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(54) Folding mechanism for an exercise treadmill

(57) The present invention relates to a folding mechanism for an exercise treadmill having a U-shaped handrail (10) each end of the U-shaped handrail is pivotably connected to a vertical part (22) of the supporting arms (20) by means of a second pivot (11). A connection rod (12) extends downwards from either side of the U-shaped handrail (10), and each of the connection rod (12) is pivotally connected to a pull rod (14) by means of a third pivot (13). The other end of each of the pull rods (14) is pivotably secured to the corresponding position of the frame (30) by means of a fourth pivot (15). Accordingly, when the U-shaped handrail (10) is raised and turned on the second pivot (11), the connection rod (12) will also be moved to bring the pull rod (14) to shift upwards. Thereafter, the frame (30) is turned on the first pivot (35) to be raised to the top for completing the folding step of the frame (30).

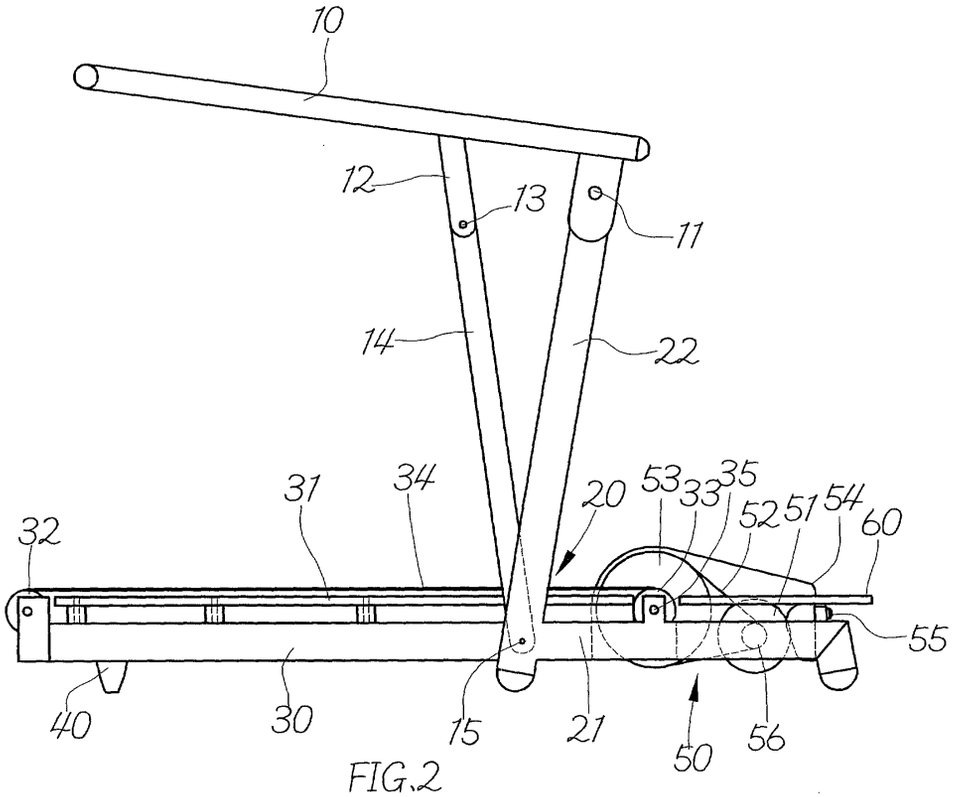

FIG.2

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Description

[0001] The present invention relates to a folding mechanism for an exercise treadmill, comprising a U-shaped handrail, two supporting arms, a frame, a front support, a motorized assembly and a rear reading plate.

[0002] The frame of the conventional treadmill (for example, the disclosed US 5674453, and 6033347) is designed to be foldable in order to reduce the occupied space and facilitate the movement thereof. However, these products have to include an auxiliary lifting member (like pneumatic or oil-pressurized cylinder) behind the frame in order to prevent the frame from an unexpected collapse endangering the operator or the other around. Accordingly, the whole design and use show much inconvenience.

[0003] Moreover, this conventional design doesn't fit the old or the disable because they have much difficulty in bending down to perform the folding movement.

[0004] It is a primary object of the present invention to remove the above-mentioned drawbacks and to provide a folding mechanism for an exercise treadmill through which the operator doesn't need to bend down to perform the folding movement of the frame.

[0005] The accomplishment of this and other objects of the invention is characterized by the features of the characterizing portion of claim 1.

[0006] By these features an exercise treadmill is achieved whose frame can be folded or unfolded by moving the handrail. Therefore the using convenience and safety is ensured. Furthermore, the frame can be folded to the tip at an automatic locking position by means of components of connection rods, pull rods and corresponding pivots for achieving a full safety for operators and people around. One embodiment of the treadmill according to the invention will be described in the following description and its accompanying drawings of which:

FIG. 1 is a top view of an embodiment of the present invention;

FIG. 2 is a side view of the embodiment of the present invention;

FIG. 3 is a side view of the embodiment of the present invention showing the action thereof; and

FIG. 4 is another side view of the embodiment of the present invention showing the action thereof.

[0007] First of all, referring to FIGS. 1 and 2, a preferred embodiment of the present invention mainly includes a U-shaped handrail 10, two supporting arms 20, a frame 30, a front support 40, a motorized assembly 50 and a rear treading plate 60. The frame 30 has a platform 31 the front and rear ends of which are fitted with a front and rear rollers 32, 33 between which a treadmill walking belt 34 circles. Besides, the rear roller 33 of the frame 30 is positioned on horizontal parts 21 of the supporting arms 20 by means of a first pivot 35.

[0008] The motorized assembly 50 comprises a motor 51, a belt 52, a driven wheel 53 and a protection cover 54. The motor 51 is fixed behind the horizontal parts 21 of the supporting arms 20 by means of a fastening member. The belt extend between a power output shaft 56 and the driven wheel 53 while the rear roller 33 is driven by the driven wheel 53 for a rotational movement of the treadmill walking belt 34.

[0009] Each end of the U-shaped handrail 10 is pivotably connected to a vertical part 22 of two supporting arms 20 by means of a second pivot 11. A connection rod 12 extends downwards from either side of the U-shaped handrail 10, and each of the connection rod 12 is pivotally connected to a pull rod 14 by means of a third pivot 13. Thereafter, the other end of each of the pull rods 14 is pivotably secured to the corresponding position of the frame 30 by means of a fourth pivot 15. Therefore, when the U-shaped handrail 10 is raised and turned on the second pivot 11, the connection rod 12 will also be moved to bring the pull rod 14 to shift upwards. Thereafter, the frame 30 is turned on the first pivot 35 to be raised to the top for completing the folding step of the frame 30.

[0010] Based on the above-mentioned components, as shown in FIG. 3 and 4, the frame 30 can be folded for storage or unfolded for exercise operation only by moving the U-shaped handrail 10. Meanwhile, when the U-shaped handrail 10 is moved up to the top (see FIG. 4), the connection rod 12 and the pull rod 14 will created a blocking angle at which the frame 30 won't be unexpectedly collapsed even in case of being moved. The frame 30 can only be lowered by moving the U-shaped handrail 10 in proper operation steps so that the safety is more ensured.

[0011] 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 claim.

Claims

1. A folding mechanism for an exercise treadmill comprising a U-shaped handrail, two supporting arms, a frame, a front support, a motorized assembly and a rear treading plate;
   wherein the improvement is **characterized by**:

   said frame (30) having a platform (31) the front and rear ends of which are fitted with a front and rear rollers between which a treadmill walking belt circles, said rear roller of said frame being positioned on horizontal parts of said sup-

porting arms by means of a first pivot;

said motorized assembly having a motor (51), a belt, a driven wheel and a protection cover, said motor being fixed behind said horizontal parts of said supporting arms by means of a fastening member, said belt extending between a power output shaft and said driven wheel while said rear roller is driven by said driven wheel for a rotational movement of said treadmill walking belt; and

each end of said U-shaped handrail (10) being pivotably connected to a vertical part of said supporting arms by means of a second pivot, a connection rod extending downwards from either side of said U-shaped handrail, each of said connection rod being pivotally connected to a pull rod by means of a third pivot, the other end of each of said pull rods being pivotably secured to the corresponding position of said frame by means of a fourth pivot so that when said U-shaped handrail is raised and turned on said second pivot, said connection rod will also be moved to bring said pull rod to shift upwards, whereupon said frame is turned on said first pivot to be raised to the top for completing the folding step of said frame.

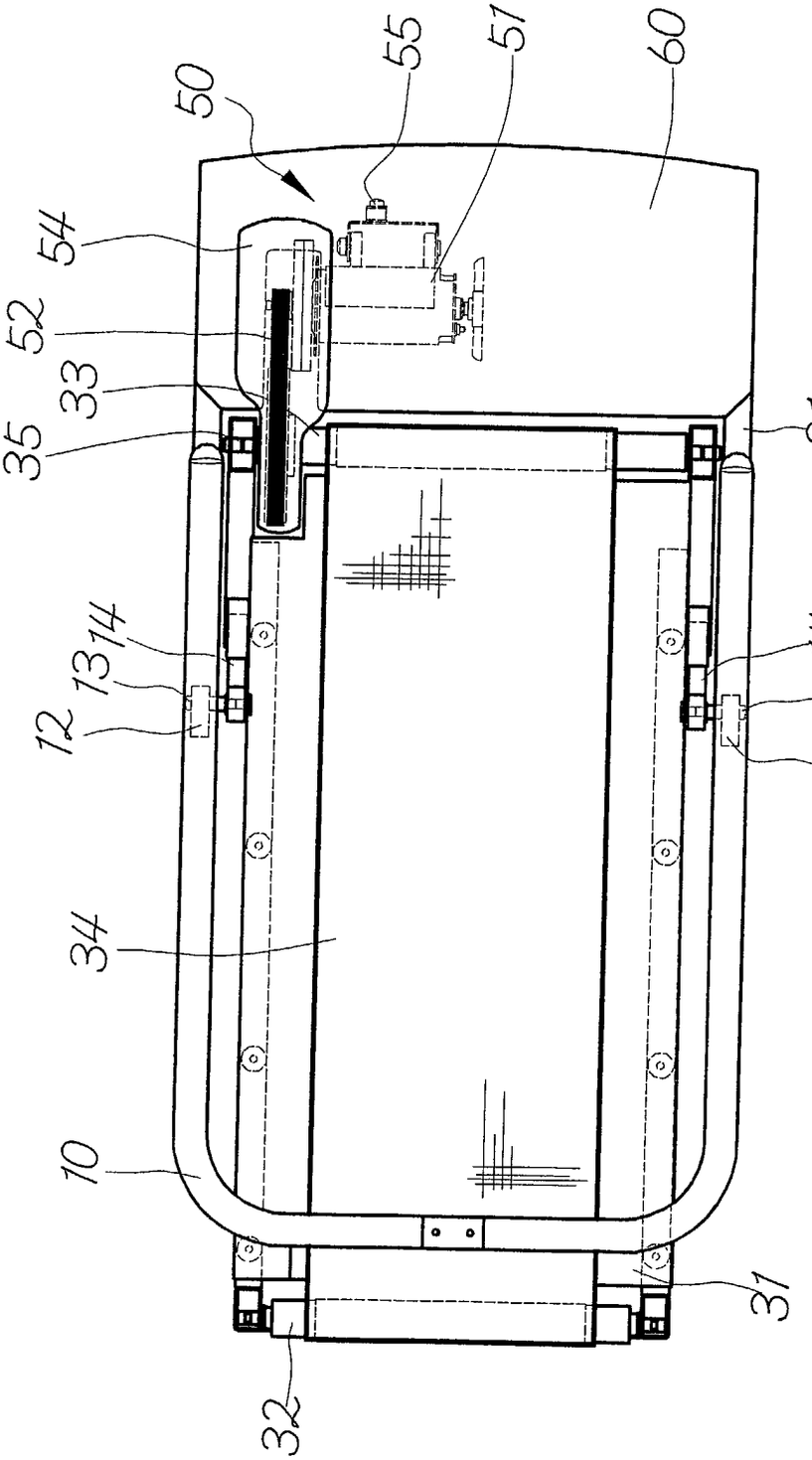

FIG.1

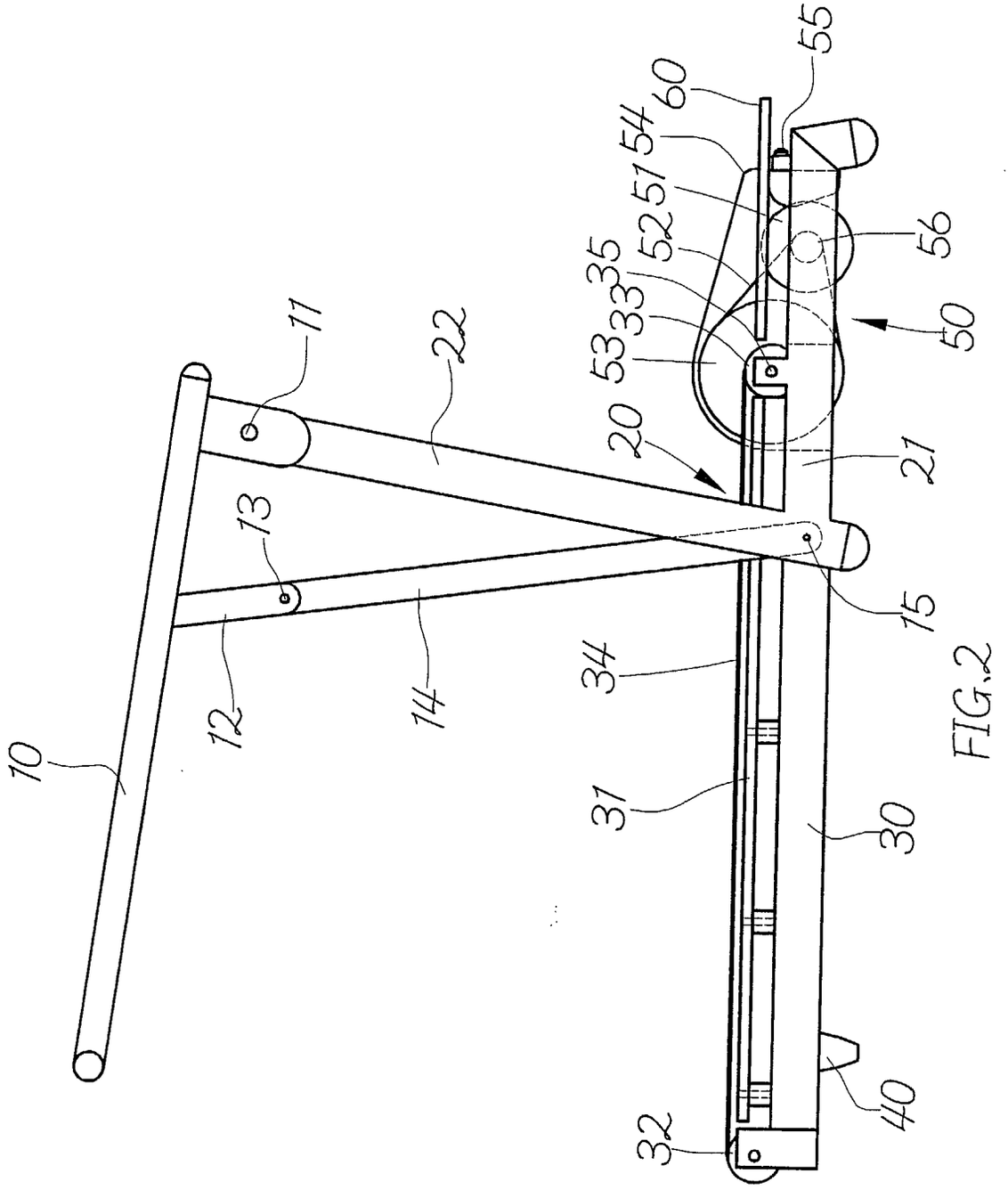

FIG.2

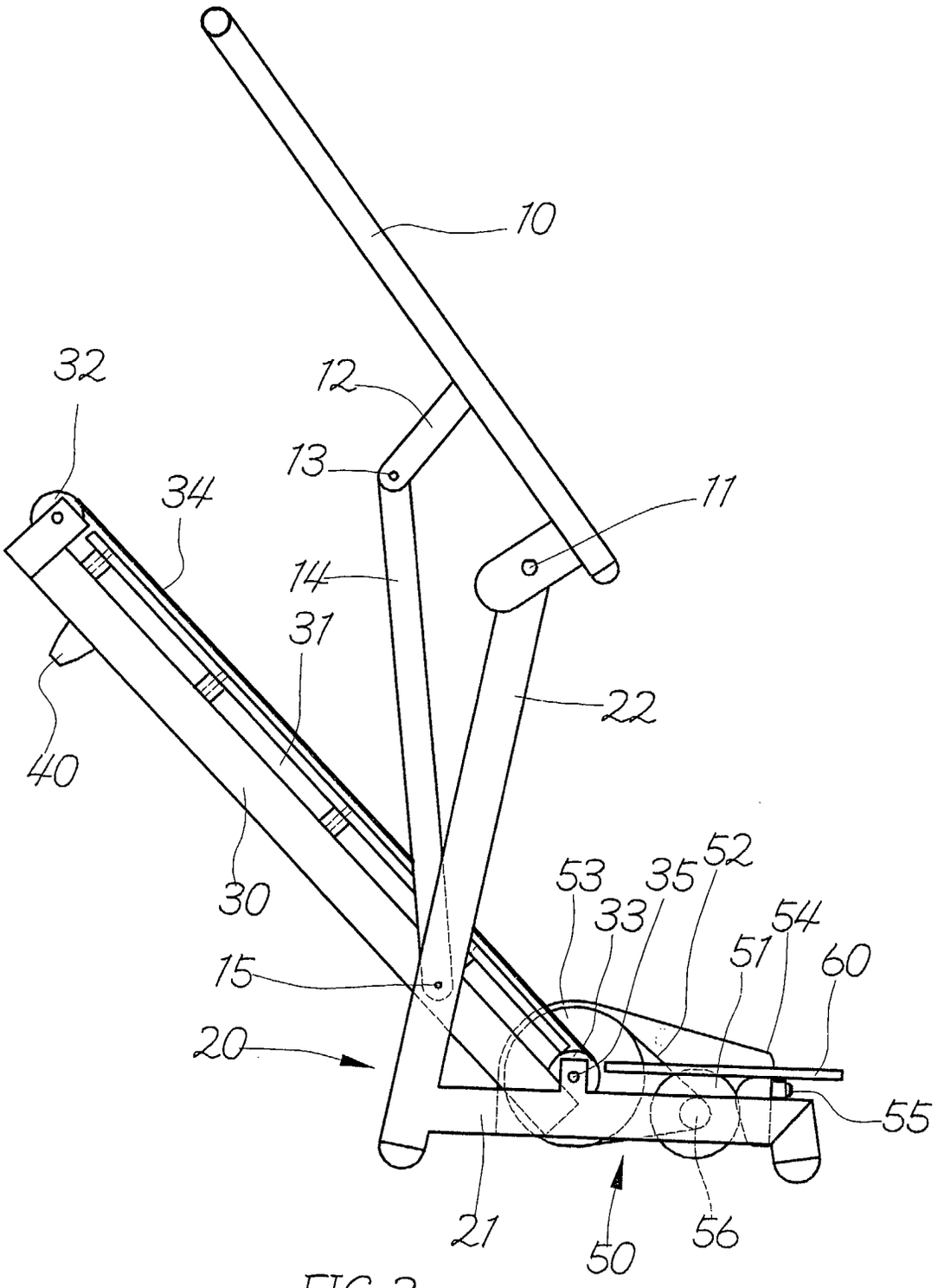

FIG.3

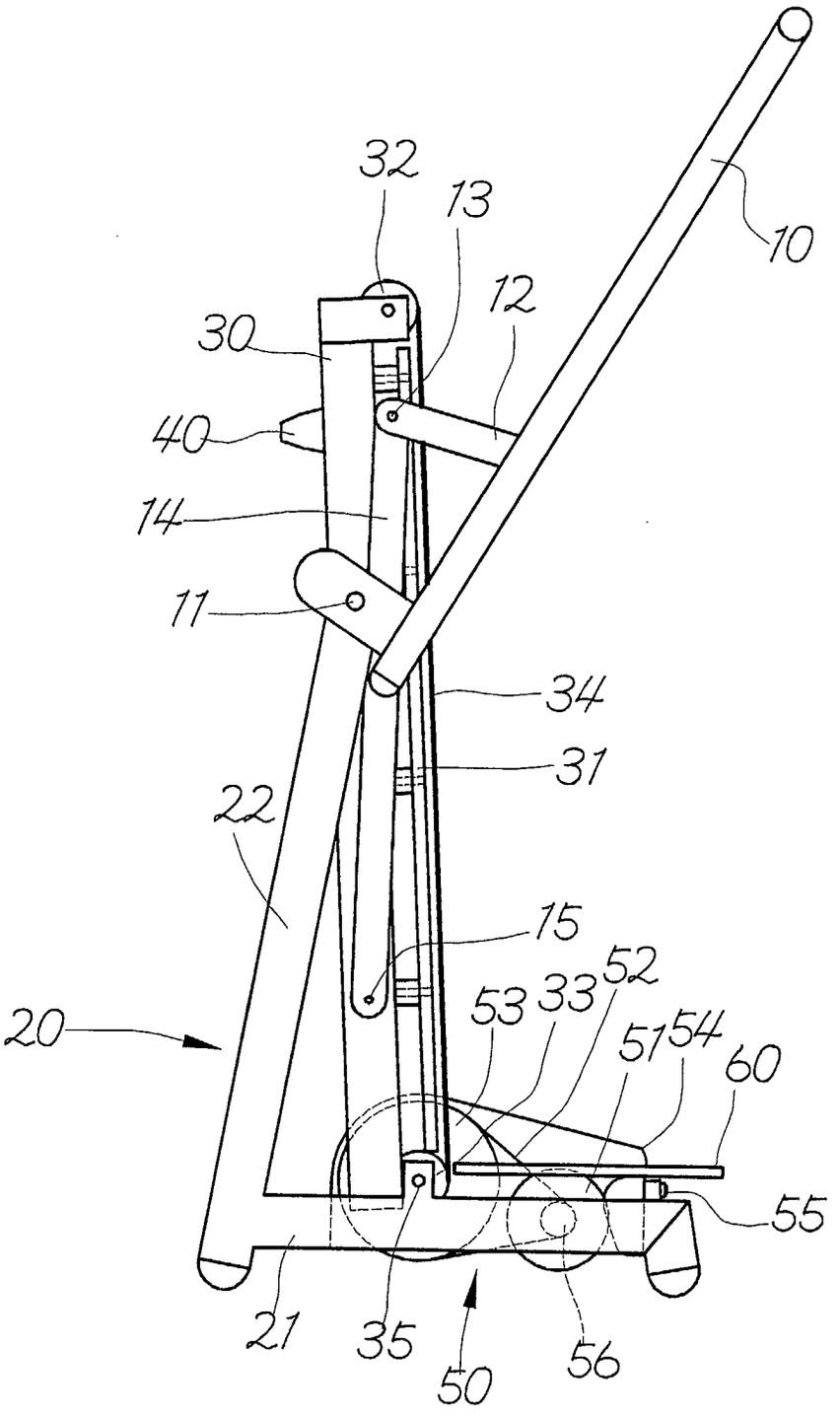

FIG.4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 12 4926

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 6 077 200 A (LIN MICHAEL) 20 June 2000 (2000-06-20) * abstract; figures 1-3 *	1	A63B22/02
A	US 5 746 682 A (HUNG MICHAEL) 5 May 1998 (1998-05-05) * abstract; figures 1,3,4 *	1	
A	US 5 899 834 A (HAMMER RODNEY ET AL) 4 May 1999 (1999-05-04) * abstract; figure 4 *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

A63B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	14 December 2001	Curzi, D

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 01 12 4926

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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14-12-2001

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82