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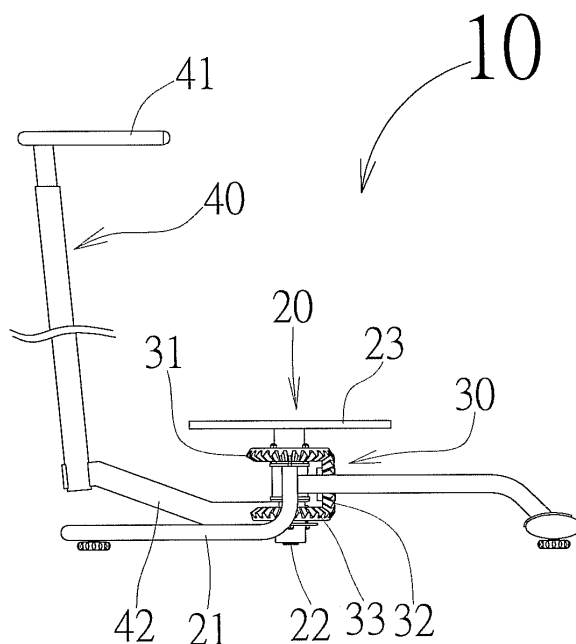
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(54) **Exerciser for the sake of training the abdominal muscle group**

(57) An exerciser (10) for the sake of training the abdominal muscle group is disclosed, wherein the operator may rotate on his backbone for taking a twisting exercise for his upper and lower bodies in reverse (different) direction; and wherein the exerciser (10) includes a rotating disc mechanism (20) for the lower limb of the operator

to stand thereon and swiveled under application of force, a rotating handlebar mechanism (40) for the upper limb of the operator to hold thereon and swiveled under application of force, and a coupling mechanism (30) for synchronically and reversely coupling the rotating disc mechanism and the rotating handlebar mechanism.



**FIG.2**

**Description****BACKGROUND OF THE INVENTION****FIELDS OF THE INVENTION**

**[0001]** The invention relates to an exerciser for the sake of training the whole abdominal muscle group, and more particularly, to an exerciser, with which the operator may rotate on his backbone for taking a synchronic twisting exercise for his upper and lower bodies in reverse (different) direction.

**DESCRIPTION OF THE RELATED ART**

**[0002]** As well-known, the current fitting apparatuses are provided for the operator to take exercise on certain parts of his body. For example, the treadmills, the fitness bikes, the elliptical cross trainers, etc. are primarily employed to train the lower body of the operators. To the contrary, the weight-lifting exercisers, the stretching exercisers, the rowing exercisers, etc. are substantially used to train the upper body of the operator. However, it is rarely seen that an exerciser is specially employed for the operator to train his abdominal muscle group under the thoracic cavity and above the pelvis.

**[0003]** Of course, the so-called waist-twisting exercisers or sit-up exercisers (not shown) have been popular in the market. They are primarily employed to twist and bend the abdominal muscles. Therefore, it seems that they can be used to train the corresponding abdominal muscle group. However, the waist-twisting exerciser is so used that the lower body is twisted while the upper body is unmovable in a fixed position. As a result, the exercise substantially takes effect only on the muscles of pelvis or the part under the pelvis. For the sit-up exerciser, the exercise substantially takes effect only on the abdominal muscles. According to the above-mentioned, there still have not been exercisers specially employed for the operator to train the whole abdominal muscle group under the thoracic cavity and above the pelvis.

**SUMMARY OF THE INVENTION**

**[0004]** An object of the invention is to provide an exerciser for the sake of training the abdominal muscle group, with which the operator may rotate on his backbone for taking a twisting exercise for his upper and lower bodies in reverse (different) direction. In this way, the operator may train his abdominal muscle group under the thoracic cavity and above the pelvis

**[0005]** According to the invention, the exerciser includes a rotating disc mechanism for the lower limb of the operator to stand thereon and swiveled under application of force, a rotating handlebar mechanism for the upper limb of the operator to hold thereon and swiveled under application of force, and a coupling mechanism for synchronically and reversely coupling the rotating disc

mechanism and the rotating handlebar mechanism.

**BRIEF DESCRIPTION OF THE DRAWINGS**

**[0006]** The accomplishment of this and other objects of the invention will become apparent from the following description and its accompanying drawings of which:

FIG. 1 is a perspective view of a preferred embodiment of the invention;

FIG. 2 is a side view of the preferred embodiment of the invention according to FIG. 1;

FIG. 3 is a schematic drawing of the preferred embodiment of the invention according to FIG. 1 wherein the operation thereof is illustrated; and

FIG. 4 is a schematic drawing of the preferred embodiment of the invention according to FIG. 1 wherein another operation thereof is illustrated.

**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

**[0007]** The present invention will now be described in more detail hereinafter with reference to the accompanying drawings that show a preferred embodiments of the invention.

**[0008]** Referring to FIGS. 1 through 4, an embodiment in accordance with the invention is applied to a waist-twisting exerciser 10 and includes a rotating disc mechanism 20, a coupling mechanism 30, and a rotating handlebar mechanism 40.

**[0009]** The rotating disc mechanism 20 includes a bottom base 21 and a supporting post 22 at the center thereof. A rotating disc 23 is pivotally attached to the top of the supporting post 22 for the lower limb of an operator to stand thereon.

**[0010]** The coupling mechanism 30 is driven by the rotating disc 23. The coupling mechanism 30 includes a primary bevel gear 31 in lateral direction, an intermediate bevel gear 32 extended in longitudinal direction and engaged with the primary bevel gear 31, and a secondary bevel gear 33 engaged with the intermediate bevel gear 32.

**[0011]** The rotating handlebar mechanism 40 includes a handlebar 41 at the top thereof for the upper limb of the operator to hold thereon. An upright rod transmission shaft 42 is attached to the bottom thereof and synchronically driven by the secondary bevel gear 33 in reverse rotation relative to the rotating disc mechanism 20.

**[0012]** Based on the assembly of the above-mentioned components, the handlebar 41 is synchronically rotated in reverse direction when the rotating disc 23 is subject to a force in rotation. In this way, the upper and lower bodies of the operator may achieve an expected syn-

chronic twisting effect. Likewise, the rotating disc 23 may be reversely and synchronically rotated when the operator applies a force with his upper body to the handlebar 41 for a rotational motion.

**[0013]** By use of the special design of the invention, the operator may rotate on his backbone for taking a twisting exercise for his upper and lower bodies in reverse (different) direction. In this way, the operator may train his abdominal muscle group under the thoracic cavity and above the pelvis.

**[0014]** In summary there is disclosed an exerciser for the sake of training the abdominal muscle group, wherein the operator may rotate on his backbone for taking a twisting exercise for his upper and lower bodies in reverse (different) direction; and wherein the exerciser includes a rotating disc mechanism for the lower limb of the operator to stand thereon and swiveled under application of force, a rotating handlebar mechanism for the upper limb of the operator to hold thereon and swiveled under application of force, and a coupling mechanism for synchronically and reversely coupling the rotating disc mechanism and the rotating handlebar mechanism.

**[0015]** 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.

## Claims

1. An exerciser (10) for the sake of training the abdominal muscle group, wherein the operator may rotate on his backbone for taking a twisting exercise for his upper and lower bodies in reverse (different) direction; and wherein the exerciser (10) includes:

a rotating disc mechanism (20) for the lower limb of the operator to stand thereon and swiveled under application of force,  
a rotating handlebar mechanism (40) for the upper limb of the operator to hold thereon and swiveled under application of force, and  
a coupling mechanism (30) for synchronically and reversely coupling the rotating disc mechanism and the rotating handlebar mechanism.

2. An exerciser (10) according to claim 1, wherein the rotating disc mechanism (20) is having a bottom base and a supporting post at the center thereof, a rotating disc being pivotally attached to the top of the supporting post for the lower limb of an operator to stand thereon.
3. An exerciser (10) according to claim 1 or 2, wherein the coupling mechanism (30) driven by the rotating

disc, the coupling mechanism having a primary bevel gear in lateral direction, an intermediate bevel gear extended in longitudinal direction and engaged with the primary bevel gear, and a secondary bevel gear engaged with the intermediate bevel gear.

4. An exerciser (10) according to one of the preceding claims, wherein the a rotating handlebar mechanism (40) having a handlebar at the top thereof for the upper limb of the operator to hold thereon, an upright rod transmission shaft being attached to the bottom thereof and synchronically driven by the secondary bevel gear 33 in reverse rotation relative to the rotating disc mechanism.
5. An exerciser (10) according to one of the preceding claims, wherein the operator may rotate on his backbone for taking a twisting exercise for his upper and lower bodies in reverse (different) direction, whereby the operator may train his abdominal muscle group under the thoracic cavity and above the pelvis.
6. An exerciser (10) for the sake of training the abdominal muscle group, comprising:

a rotating disc mechanism (20) having a bottom base and a supporting post at the center thereof, a rotating disc being pivotally attached to the top of the supporting post for the lower limb of an operator to stand thereon;  
a coupling mechanism (30) driven by the rotating disc, the coupling mechanism having a primary bevel gear in lateral direction, an intermediate bevel gear extended in longitudinal direction and engaged with the primary bevel gear, and a secondary bevel gear engaged with the intermediate bevel gear; and  
a rotating handlebar mechanism (40) having a handlebar at the top thereof for the upper limb of the operator to hold thereon, an upright rod transmission shaft being attached to the bottom thereof and synchronically driven by the secondary bevel gear 33 in reverse rotation relative to the rotating disc mechanism,  
wherein the operator may rotate on his backbone for taking a twisting exercise for his upper and lower bodies in reverse (different) direction, whereby the operator may train his abdominal muscle group under the thoracic cavity and above the pelvis.

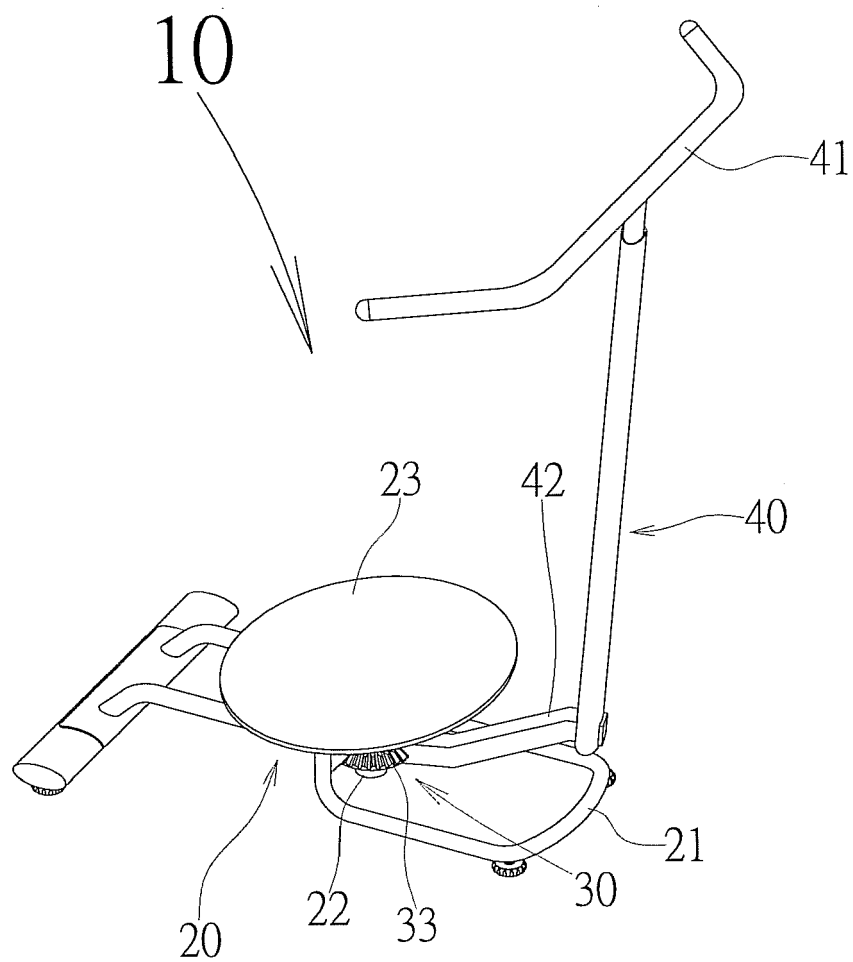


FIG.1

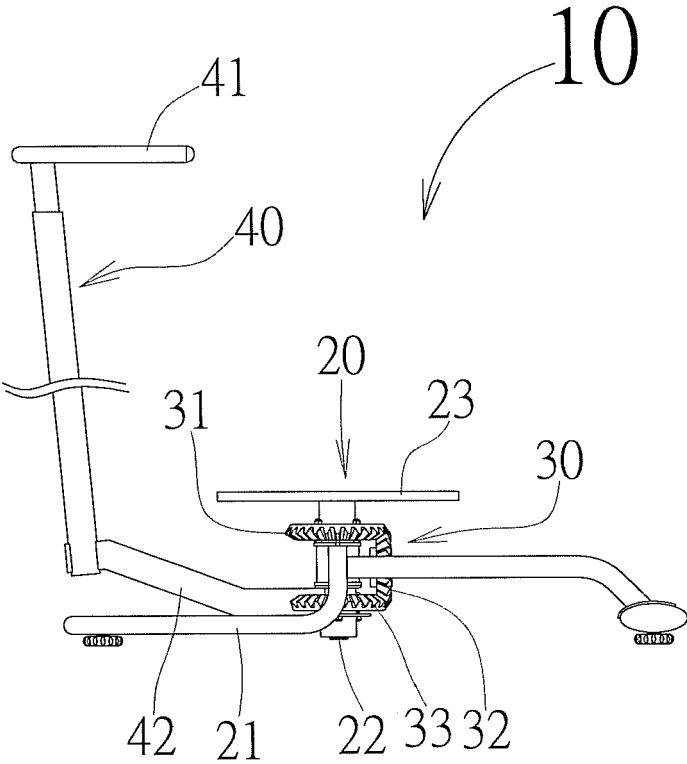


FIG.2

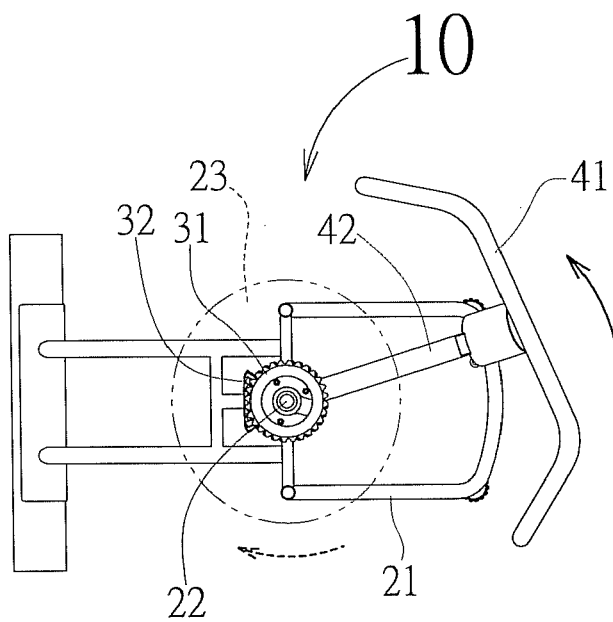


FIG.3

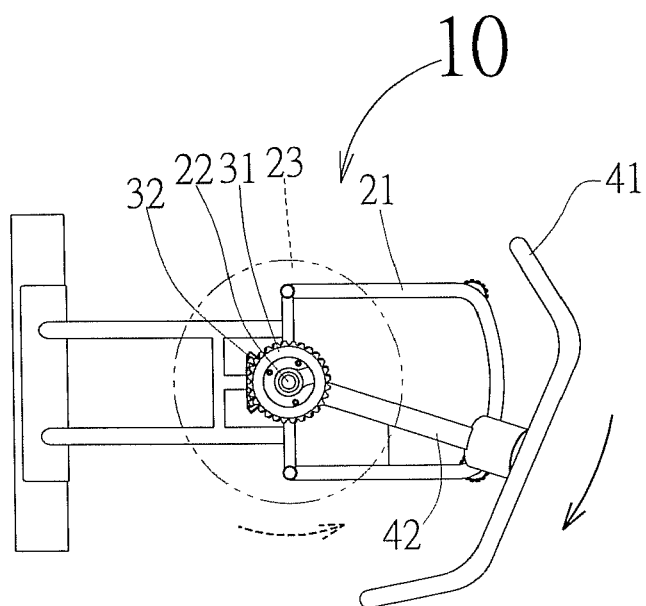


FIG.4



## EUROPEAN SEARCH REPORT

Application Number  
EP 09 15 2051

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                 |                                                  |                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Citation of document with indication, where appropriate, of relevant passages                                                   | Relevant to claim                                | CLASSIFICATION OF THE APPLICATION (IPC)    |
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| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                 |                                                  |                                            |
| Place of search<br>Munich                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                 | Date of completion of the search<br>16 June 2009 | Examiner<br>Jekabsons, Armands             |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                                 |                                                  |                                            |

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EPO FORM 1503 03.82 (P4/C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 09 15 2051

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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