EXERCISING DEVICE WITH COMBINED STEPPING AND TWISTING FUNCTIONS

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ABSTRACT
The present invention relates to an exercising device with combined stepping and twisting functions comprising a base member, a stepper mechanism mounted on the base member, a stepper assembly pivotably and rotatably secured with respect to the stepper mechanism and base member in a manner that the stepper assembly is capable of performing simultaneously or one at a time stepping and twisting functions through an engaging rotatable mechanism into which the stepper assembly is movably engaged through a linkage means, and a selecting mechanism for selectively activating or deactivating the functions being provided thereto.
EXERCISING DEVICE WITH COMBINED STEPPING AND TWISTING FUNCTIONS

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention generally relates to construction forms and more specifically to an exercising device with combined stepping and twisting functions.

BACKGROUND OF THE INVENTION

[0002] In the prior art in which this invention appertains, exercising devices having combined stepping and twisting functions are well known. The trend of the advancement of the art is seemingly headed towards the development and improvement of different mechanisms that are used to provide the combined stepping and twisting functions. These prior art are discussed briefly herein.

[0003] U.S. Pat. No. 5,628,709 discloses an exerciser having stepping and twisting functions in which its pedal arms cause their respective tubular sleeves to rotate about a cylindrical body when pressure is applied on one of the pedal arms, thereby resulting in the combined stepping and twisting functions.

[0004] GB 2395443 discloses a stepping exerciser wherein the twisting function is caused by the forced rotation of a follower relative to a base which in turn causes foot supports to rotate with the follower giving the person a twisting motion while conducting stepping exercises.

[0005] In US20050204412, an exerciser for step and twist includes a base and a swing device secured to the base. The swing device has a pair of pedals which are secured to a post and linked by a cable to a roller. Two ends of the cable are connected with extensions protruding from the pedals. A spindle of the roller is provided with a gear to mesh with the teeth of a disc on the base. When stepping on the pedals, the cable links the roller to spin, whereas the gear rolls along the teeth of the disc to move the pedals from left to right or vice versa, thus, the exerciser provides a stepping and twisting effects to users.

[0006] The foregoing exercisers do not provide a selection and locking mechanism to allow the user to choose a preferred function, i.e. stepping or twisting or both combined. Other similar exercisers with combined step and twist functions are provided in GB 2341332, FR2868958, U.S. Pat. No. 5,906,562, US2004097337, and US2006035756.

[0007] While the foregoing exercisers in the prior art do not have function-selecting means, there are some that teach combined step and twist exercisers with locking and/or selection means which allow the user to select preferred function such the following:

[0008] In U.S. Pat. No. 5,453,065, a combined step and twist exerciser is provided that has a lower stationary support frame with an upright shaft fixed thereto. It has a stepper mechanism which has a base body mounted rotatably on the shaft and having a front portion and a rear portion, a pair of spaced pedal arms, each of which having a front end pivoted to the front portion and a rear end portion extending from the front end toward the rear portion, and a pair of resistance cylinders, each of which interconnecting the rear end portion of a respective one of the pedal arms and the base body. A horizontal plate member is mounted to the shaft above the base body and has two opposite spaced rear portions on two sides of the shaft. A locking unit is provided to lock releasably the plate member relative to the stationary support frame.

SUMMARY OF THE INVENTION

[0011] The invention seeks to overcome the drawbacks and shortcomings of the prior art by providing an exercising device with combined stepping and twisting functions that is relatively much simpler than those of the prior art in terms of the structural features and number of elements/parts it comprises. It has a centralized assembly (C) of elements or mechanisms that facilitates multiple functions through a simple selective and pre-determined in operation or immobilization of certain part(s) or element(s) or mechanism(s) thereof comprising the assembly. Thus, in operation, the invention is very ergonomic, convenient and user-friendly to use and operate due to its easy and practical way of selecting functions, i.e. stepping, twisting or combination of both, that is also practically centralized as inherent result of the centralized assembly (C). In addition to that, the present invention has the mechanism thereof capable of performing functionalities, which are separately performed by respective mechanisms or elements in the prior art, such as the application of a stepper resistance.

[0012] The aforementioned capabilities and functionalities of the invention are results of the characterizing features and elements thereof disclosed and taught herein. The invention preferably embodying an exercising device (10, 10a), while comprising some of the old elements in the prior art in combination with the centralized assembly (C) thereof, is characterized by a stepper mounting means (12) and engaging rotatable mechanism (14), preferably serving also as a stepper resistance-providing mechanism, that are lockably and horizontally rotatable relative to each other and base member (11) at a common axis of rotation (17) located proximate the central section of the device (10,10a), such that a stepping function is activated solely when the mounting means (12) is made non-rotatable relative to the base member (11) while the mechanism (14) being in a rotatable state relative to the mounting means (12); a twisting function is activated solely when the mechanism (14) is made non-rotatable relative to the mounting means (12) while the
mounting means (12) being in a rotatable state relative to the base member (11); and combined stepping and twisting functions are activated simultaneously when the mechanism (14) is made non-rotatable relative to the base member (11) while the mounting means (12) being in a rotatable state relative to the base member (11) and the mechanism (14).

[0013] The primary object therefore of the present invention is to provide an exercising device with combined stepping and twisting functions that is capable of performing more functions or functionalities such as stepping, twisting and combination of both, including provision of stepper resistance, with less elements or mechanisms, thus, very efficient, practical and economical to use, manufacture and commercialize.

[0014] Another object of the present invention is to provide an exercising device with combined stepping and twisting functions that has very ergonomic and user-friendly operating features, especially the function-selection feature, that are centralized in one area.

[0015] Still another object thereof is to provide an exercising device with combined stepping and twisting functions that is not only provide an efficient, effective and practical way of performing an exercise, but also an exerciser that is very easy to use, operate and store or keep after usage.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] Other objects and advantages of the present invention will become apparent, understood and appreciated upon reading the following detailed description taken in conjunction with the accompanying drawings, in which:

[0017] FIG. 1 is a perspective view of a preferred embodiment of the present invention;

[0018] FIG. 2 is an enlarged perspective view of the central assembly of elements/mechanisms thereof showing in inset views the different functions thereof;

[0019] FIG. 3 is a cross-sectional view thereof taken along line 2-2 of FIG. 2;

[0020] FIG. 4 is an enlarged plan view thereof showing a preferred embodiment of the function-selection knob-type lock thereof;

[0021] FIG. 4a is an enlarged inset view thereof as referred to FIG. 4;

[0022] FIG. 5 is a perspective view of another preferred embodiment thereof; and

[0023] FIG. 6 is an exploded, perspective view thereof as referred to FIG. 5.

DETAILED DESCRIPTION OF THE INVENTION

[0024] Before describing the preferred embodiments of the invention in detail, it is to be understood that the phraseologies and terminologies employed herein are for purposes of description and should not be regarded as limiting.

[0025] Referring now to the drawings in which like reference numerals designate the same components or elements all throughout the succeeding description, there is shown in FIGS. 1 and 5 an exercising device with combined stepping and twisting functions generally designated by reference numerals 10 and 10a, respectively, comprising a base member 11, a stepper mounting means 12 mounted on the base member 11, and a stepper assembly 13 pivotably and rotatable secured with respect to the mounting means 12 and the base member 11 in a manner that the stepper assembly 13 is capable of performing, simultaneously or one at a time, stepping and twisting functions. The stepper assembly 13 performs such functions through an engaging rotatable mechanism 14 into which the stepper assembly 13 is movably engaged through a linkage means 15. A selecting means 16 for selectively activating or deactivating such functions is provided to the device 10. With the combination of elements just described, the present invention is characterized in that the stepper mounting means 12 and engaging rotatable mechanism 14 are lockably and horizontally rotatable with respect to each other and the base member 11 at a common axis of rotation 17 located proximate the central section of the device 10, 10a. With such structural set-up of the invention, the following functionalities are capable of being performed thereby: a stepping function of the device 10, 10a is activated solely when the mounting means 12 is made non-rotatable relative to the base member 11 while the mechanism 14 being in a rotatable state relative to the mounting means 12; a twisting function is activated solely when the mechanism 14 is made non-rotatable relative to the mounting means 12 while the mounting means 12 being in a rotatable state relative to the base member 11; and combined stepping and twisting functions are activated simultaneously when the mechanism 14 is made non-rotatable relative to the base member 11 while the mounting means 12 being in a rotatable state relative to the base member 11 and the mechanism 14.

[0026] The characterizing elements and features of the invention as described above generally define a centralized assembly of elements or mechanisms “C” that facilitates the above-identified multiple functions through a simple selective and pre-determined in operation or immobilization of certain part(s) or element(s) or mechanism(s) thereof, i.e., rotational mechanism 14 and mounting means 12, essentially comprising the assembly “C”. Thus, in operation, the invention is very ergonomic, convenient and user-friendly to use and operate due to its easy and practical way of selecting functions, i.e., stepping, twisting or combination of both, that is also practically centralized as inherent result of the centralized assembly “C”.

[0027] The rotatable mechanism 14 is preferably in a form of a pair of complementing lower and upper disk members 18a and 18b, respectively. The lower disk member 18a is fixedly secured to the mounting means 12 while the upper disk member 18b that is rotatably engaged with the lower disk member 18a is rotatably mounted on the base member 11 through an upstanding axle 19 provided thereon along the common axis of rotation 17. For the preferred embodiment of the invention as shown in the illustrative example depicted in the drawings, the rotatable mechanism 14 functions also as a stepper load resistance that translates into a resistive force applied to the stepper assembly 13. To effectively function as a varying resistance to the stepping and rotating movements of the stepper assembly 13, the lower and upper disk members 18a and 18b are preferably in a form of friction disks comprising of female disk and male disk members 18a and 18b, respectively. The male disk member 18b having peripheral ridge 19r that is frictionally engaged with respective peripheral channel 19s provided on the female member 18a, the engagement of both members 18r and 18s, being compressively and adjustably secured by a tightening means 20 engaged with the axle 19. The
tightly designed means 20 has a preferably ergonomic handle 21 suitably designed to facilitate easy manual gripping and twisting action when in use. This capability of the mechanism 14 itself to function as a stepper resistance is separately performed by another mechanism or element of the prior art exerciser that is usually in form of an hydraulic or pneumatic mechanism or device (not shown).

[0028] The locking means 16 allows or disallows relative rotational movements among the essential elements, i.e. base member 11, mounting means 12 and rotational mechanism 14. Preferably, this locking means 16 is in a form of a releasable knob-type lock 16a. In the preferred embodiments of the invention, a pair of the locks 16a is being provided to the mechanism 14 wherein one lock 16b is releasably lockable to the mounting means 12, and the other lock 16c being releasably lockable to the base member 11 that is also provided with another same type of lock 16d being releasably lockable to the mounting means 12. The knob-type lock 16a is preferably of a type that comprises a spring-biased latch member 22 slidably mounted in a sleeve 23 fixedly secured on the mechanism 14 and base member 11. The latch member 22 is lockably engageable with a corresponding catch 24 provided to the mounting means 12 and base member 11. In usage, when being released from the spring-biased engagement thereof with the sleeve 23 in an unlocked normal position, the latch member 22 is brought to lockably engage with the corresponding catch 24.

[0029] In the preferred embodiment of the knob-type lock 16a shown in FIG. 4, the latch member 22 is preferably a generally tubular member 22a that is spirally and concentrically slidable longitudinally within the sleeve 23 that is preferably in a form of a generally annular sleeve 23a defining an inner elongated member 25 whose top end portion is being provided with a pre-determined means 26 for indicating the function of the device selected during use. This means 26 is preferably in forms of label, tag, sticker, engraving, light, or any desired indicators. When the member 22a is in an upwardly lifted, biased normal unlocked position, the member 25 is concealed downwardly within the member 22a. But when the member 22a is in a downwardly released and locked position, the member 25 is disposed upwardly on the sleeve 23b thereof being exposed at the top portion of the member 22a, indicating the particular associated function of the device 10,10a that is at work as selected by a user.

[0030] In the preferred embodiments of the invention, the rotatable mountings of the rotatable mechanism 14 and mounting means 12 into the axle 19 adopt the use of bearing members 26. Furthermore, the base member 11 is provided with a stopper 27 that limits the rotational displacement of the mounting means 12. Their stepper assemblies 13 respectively comprise of a pair of pedal arms 28 with respective pedals 29, the pedal arms 28 being pivotably mounted, at the sleeved front end portions thereof 28a, to corresponding opposite side branching shaft members 30 provided upwardly on an upstanding frontal post member 31 of the mounting means 12, the sleeved port 28a being connected to the mechanism 14 through the linkage means 15 which is in a form of two-part linkage member 15a. These features are clearly shown in FIGS. 5 and 6 for the preferred embodiment of the invention in its basic form.

[0031] Preferably, the embodiment embodying the preferred devices 10 and 10a has the base member 11 thereof adopting any stable structural platforms such as I-beam type 11a with front and rear anchor members, radial type 11b with radial anchor members, and any polygonal type with variations of anchor member arrangements (not shown). In addition, there is likewise provided a means 32 mounted on the base member 11 or the mounting means 12. This hand-exercising means 32 is preferably in forms of a pair of hand-stretched cords 33, a twistable upstanding pole member 34 with oppositely branching horizontal handles 35, or a Nordic stick 36 conveniently mounted and positioned rearwardly of the device 10,10a.

[0032] Before defining the scope of the following claims, it is to be understood that the invention is not limited in its applications to the details of the embodiments in the preceding description or illustrated in the drawings. It is to be noted that the invention is capable of other embodiments and limitless applications not disclosed herein, and of being practiced and carried out in various ways falling within the teaching and scope of the following claims.

What is claimed is:

1. An exercising device with combined stepping and twisting functions comprising:
   a. a member base, a stepper member means mounted on said base member, a stepper assembly pivotably and rotatably secured with respect to said mounting means and base member in a manner that said stepper assembly is capable of performing simultaneously or one at a time stepping and twisting functions through an engaging rotatable mechanism into which said stepper assembly is movably engaged through a linkage means, a selecting means for selectively activating or deactivating said functions being provided thereto; characterized in that said stepper mounting means and engaging rotatable mechanism are lockably and horizontally rotatable relative to each other and said base member at a common axis of rotation located proximate the central section of said device, such that a stepping function is activated solely when said mounting means is made non-rotatable relative to said base member while said mechanism being in a rotatable state relative to said mounting means;
   a twisting function is activated solely when said mechanism is made non-rotatable relative to said mounting means while said mounting means being in a rotatable state relative to said base member; and combined stepping and twisting functions are activated simultaneously when said mechanism is made non-rotatable relative to said base member while said mounting means being in a rotatable state relative to said base member and said mechanism;
   resulting in a centralized assemblage of elements and mechanisms facilitating the selective activation and deactivation of said functions.

2. An exercising device according to claim 1 wherein said rotatable mechanism is in a form of a pair of complementing lower and upper disk members, in which the lower disk member is fixedly secured to said mounting means while the upper disk member that is rotatably engaged with said lower disk member is rotatably mounted on said base member through an upstanding axle provided thereon along said common axis of rotation.

3. An exercising device according to claim 1 or 2 wherein said rotatable mechanism functions also as a stepper load resistance that translates into a resistive force applied to said stepper assembly.
4. An exercising device according to claim 3 wherein said rotatable mechanism has the disk members thereof in a form of friction disks that comprise of female disk and male disk members, respectively; said male disk member having peripheral ridge frictionally engaging with respective peripheral channel provided to said female member whose engagement is compressively and adjustably secured by a tightening means engaged with said axle.

5. An exercising device according to claim 4 wherein said tightening means has an ergonomic handle suitably designed to facilitate easy manual gripping and twisting action when in use.

6. An exercising device according to claim 1 further characterized in that said selecting means is a releasable knob-type lock, a pair of which being provided to said mechanism wherein one lock is releasably lockable to said mounting means and the other lock being releasably lockable to said base member that is also provided with another same type of lock being releasably lockable to said mounting means.

7. An exercising device according to claim 6 wherein said knob-type lock is in a form that comprises of a spring-biased latch member slidably mounted in a sleeve fixedly secured on said mechanism and base member, said latch member being lockably engageable with corresponding catch provided to said mounting means and base member when said latch member is being released from the spring-biased engagement thereof with said sleeve in an unlocked normal position.

8. An exercising device according to claim 7 wherein said latch member is a generally tubular member that is spirally and concentrically slidable longitudinally within said sleeve that is in a form of a generally annular sleeve defining an inner elongated member whose top end portion provided with a pre-determined means for indicating the device's function, such that when said member is in an upwardly lifted, biased normal unlocked position, said member is concealed downwardly within said member, and when said member is in a downwardly released, locked position, said member shows up with the means thereof being exposed at the top portion of said member, indicating the particular associated function of the device that is at work as selected by a user.

9. An exercising device according to claim 1 wherein the rotatable mountings of said rotatable mechanism and mounting means into said axle adopt the use of bearing members.

10. An exercising device according to claim 1 wherein said base member is provided with a stopper that limits the rotational displacement of said mounting means.

11. An exercising device according to claim 1 wherein said stepper assembly comprises:

a pair of pedal arms with respective pedals, said pedal arms being pivotally mounted, at the sleeved front end portions thereof, to corresponding opposite side branching shaft members provided upwardly on an upstanding frontal post member of said mounting means, said sleeved end portion being connected to said mechanism through said linkage means which is in a form of two-part linkage member.

12. An exercising device according to claim 1 wherein said base member adopts any stable structural platforms selected from l-beam type with front and rear anchor members, radial type with radial anchor members, and any polygonal type with variations of anchor member arrangements.

13. An exercising device according to claim 1 wherein there is provided a hand-exercising means mounted on said base member or said mounting means.