top thereof, for being grasped by users.

5. The hand driving cycle exerciser as claimed in claim 1, wherein each of said followers includes a pole extended therefrom, and said connecting means includes two cranks secured to said poles and rotated in concert with said poles respectively, and a pair of levers coupled between said handles and said cranks, to allow said handles to drive said followers and said poles relative to said axle by said levers and said cranks.

6. The hand driving cycle exerciser as claimed in claim 1, wherein each of said rotary members includes a plurality of notches formed therein, and each of said followers includes a plurality of teeth extended therefrom and engaged into said notches of said rotary members, for unidirectionally rotate said rear wheel via said rotary members and said unidirectional bearings.

7. The hand driving cycle exerciser as claimed in claim 1, wherein said base includes a front tube secured to said front portion thereof and extended vertically, a shaft rotatably secured in said front tube of said base to attach said front wheel device thereto, and means for rotating said shaft relative to said front tube of said base.

8. The hand driving cycle exerciser as claimed in claim 7, wherein said front wheel device includes at least one front wheel rotatably attached to said front portion of said base with a pivot rod, and coupled to said shaft with a link.

9. The hand driving cycle exerciser as claimed in claim 8, wherein said shaft includes a bar secured thereto and extended forwardly from said shaft, for coupling to said link.

10. The hand driving cycle exerciser as claimed in claim 7, wherein said rotating means includes a platform rotatably attached to said base, and means for coupling said platform to said shaft.

11. The hand driving cycle exerciser as claimed in claim 10, wherein said coupling means includes a connector coupled between said platform to said shaft.

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