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(54) **Telescopic pace-adjusting mechanism of an elliptical cross trainer**

(57) A telescopic pace-adjusting mechanism of an elliptical cross trainer having two treadle planks that consist of two telescopic rods. An adjustment of the exercise

pace can be easily achieved by the simple telescopic adjustment and the positioning action. Meanwhile, the pace-adjusting mechanism can be manually or electrically operated.

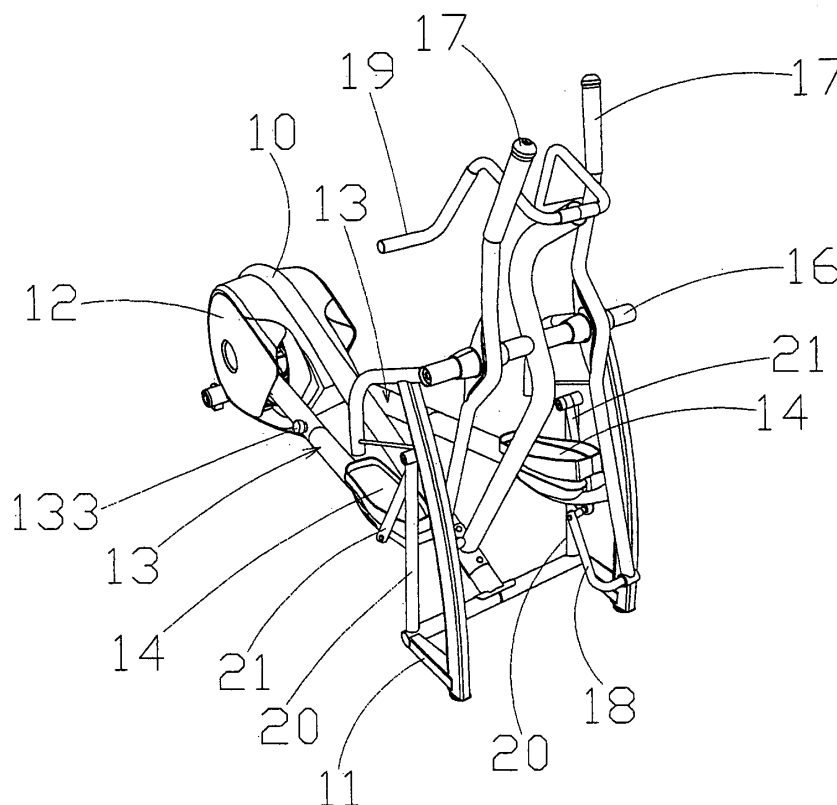


fig.1

Description**BACKGROUND OF THE INVENTION****1. Fields of the Invention**

[0001] The invention relates to a pace-adjusting mechanism of an elliptical cross trainer having a frame unit, a bottom support frame, a fly wheel transmission unit, two treadle planks and two handle rods, and more particularly, to a mechanism that permits a free adjustment of the exercise pace in manually or electrically telescopic manner.

2. Description of the Related Art

[0002] The elliptical cross trainer is so used that the operator's feet can make an elliptical movement path, thereby simulating the real running and walking path. Moreover, the horizontal pace (simulating the movement on a flat ground) and the inclined pace (simulating the uphill and downhill movement) can be changed when the vertical position of the treadles of the elliptical cross trainer changes. This is the main intention of the invention.

[0003] US 6042512, US 6090014, and 6450925 teach a mechanism that directly adjusts the vertical position of the treadle planks in such a way that the exercise angle is changed for adjusting the pace. The above-mentioned adjustment permits an immediate change in the vertical exercise position of the treadles. However, the whole assembly of the adjusting mechanism will become considerably complicated. In addition to the difficulties in assembly, the mechanism does not favor the reduction of the manufacturing costs and the improvement of the economic benefit. Thus, the conventional mechanism requires further improvement.

SUMMARY OF THE INVENTION

[0004] It is the problem underlying the invention is to provide a telescopic pace-adjusting mechanism of an elliptical cross trainer that makes use of a telescopic way for changing the length of the treadle planks at any time.

[0005] The underlying problem is solved by a telescopic pace-adjusting mechanism according to the characterizing portion of claim 1 or claim 4 .

[0006] Accordingly, the basic effect of adjusting the vertical exercise position is achieved. Meanwhile, the assembly elements can be simplified for ensuring a better economic benefit and usability.

[0007] In accordance with the invention, the telescopic pace-adjusting mechanism of an elliptical cross trainer includes two treadle planks that consist of two telescopic rods. An adjustment of the exercise pace can be easily achieved by the simple telescopic adjustment and the positioning action.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Two embodiments of the invention will be described in 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 embodiment according to FIG. 1; and

FIG. 3 is a schematic operational view of the embodiment according to FIG. 2, and

FIG. 4 is a side view of another preferred embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0009] Referring to FIGS. 1 and 2, a preferred embodiment of the invention includes a frame unit 10 with a bottom support frame 11 at the front end thereof and a flywheel transmission unit 30 at the rear end thereof. The flywheel transmission unit is covered by a protection hood 12. The flywheel transmission unit works in cooperation with two treadle planks 13 on each of which a treadle 14 is disposed for taking a treading exercise. Two movable handle rods 17 are pivotally mounted on a cross-bar 16 of the frame unit 10. The bottom of the movable handle rods 17 is pivotally attached to a connecting rod 18. The other end of the connecting rod 16 is pivotally connected to the front section of the treadle plank 13, thereby creating a coupling action. Moreover, the top of the frame unit 10 is provided with a fixed handle rod 19. An upright rod 20 is pivotally attached to both sides of the bottom support frame 11, respectively. The top end of the upright rod 20 is pivotally coupled to a coupling rod 21 while the other end of the coupling rod 21 is pivotally connected to the treadle plank 13.

[0010] As shown in FIGS. 2 and 3, the treadle planks 13 mainly consist of two telescopic rods 131, 132. Meanwhile, a plurality of positioning elements 133 and insertion holes 134 are provided at corresponding position in such a way that the total length of the treadle planks 13 depends upon the telescopic adjustment between the telescopic rods 131, 132. Further, a synchronic displacement of the coupling rod 21 will be employed for an easy adjustment of the exercise pace.

[0011] The positioning effect exerted by the positioning elements 133 and the insertion holes 134 belongs to a prior art. The action thereof is not the claimed feature of the invention so that no further descriptions are given hereinafter.

[0012] As shown in FIG. 4 illustrating another embodiment of the invention, both of the telescopic rods 131, 132 can be electrically and telescopically adjusted by an

electric adjustment assembly 40 having a motor 41, a reduction gear box 42 and a drive screw 43 for achieving the same expected effect.

[0013] Alternatively, the upright rod 20 is fixed at the position of the frame unit 10 between the two treadle planks 13. Both sides of the top end of the upright rod 20 are pivotally connected to the coupling rod 21, respectively, such that the pivotal connection to the two treadle planks 13 is achieved.

[0014] In order to easily understand the features of the invention, the treadle plank 13 at only one side of the elliptical cross trainer and a few relevant elements are illustrated in FIGS. 2, 3 and 4. In particular, the movable handle rods 17 and the bottom support frame 18 are omitted as well for the purpose of a clear illustration of the adjustment of the action thereof. Moreover, the lines in the drawings are so simple that a better observation effect is achieved.

[0015] Many changes and modifications in the above-described embodiments 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 claim.

Claims

1. A telescopic pace-adjusting mechanism of an elliptical cross trainer having a frame unit (10), a bottom support frame (11), a flywheel transmission unit (30), two treadle planks (13), and two handle rods (17), **characterized in that** an upright rod (20) is pivotally attached to both sides of the bottom support frame (11), respectively, and the top end of the upright rod (20) is pivotally coupled to an coupling rod (21) while the other end of the coupling rod (21) is pivotally connected to the treadle plank (13), and **that** the treadle planks (13) mainly consist of two telescopic rods (131, 132) fitted to each other, and the total length of the treadle planks (13) depends upon the telescopic adjustment between the telescopic rods (131, 132) under the influence of the action of a telescopic adjusting mechanism (40), and a synchronic displacement of the coupling rod (21) is employed for an easy adjustment of the exercise pace.
2. The telescopic pace-adjusting mechanism of an elliptical cross trainer as claimed in claim 1 **characterized in that** the telescopic adjusting mechanism is manually operated.
3. The telescopic pace-adjusting mechanism of an elliptical cross trainer as claimed in claim 1 **characterized in that** the telescopic adjusting mechanism is electrically operated.

4. A telescopic pace-adjusting mechanism of an elliptical cross trainer having a frame unit (10), a bottom support frame (11), a flywheel transmission unit (30), two treadle planks (13), and two handle rods (17), **characterized in that** an upright rod (20) is pivotally fixed at a proper position of the frame unit (10) in such a way that the upright rod (20) is situated between the treadle planks (13), and both sides of the top end of the upright rod (20) are pivotally coupled to an coupling rod (21), respectively, such that the coupling rods are pivotally connected to the treadle planks (13); and that the treadle planks (13) mainly consist of two telescopic rods (131, 132) fitted to each other, and the total length of the treadle planks (13) depends upon the telescopic adjustment between the telescopic rods (131, 132) under the influence of the action of a telescopic adjusting mechanism (40), and a synchronic displacement of the coupling rod (21) is employed for an easy adjustment of the exercise pace.
5. The telescopic pace-adjusting mechanism of an elliptical cross trainer as claimed in claim 4 **characterized in that** the telescopic adjusting mechanism is manually operated.
6. The telescopic pace-adjusting mechanism of an elliptical cross trainer as claimed in claim 4 **characterized in that** the telescopic adjusting mechanism is electrically operated.

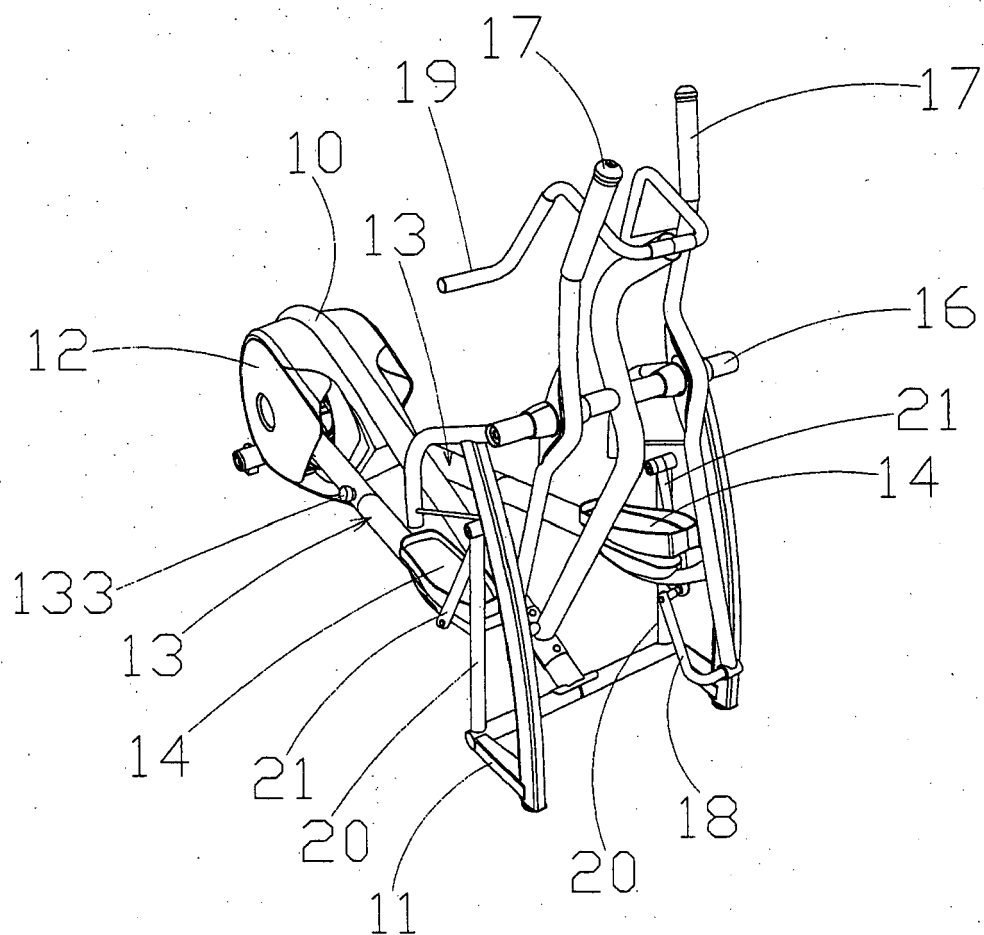


fig.1

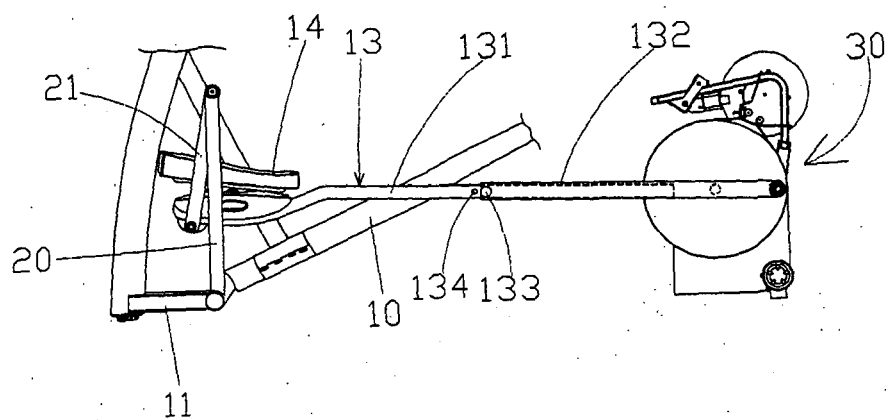


fig.2

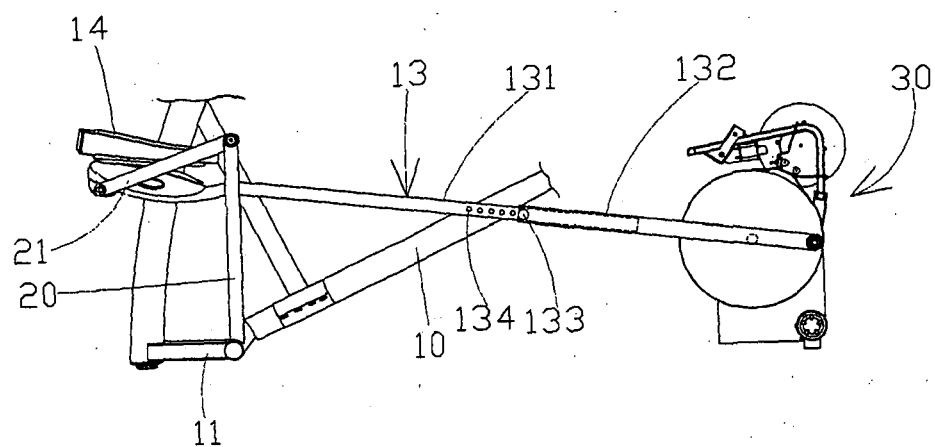


fig.3

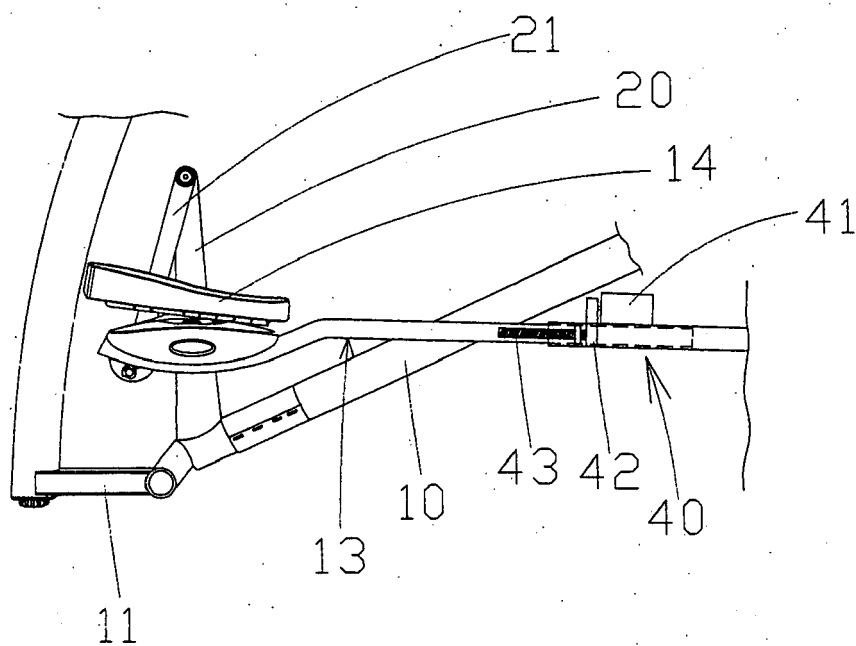


fig.4



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Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 01 4420

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) A63B
Place of search The Hague		Date of completion of the search 13 November 2007	Examiner Oelschläger, Holger
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 07 01 4420

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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