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(54) **WEIGHT LIFTING EXERCISER**

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(57) **ABSTRACT**

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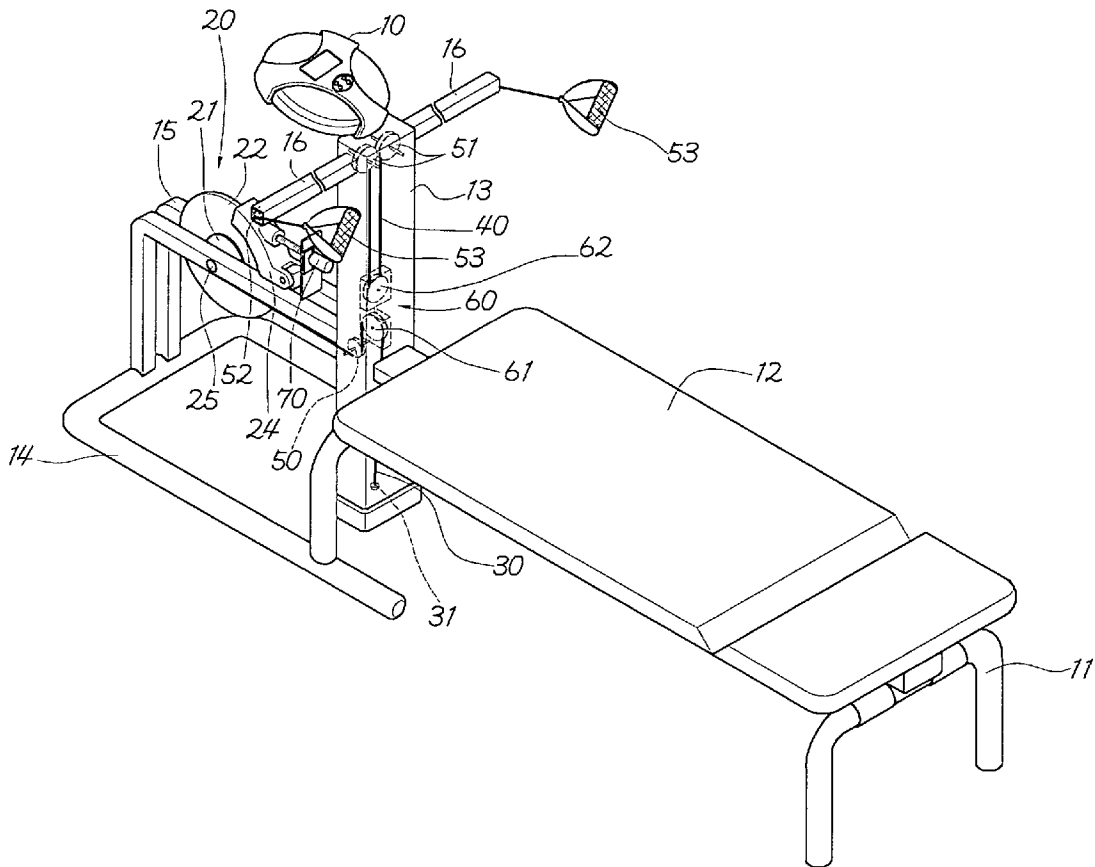
The present invention relates to a weight lifting exerciser with frames, an adjustable cushion, an upright post, a magnetic resistance device movable through a shaft, a resistance adjusting element and pulling grips. The magnetic resistance device includes a coiling wheel, a unidirectional flywheel and an automatic coiling apparatus. A magnet set is fitted to one side of the unidirectional flywheel in such a manner that said magnet set is situated at the rim of the unidirectional flywheel and kept slightly away therefrom without contact therewith. In addition, an electronic resistance adjusting element is utilized to drive said magnet set for adjusting the clearance between the unidirectional flywheel and the magnet set so as to obtain an expected exercise resistance.

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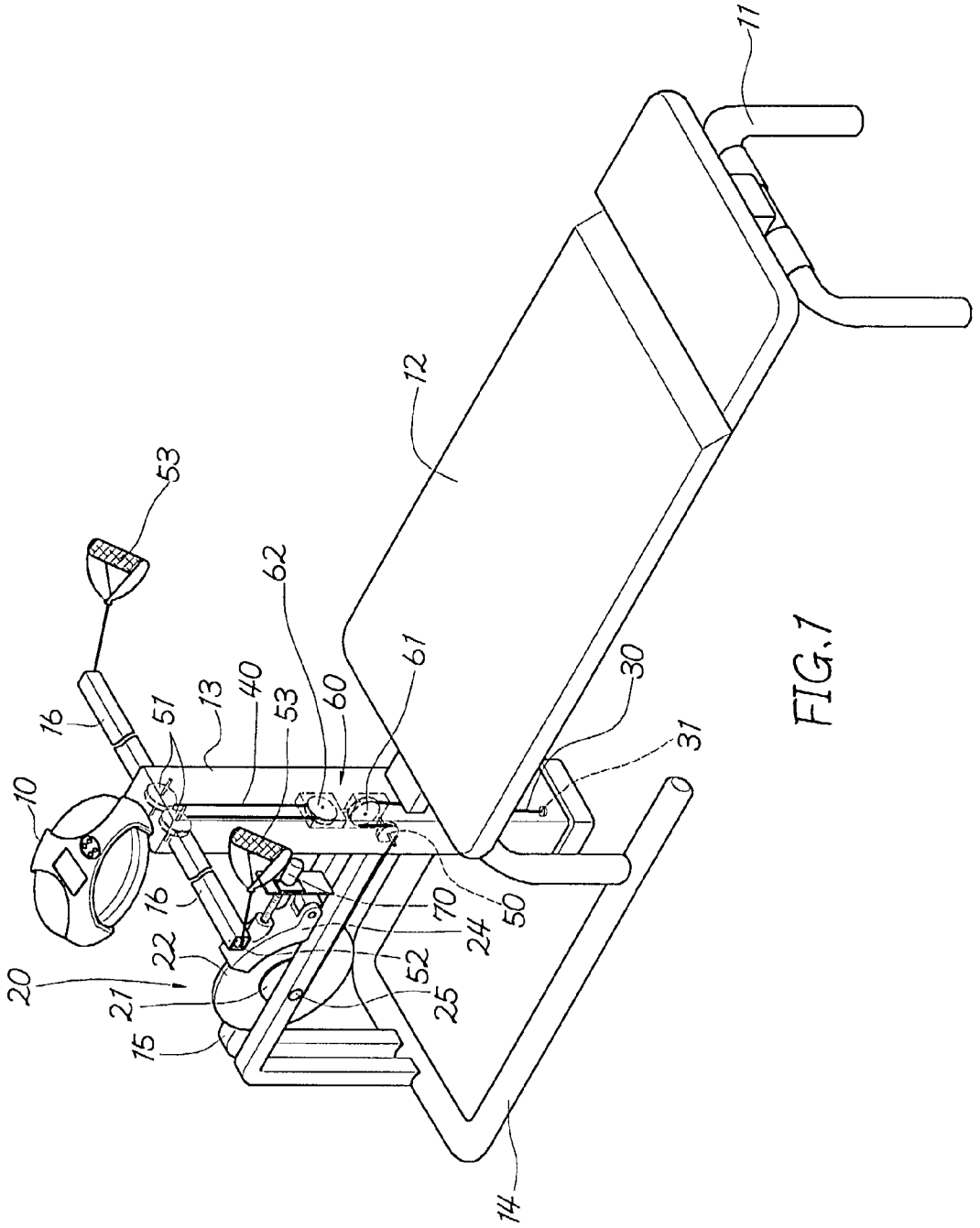


FIG. 7

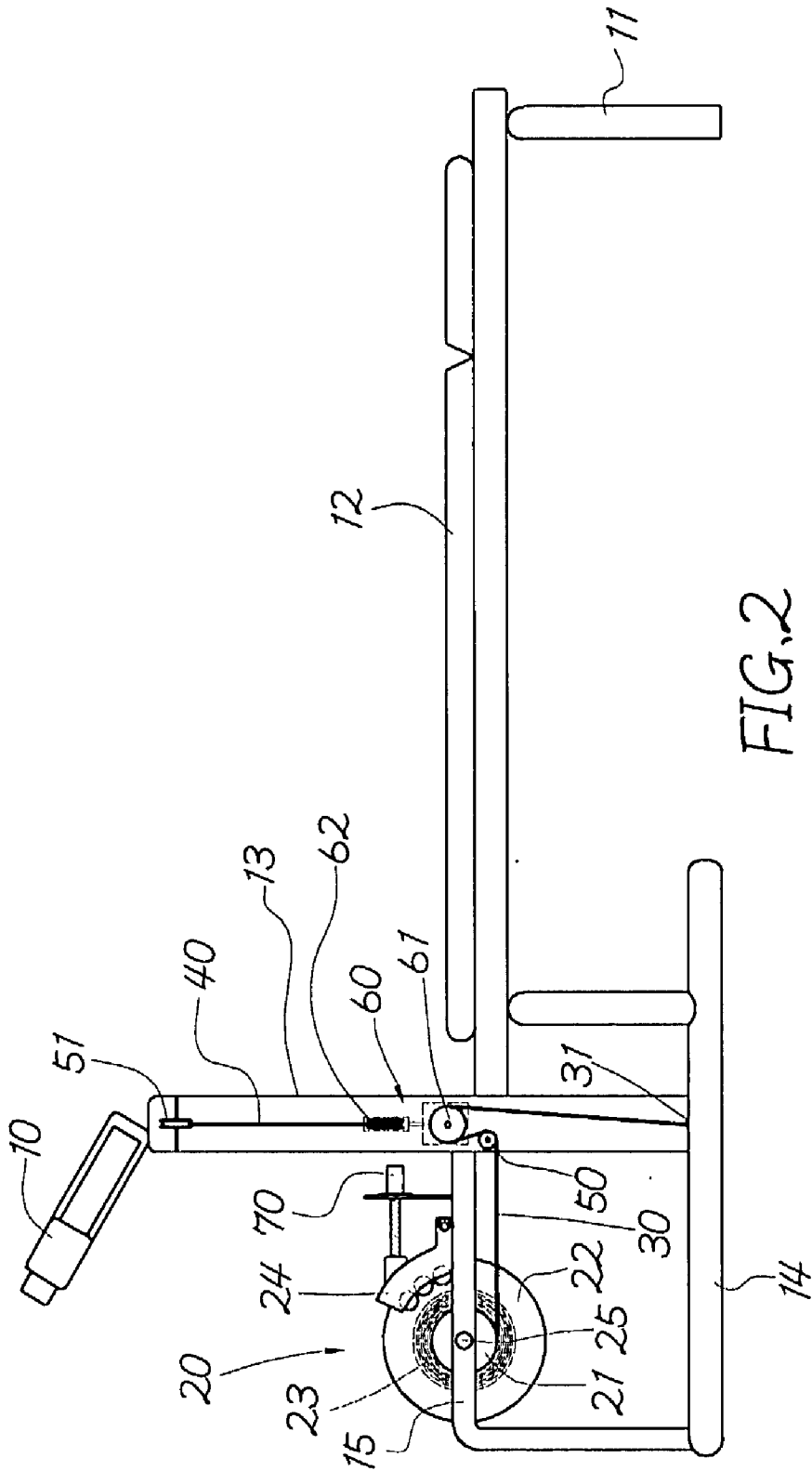


FIG. 2

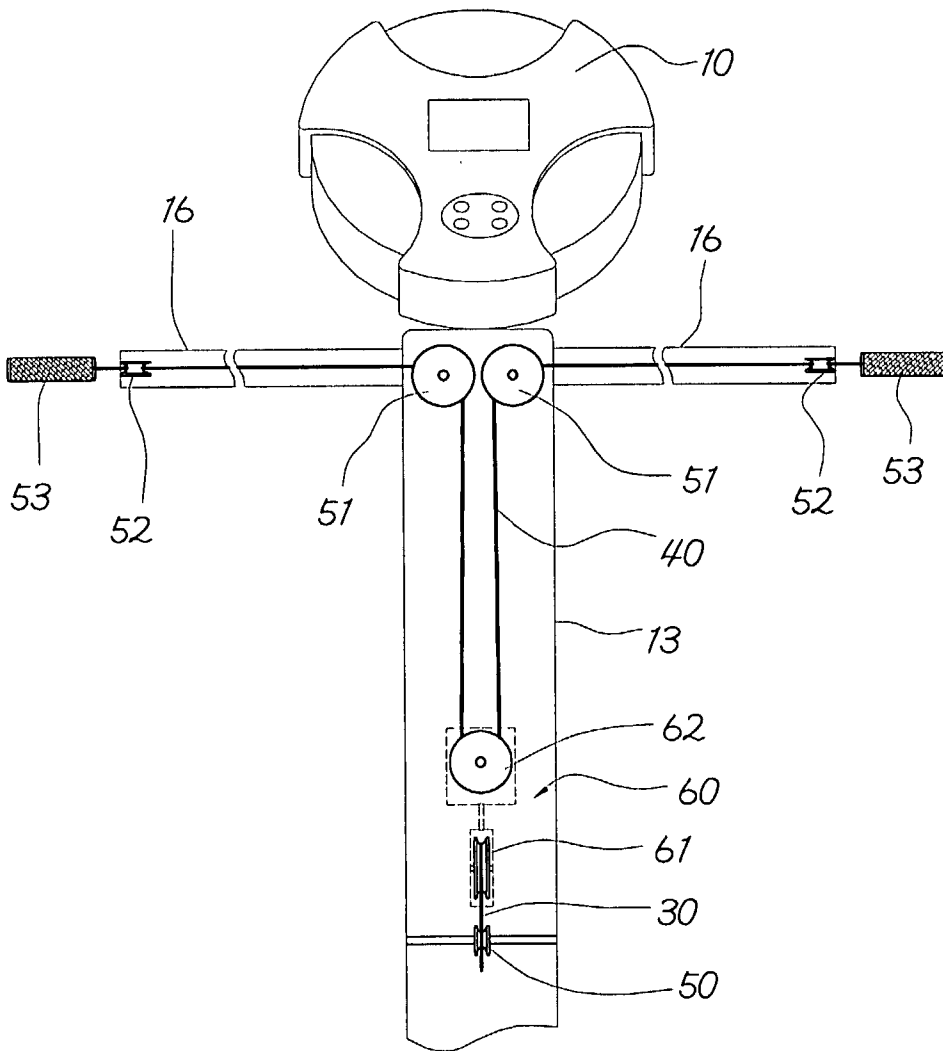
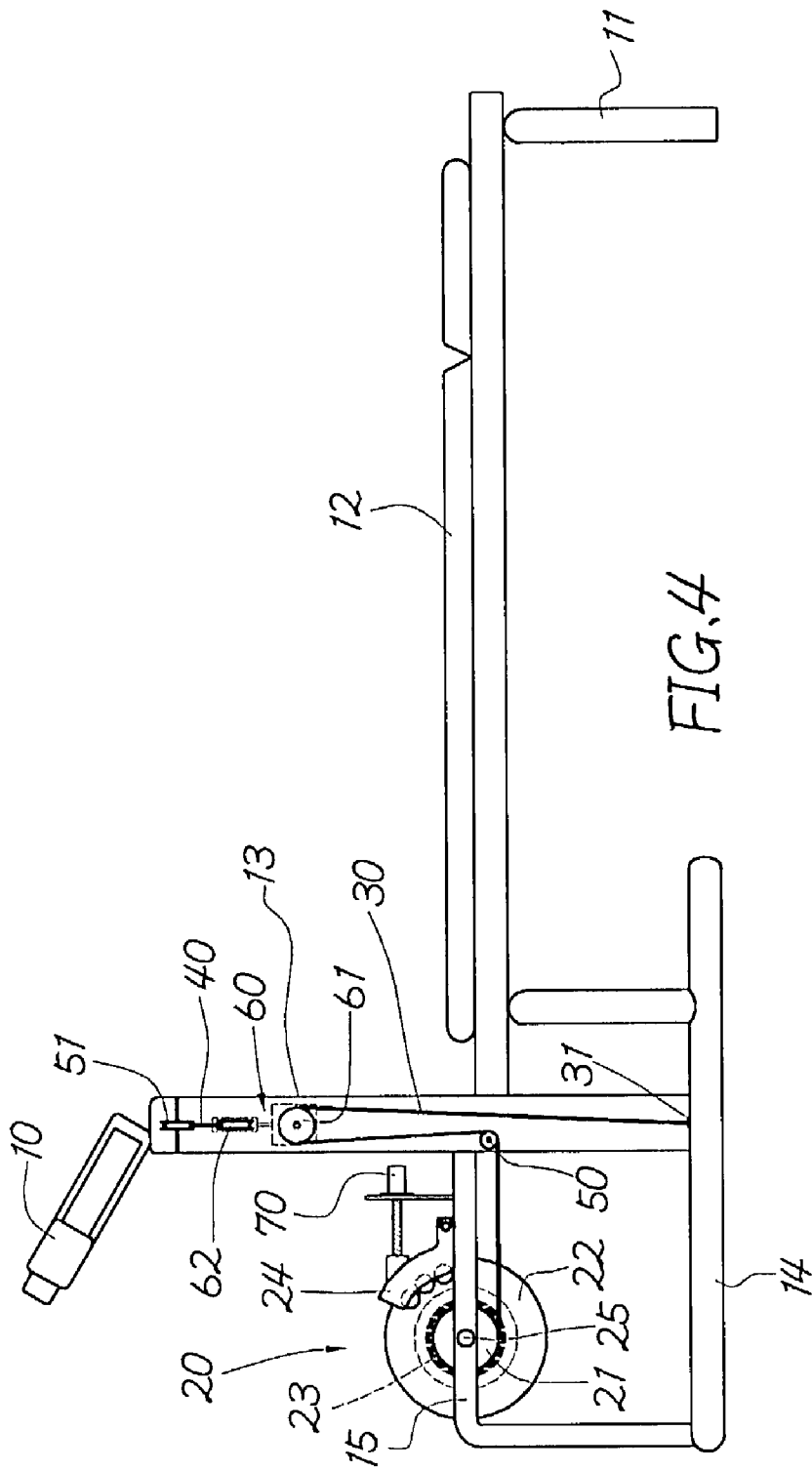


FIG. 3



WEIGHT LIFTING EXERCISER

BACKGROUND OF THE INVENTION

[0001] 1. Fields of the Invention

[0002] The present invention relates to a weight lifting exerciser, and more particularly, to an exerciser utilizing a nonfrictional magnetic resistance device to create a proper exercise resistance.

[0003] 2. Description of the Prior Art

[0004] The weight lifting exerciser is a popular exerciser widely used in the fitness centers. Most of the sources providing exercise resistance are metal pieces, high resilience ropes or tubes. In using the metal pieces, a metal impact noise will be created, thereby annoying the user very much. As for the high resilience ropes or tubes, the elastic fatigue will appear after use for a longer period, thereby reducing the exercise resistance.

[0005] In addition, the amount of metal pieces has to be adjusted to correspond to the expected exercise loading, thereby leading to much trouble in use. Furthermore, the user has to use the same strength to complete the to-and-fro double exercise procedure of the reciprocating travel of the loading source of metal pieces so that it's difficult for the user to smooth the breath rhythm.

SUMMARY OF THE INVENTION

[0006] It is a primary object of the present invention to eliminate the above-mentioned drawbacks and to provide a weight lifting exerciser utilizing a nonfrictional magnetic resistance device to create a proper exercise resistance so as to meet the requirements of each user and to achieve the adjustment and setting of each exercise procedure. Moreover, each element can be kept silent during the whole exercise session to achieve the environmental comfort.

[0007] It's another object of the present invention to provide a weight lifting exerciser features a "heavy pulling and light returning" reciprocating exercise process by means of a unidirectional travel of the flywheel. During the pulling process, the pulling elements create a cutting resistance effect with a magnet set while the pulling elements won't rotate in reverse direction during the coiling-up process performed by an automatic coiling apparatus. Accordingly, resistant force in the return travel won't be created.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The accomplishment of this and other objects of the invention will become apparent from the following description and its accompanying drawings of which:

[0009] FIG. 1 is a perspective view of a preferred embodiment of the present invention;

[0010] FIG. 2 is a side view of FIG. 1;

[0011] FIG. 3 is a front view of FIG. 1; and

[0012] FIG. 4 is a side view of FIG. 1, showing the action process thereof.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0013] First of all, referring to FIGS. 1 and 2, the preferred embodiment of the present invention includes a

console 10, a front frame 11, an adjustable cushion 12, an upright post 13 and a rear frame 14. A magnetic resistance device 20 is movably through a shaft 25 and provided between two parallel bars 15 above the rear frame 14. Two pulling elements 30, 40, a plurality of pulleys 50, 51, 52, 60 and two pulling grips 53 are provided for the user to carry out the pulling movement. The magnetic resistance device 20 contains a coiling wheel 21, a unidirectional flywheel 22 and an automatic coiling apparatus 23. A magnet set 24 is fitted to one side of the unidirectional flywheel 22 in such a manner that the magnet set 24 is situated at the rim of the unidirectional flywheel 22 and kept slightly away therefrom without contact therewith. An electronic resistance adjusting element 70 is utilized to drive the magnet set 24 for adjusting the clearance between the unidirectional flywheel 22 and the magnet set 24 so as to obtain an expected exercise resistance.

[0014] Referring to FIGS. 2 and 3, the coiling position of both pulling elements 30, 40 are described as follows:

[0015] One end of the first pulling element 30 is fixed and coiled to the coiling wheel 21 while the other end thereof successively passes through the first pulley 50 within the upright post 13 and a lower pulley 61 of the movable pulley block 60. Finally, the end 31 of the first pulling element 30 is fixed to the bottom of the upright post 13.

[0016] The second pulling element 40 passes through an upper pulley 62 of the movable pulley block 60 while both ends thereof pass upwards through the second pulley 51 near the top of the inside of the upright post 13 and come out of hollow arms 16 by guide pulleys 52 at both ends of thereof. At last, a grip 53 is fitted to both ends of the second pulling element 40.

[0017] As shown in FIG. 4, when both grips 53 are pulled by external force, the second pulling element 40 are raised to bring the movable pulley block 60 to move upwards. Meanwhile, the first pulling element 30 is moved to bring the coiling wheel 21 and the unidirectional flywheel 22 to rotate synchronically. After the external force disappears, the coupling elements and both pulling elements 30, 40 return to their original position.

[0018] The automatic coiling apparatus 23 is used to store the reactive energy provided by both pulling elements 30, 40. As the pulling force to the pulling elements 30, 40 disappears, the reactive energy will bring them to the original position. The leaf spring, for example, can be used to reach the expected coiling effect. The principle that the automatic coiling apparatus 23 is used to bring both pulling elements 30, 40 in original position is the so-called "light returning" effect of the present invention.

[0019] Furthermore, the present invention utilizes a built-in program of the console 10 to work with a heartbeat sensor (not shown). The user can input a proper heartbeat number (as suggested by physicians) before the exercise session. The heartbeat sensor detects the heartbeat number through the whole exercise session. In case of detection of the excess or insufficient heartbeat number, the console 10 will give out a warning signal to command the electronic resistance adjusting element 70 to automatically adjust the exercise resistance to an optimal state. Therefore, the use safety can be ensured and the exercise effect is achieved. Since the software programming is not the object of the present invention, no further descriptions thereto are given hereinafter.

[0020] Regarding the merits of the present invention to the breath rhythm during exercise session, the user can exhale in pulling process while exhaling in releasing process (without loading of gravity) so that an aerobic exercise can be smoothly performed.

[0021] Many changes and modifications in the above-described embodiment of the invention can, of course, be carried out without departing from the scope thereof. Accordingly, to promote the progress in science and the useful arts, the invention is disclosed and is intended to be limited only by the scope of the appended claims.

What is claimed is:

1. A weight lifting exerciser with frames, an adjustable cushion and an upright post comprising:

a magnetic resistance device and a resistance adjusting element provided at a proper place of said frame; and pulling elements, a plurality of pulleys and pulling grips provided for the user to carry out the pulling movement;

wherein the improvement is characterized by:

said resistance adjusting element being used to control the resistance value created by said magnetic resistance device, thereby offering a proper exercise resistance; and

an automatic coiling apparatus being used to store the reactive energy provided by both pulling elements so that, when the pulling force to said pulling elements disappears, the reactive energy will bring them to the original position.

2. The weight lifting exerciser as recited in claim 1, wherein said resistance adjusting element is an electronic or a manual adjusting mechanism.

3. The weight lifting exerciser as recited in claim 1, wherein said resistance adjusting element works with a heartbeat sensor together with a microprocessor and a built-in software while the personal heartbeat parameter inputted is used as reference value in adjusting the exercise resistance.

4. A weight lifting exerciser comprising a magnetic resistance device to be source providing exercise resistance and a resistance adjusting element to adjust the exercise resistance.

5. The weight lifting exerciser as recited in claim 4, wherein said resistance adjusting element is an electronic or a manual adjusting mechanism.

6. The weight lifting exerciser as recited in claim 4, wherein said resistance adjusting element works with a heartbeat sensor together with a microprocessor and a built-in software while the personal heartbeat parameter inputted is used as reference value in adjusting the exercise resistance.

7. A weight lifting exerciser comprising frames, an adjustable cushion, an upright post, a magnetic resistance device movable through a shaft, a resistance adjusting element and pulling grips, said magnetic resistance device having a coiling wheel, a unidirectional flywheel and an automatic coiling apparatus; wherein the improvement is characterized in:

a magnet set being fitted to one side of the unidirectional flywheel in such a manner that said magnet set is situated at the rim of said unidirectional flywheel and kept slightly away therefrom without contact therewith; and

an electronic resistance adjusting element being utilized to drive said magnet set for adjusting the clearance between said unidirectional flywheel and said magnet set so as to obtain an expected exercise resistance.

8. The weight lifting exerciser as recited in claim 7, wherein said resistance adjusting element is an electronic or a manual adjusting mechanism.

9. The weight lifting exerciser as recited in claim 7, wherein said resistance adjusting element works with a heartbeat sensor together with a microprocessor and a built-in software while the personal heartbeat parameter inputted is used as reference value in adjusting the exercise resistance.

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