



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 354 612 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
22.10.2003 Bulletin 2003/43

(51) Int Cl.7: **A63B 22/02**

(21) Application number: **02008676.5**

(22) Date of filing: **18.04.2002**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Wang, Leao**
Taiping City, Taichung Hsien, Taiwan R.O.C. (TW)

(74) Representative: **Panten, Kirsten et al**
Reichel & Reichel,
Patentanwälte,
Parkstrasse 13
60322 Frankfurt am Main (DE)

(71) Applicant: **Wang, Leao**
Taiping City, Taichung Hsien, Taiwan R.O.C. (TW)

(54) **Method for controlling an electric treadmill**

(57) The present invention relates to a method for controlling an electric treadmill (10) which includes emission type sensor sets (30, 40) (e.g. infrared, etc.) arranged at two proper places of the treadmill and connected to the control console (20), thereby creating air

sensing fields (31, 41) covering a specific range. Therefore, the operator can give any intentional signal that is detectable by the sensor during the walking exercise session. Thereafter, the sensor orders the control console (20) to perform a control action to the controlled motor on receipt of the intentional signal of the operator.

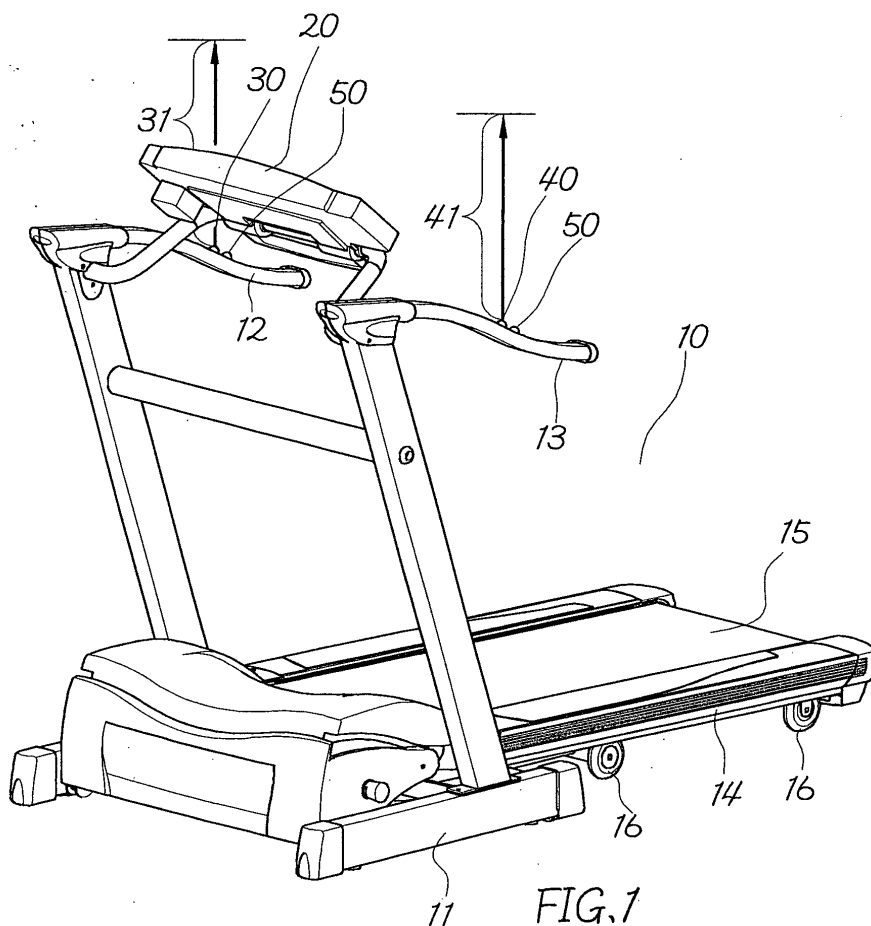


FIG. 1

EP 1 354 612 A1

Description

[0001] The present invention relates to a method for controlling an electric treadmill, and more particularly, to a method through which the operator can instruct the control console to perform preset commands to the motor without touching the control console.

[0002] As well known, each electric treadmill is fitted with a transmission system of motor at the bottom end thereof for an in-place rotation of the continuous belt so that the operator can stand on the continuous belt to take in-place walking exercise. This electric treadmill is normally provided with a control console at a proper place thereof, and a number of control keys are disposed at another proper place thereof to facilitate the setting of the desired rotational speed of the continuous belt.

[0003] In addition, the electric treadmill is provided with a stepper motor. The supported angle of the base frame is adjustable by means of the forward and backward rotation of motor together with the lifting assembly. This adjustment is carried out by different control keys.

[0004] No matter where the control keys are situated, the operator has to look for the correct position of the control keys by sight and continuously or repeatedly press down the control keys for adjusting the rotational speed of the continuous belt or the supported angle of the base frame. These actions will divert the operator's attention and cause inconvenience due to strange walking position of the operator.

[0005] It is a primary object of the present invention to eliminate the above-mentioned drawbacks and to provide a method for controlling an electric treadmill utilizing sensitive and effective emission type sensor sets and air sensing fields to carry out the control action without touching the control console.

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

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

[0007] First of all, referring to FIG. 1, the electric treadmill 10 of the preferred embodiment of the present invention includes an upright frame 11, two handrails 12, 13, a control console 20, a base frame 14, a continuous belt 15 and bottom supporting elements 16. Two emission type sensor sets 30, 40 (e.g. infrared, etc.) connected to the control console 20 are fitted to the handrails 12, 13 of the electric treadmill 10, respectively. Thus, air sensing fields 31, 41 covering a specific range are formed above both handrails 12, 13. Therefore, the operator can give any intentional signal that is detectable by the sensor sets during the walking exercise session. Thereafter, the sensor orders the control console to perform a preset control action to the controlled motor (not shown) on receipt of the intentional signal of the opera-

tor. This is named by the inventor as air control mode.

[0008] Under the pre-condition that the walking exercise of the operator won't be influenced, the effective detection range (including width and height) of air sensing fields 31, 41 should be possibly set within the height of the treadmill and the operator for fear of interference by other objects.

[0009] Both above-mentioned emission type sensor sets 30, 40 are in control of opposite commands for motor, that is, one controls the acceleration of the motor while the other controls the deceleration thereof. When both emission type sensor sets 30, 40 detect something, the motor is controlled to stop in consideration of user's safety and motor's protection. When the sensed state lasts for a longer time, it means a greater range of acceleration or deceleration. Hence, the present invention can be controlled by swinging both hands in the air sensing fields 31, 41, thereby creating the convenience and the practicalness of the present invention.

[0010] The air control mode can also be used to control the supported angle of the base frame 14. However, the control motor (not shown, and it's normally a stepper motor performing the forward and backward rotation) is different from the motor in connection with the continuous belt 15. In brief, the air control mode can be designed as desired either to control the rotational speed of the continuous belt 15 or to control the supported angle of the base frame 14. Certainly, the air control mode can be designed to control both the rotational speed and the supported angle.

[0011] The air control mode can be fitted together with the control console 20 so that the operator can choose either of them for control. In other words, the user can use either the conventional control keys to reach the expected control effect or the air control mode while no interference to each other will happen. Moreover, the air sensing fields 31, 41 won't interfere with the in-place walking exercise area. And the control of the present invention is completely carried out by the subjective will of the operator so that the use safety can be fully ensured.

[0012] When the air control mode is activated, a warning light 50 is switched on in order to remind others adjacent to the treadmill of the air control mode in operation state to avoid unexpected detection.

[0013] Furthermore, a hidden speaker (not shown) can be fitted to the air control mode so that a sound with certain volume can be given out to inform the user of the current operation state when any signals are sensed. Moreover, different operation states can be differentiated by giving a high or low sound for acceleration or deceleration and lifting or lowering, a long or short sound for the range of the acceleration or deceleration and lifting or lowering. This design is especially beneficial for the visually handicapped.

Claims

1. A method for controlling an electric treadmill (10) providing emission type sensor sets (30, 40) arranged at two proper places of said treadmill and connected to a control console (20), thereby creating air sensing fields (31, 41) covering a specific range so that the operator can give any intentional signal which is detectable by said sensor during the walking exercise session, whereupon the sensor orders said control console (20) to perform a preset control action upon the controlled motor on receipt of the intentional signal of the operator. 5 10
2. The method as recited in claim 1, wherein said air control mode is available and used together with said control console. 15
3. The method as recited in claim 1, wherein a warning light is switched on when said air control mode is activated. 20
4. The method as recited in claim 1, wherein a hidden speaker is fitted to said air control mode so that a sound with certain volume can be given out to inform the user of the current operation state when any signals are sensed. 25
5. A method for controlling an electric treadmill (10) comprising an upright frame, two handrails (12,13), a control console (20), a base frame (14), a continuous belt (15) and bottom supporting elements (16) and providing emission type sensor sets (30, 40) arranged at two proper places of said treadmill and connected to a control console, thereby creating air sensing fields (31, 41) covering a specific range so that the operator can give any intentional signal which is detectable by said sensor during the walking exercise session, whereupon said sensor orders said control console to perform a preset control action upon the controlled motor on receipt of the intentional signal of the operator. 30 35 40
6. The method as recited in claim 5, wherein a warning light (50) is switched on when said air control mode is activated. 45
7. The method as recited in claim 5, wherein a hidden speaker is fitted to said air control mode so that a sound with certain volume can be given out to inform the user of the current operation state when any signals are sensed. 50

55

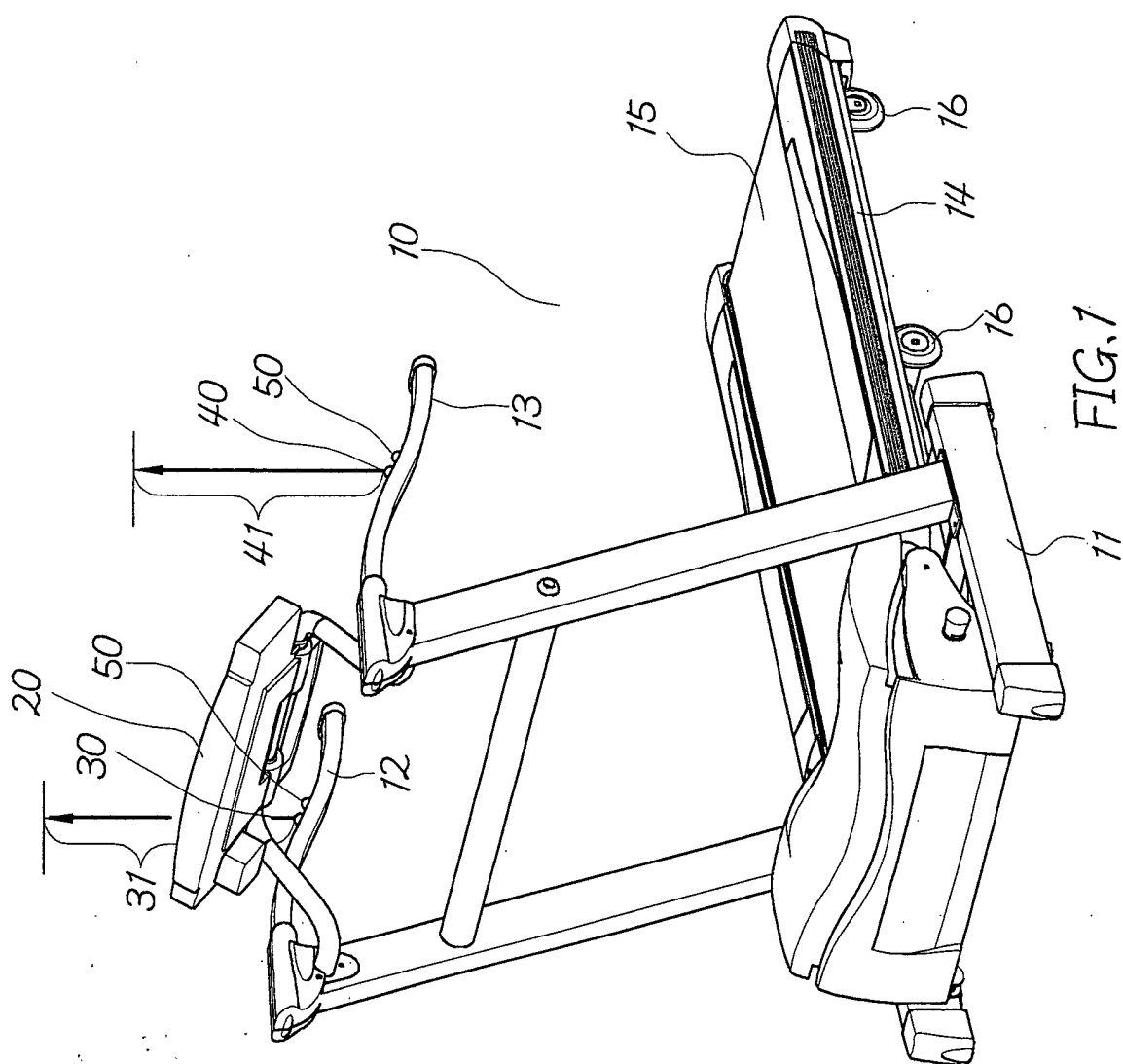


FIG. 7



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 00 8676

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)
X	DE 36 01 184 A (BLASBERG BERND) 23 July 1987 (1987-07-23) * the whole document *	1,2,5	A63B22/02
X	US 5 368 532 A (FARNET MICHAEL G) 29 November 1994 (1994-11-29) * the whole document *	1-3,5,6	
X	DE 100 33 564 A (LIM JUNG SOO) 2 August 2001 (2001-08-02) * the whole document *	1,5	
X	DE 39 33 999 A (JAEGER ERICH GMBH & CO KG) 18 April 1991 (1991-04-18) * column 2, line 5 - column 3, line 41; figures 1-2E *	1,5	
X	US 6 135 924 A (GIBBS DUANE CAROL ET AL) 24 October 2000 (2000-10-24) * the whole document *	1,5	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A63B
Place of search		Date of completion of the search	Examiner
THE HAGUE		24 September 2002	Oelschläger, H
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			

EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 00 8676

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

24-09-2002

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
DE 3601184	A	23-07-1987	DE	3601184 A1	23-07-1987
US 5368532	A	29-11-1994	MX	9400888 A1	31-08-1994
			WO	9417863 A1	18-08-1994
DE 10033564	A	02-08-2001	DE	10033564 A1	02-08-2001
			JP	2001198234 A	24-07-2001
			KR	187849 Y1	15-07-2000
			US	6416444 B1	09-07-2002
DE 3933999	A	18-04-1991	DE	3933999 A1	18-04-1991
US 6135924	A	24-10-2000	NONE		