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Remarks:  
 Amended claims in accordance with Rule 137(2) EPC.

(54) **Safety device for motorized fitness equipment**

(57) A safety device for a motorized fitness equipment includes a socket (1) provided with two first and two second slots (11, 12); a conductive magnet (3) on bottom of each first slot (11); and a metal clip (121) in each second slot (12); a conductive device (4) containing two separate conductive terminals (43) each having a first and

a second extensions (431, 432); the first extension (431) when connected to the first slot (11) being electrically connected to the magnet (3); and the second portion (432) being inserted into the second slot (12) and held by the metal clip (121) to constitute a circuit breaker by having the socket (1) to combine with or clear away from the conductive device (4).

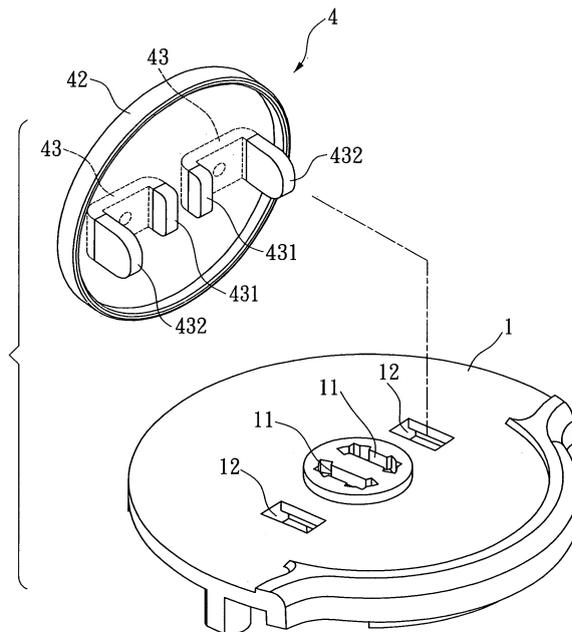


FIG. 1

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

## (a) Field of the Invention

**[0001]** The present invention is related to a safety device for motorized fitness equipment, and more particularly, to a circuit breaker capable of executing emergency stop to the fitness equipment in operation.

## (b) Description of the Prior Art:

**[0002]** A motorized fitness equipment relates to one that provides active revolution in a given pattern when electrically driven for a user to achieve physical exercise or activity in conjunction with the revolution such as found in a motorized treadmill or a power leg rehabilitation assisting devices. Taking the motorized treadmill for instance, operation of a running deck is not caused by running motion of its user; therefore, to prevent the user from falling down, a safety device is needed to immediately break the circuit to stop the running deck when the running speed of the user fails to keep in pace with the speed of the running deck.

**[0003]** A conventional safety device **9** applied in a motorized treadmill as illustrate din Fig. 5 of the accompanying drawings is comprised of an accommodation trough **91** fixed to a control panel of the treadmill (not illustrated), a magnetic member **92** is placed in the trough **91**, two conductive terminals **93** in circuit off status are disposed on one end of the trough **91**, the trough **91** also contains a conduction device **94**, and the conduction device **94** is provided with a conductive piece **95** to be conducted through both conductive terminals **93** in circuit off status when the conduction device **94** is placed into the trough **91**. The conduction device **94** is disposed with another magnetic member **96** attracted to the magnetic member **92** disposed in the trough **91** for securing the conduction device **94** in the trough **91**.

**[0004]** Where between the trough **91** and two conductive terminals **93** in circuit off status of the conventional safety device is related to a connected through space, even though the user upon feeling he/she is unable to keep up with the speed of the running deck has pulled the conductive device **94** out of the trough **91** is at the risk of falling down because that the user may fail to stop the running deck in time if any foreign object, e.g., liquid or other metal object) that is conductive happens to fall into the trough to conduct through both conductive terminals **93**.

**[0005]** Furthermore, both of the trough **91** and the conductive device **94** are secured to each other in position by means of two magnetic members **92**, **96**, but both magnetic members **92**, **96** are exposed in the air and are vulnerable to attract foreign matters to compromise magnetism after a longer period of operation to such extent that the conductive device **94** is prevented from being

attracted in the trough **91** through normal magnetism thus to clear away from the trough **91**; consequently, setting of the fitness equipment will be affected to cause quite a disturbance to the user.

**[0006]** Therefore, those problems found with the conventional safety device adapted to the motorized fitness equipment are the primary objectives the present invention attempts to solve.

**SUMMARY OF THE INVENTION**

**[0007]** The primary purpose of the present invention is to provide a safety device for a motorized fitness equipment to correct those problems found with the prior art by means of having an structure to combine a socket and a conductive device to ensure the circuit is broken upon the conductive device clears away from the socket while avoiding easy break up between the socket and the conductive device in a non-emergency incidence.

**[0008]** To achieve the purpose, the present invention includes a socket fixed to a motorized fitness equipment, two first slots are disposed at the center of the socket, two second slots are respectively provided on two opposite outer sides of both first slots, both of the second slots are in circuit off status and each second slot contains a metal clip that is electrically connected to the motorized fitness equipment, and a conductive magnet is disposed at a bottom of each first slot; and a conductive device connected to a human body is provided with two separate conductive terminals in the conductive device with each conductive terminal having both ends respectively disposed with a first extension and a second extension in a same direction, two first extensions from both conductive terminals are connected into both first slots and electrically connected to the magnet while two second extensions from both conductive terminals are connected into both second slots of the socket and respectively held by both metal clips.

**BRIEF DESCRIPTION OF THE DRAWINGS****[0009]**

Fig. 1 is a perspective view of the present invention.

Fig. 2 is a sectional view of the present invention.

Fig. 3 is an exploded view of the present invention.

Fig. 4 is a schematic view showing an operating status of the present invention.

Fig. 5 is a safety device of fitness equipment of the prior art.

**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

**[0010]** Referring to Figs. 1 through 4 for a structure of a preferred embodiment of the present invention; and it is to be noted that the preferred embodiment is selected for the purpose of describing the present invention and

that in now way those claims to be claimed hereunder are not limited by the preferred embodiment.

[0011] In the preferred embodiment, a motorized treadmill is selected to represent a motorized fitness equipment. A safety device adapted to the motorized treadmill is comprised of a socket **1** fixed to a motorized treadmill **2**. Two first slots **11** are disposed at a central location of the socket **1**, and two second slots **12** electrically connected to the motorized treadmill **2** are respectively disposed on two opposite outer sides of both of the first slots **11**. Each second slot **12** contains a metal clip **121** electrically connected to the motorized treadmill. The socket **1** has a conductive magnet **3** disposed on a bottom of each first slot **11**.

[0012] A conductive device **4** is provided with a protruding portion **41** and the protruding portion is provided with a connection wire **5** extending to wrap up to a certain part, e.g., a waist, of a body of a user. The conductive device **4** also includes a body **42** containing two separate conductive terminals **43**; and both ends of each conductive terminal **43** are respectively provided with a first extension **431** and a second extension **432** in a same direction. In the preferred embodiment, each second extension **432** from each conductive terminal **43** is slightly longer than each first extension **431**. The first extension **431** of each of both conductive terminals **43** is inserted into each first slot **11** of the socket **1** and electrically connected with the magnet **3**; meanwhile, each second extension **432** from each conductive terminal **43** is inserted into each second slot **12** of the socket and held by the metal clip **121**.

[0013] Accordingly, with both first extensions **431** and both second extensions **432** from both conductive terminals in the conductive device **4** are respectively inserted into the both first slots **11** and both second slots **12**, both second slots **12** otherwise in a circuit off status in the socket **1** turn into a circuit on status by having both conductive terminals of the conductive device **4** connecting through the magnet **3** disposed below both first slots **11** of the socket **1** to maintain the treadmill **2** in normal operation.

[0014] On the contrary, when the operation of the motorized treadmill **2** must be stopped due to threaten of danger appears in the course of running on a running deck of the motorized treadmill **2** by the user, the user may forthwith plug off the conductive device **4** from the socket **1** and the motorized treadmill will be immediately stopped since both second slots **12** of the socket turn into a circuit off status.

[0015] When the conductive device **4** is placed on the socket **1**, the conductive device **4** will not be easily cleared away from the socket **1** by accident in any non-emergency incidence since the magnet **3** disposed below both first slots **11** and both metal clips **121** respectively disposed in each of both second slots **11** provide magnetic force and clamping force to support locate both first extensions **431** and both second extensions **432** of the conductive device **4**. It is not necessarily for the user to

reset the complicated exercise mode due to interruption of the circuit.

[0016] Furthermore, whereas both second slots **12** are separately provided and not provided in a same space, no circuit shortage will be resulted from accidental fall of any conductive object (e.g., liquid or any other metallic foreign matters) into either or both second slot **12**.

## 10 Claims

1. safety device for a motorized fitness equipment comprising:

15 a socket (1) fixed to a motorized treadmill (2);  
two first slots (11) disposed at a central location  
of the socket (1), and  
two second slots (12) disposed on the opposite  
outer sides of the two first slots (11), each sec-  
20 ond slot (12) containing a metal clip (121) elec-  
trically connected to the motorized treadmill;  
a conductive magnet (3) disposed in the socket  
(1) on a bottom of each first slot (11); and  
a conductive device (4) having a body (42) con-  
25 taining two separate conductive terminals (43),  
the two ends of each conductive terminal (43)  
being respectively provided with a first extension  
(431) and a second extension (432) in a same  
direction, the first extension (431) of each ter-  
30 minals (43) being inserted into a respective first  
slot (11) of the socket (1) and electrically con-  
nected with the magnet (3), and each second  
extension (432) of each terminal (43) being in-  
serted into a respective second slot (12) of the  
socket and held by the metal clip (121).

## Amended claims in accordance with Rule 137(2) EPC.

1. A safety device for a motorized treadmill (2) comprising:

a socket (1) fixed to the treadmill (2) and including a conductive magnet (3); and  
a connecting device (4) with conductive terminals (43),  
**characterised in that**

the socket (1) includes:

two first slots (11) disposed at a central location of the socket (1), the magnet (3) being disposed at the bottom of the first slots (11); and  
two second slots (12) disposed on opposite outer sides of the two first slots (11), each second slot (12) containing a metal clip (121) electrically connected to the treadmill (2); and

the connecting device (4) includes

two separate conductive terminals (43) each having two ends respectively provided with a first extension (431) and a second extension (432) in the same direction, the first extension (431) of each terminal (43) being adapted to be inserted into a respective first slot (11) of the socket (1) and electrically connected with the magnet (3), and the second extension (432) of each terminal (43) being adapted to be inserted into a respective second slot (12) of the socket and held by the metal clip (121).

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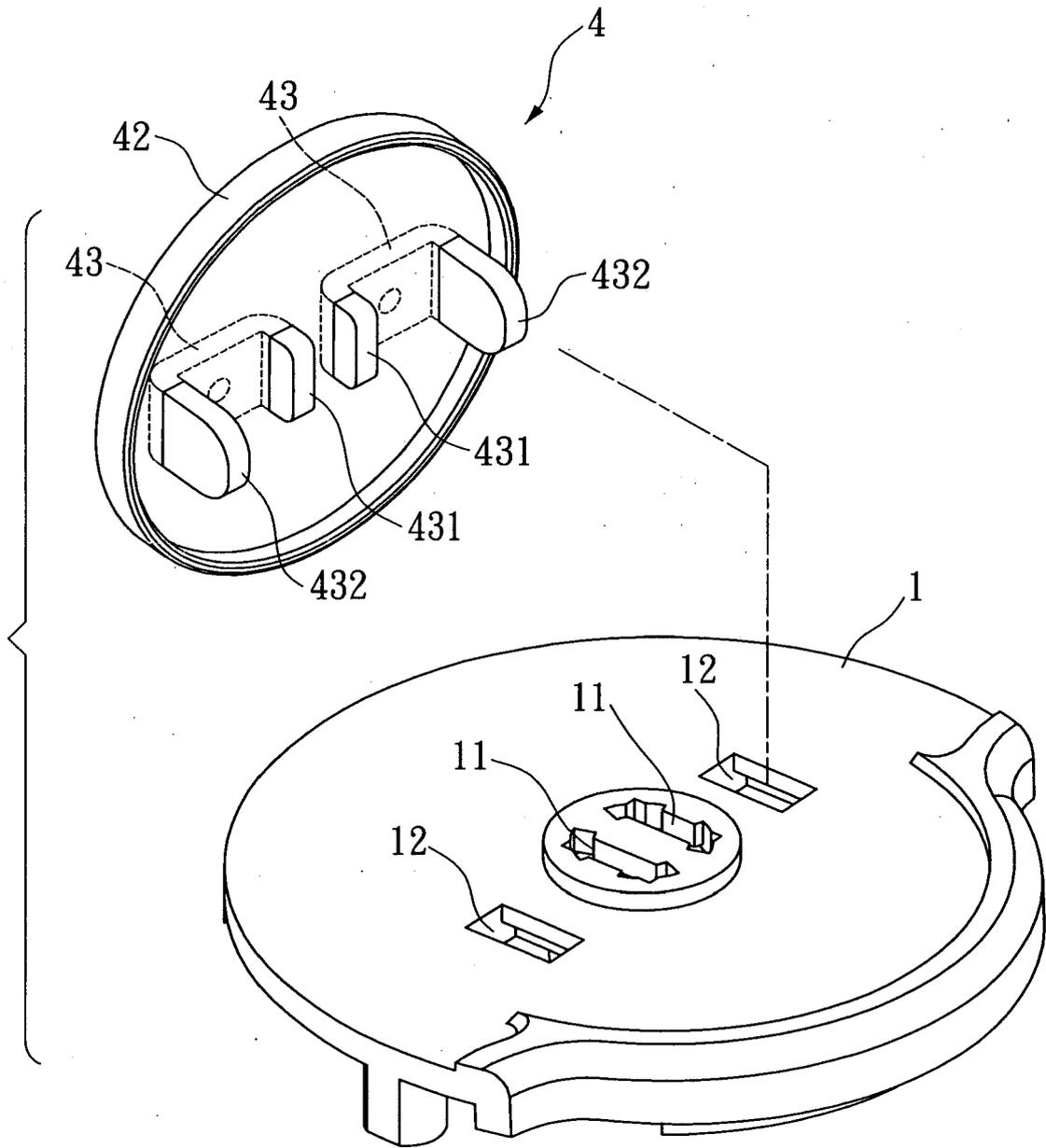


FIG. 1

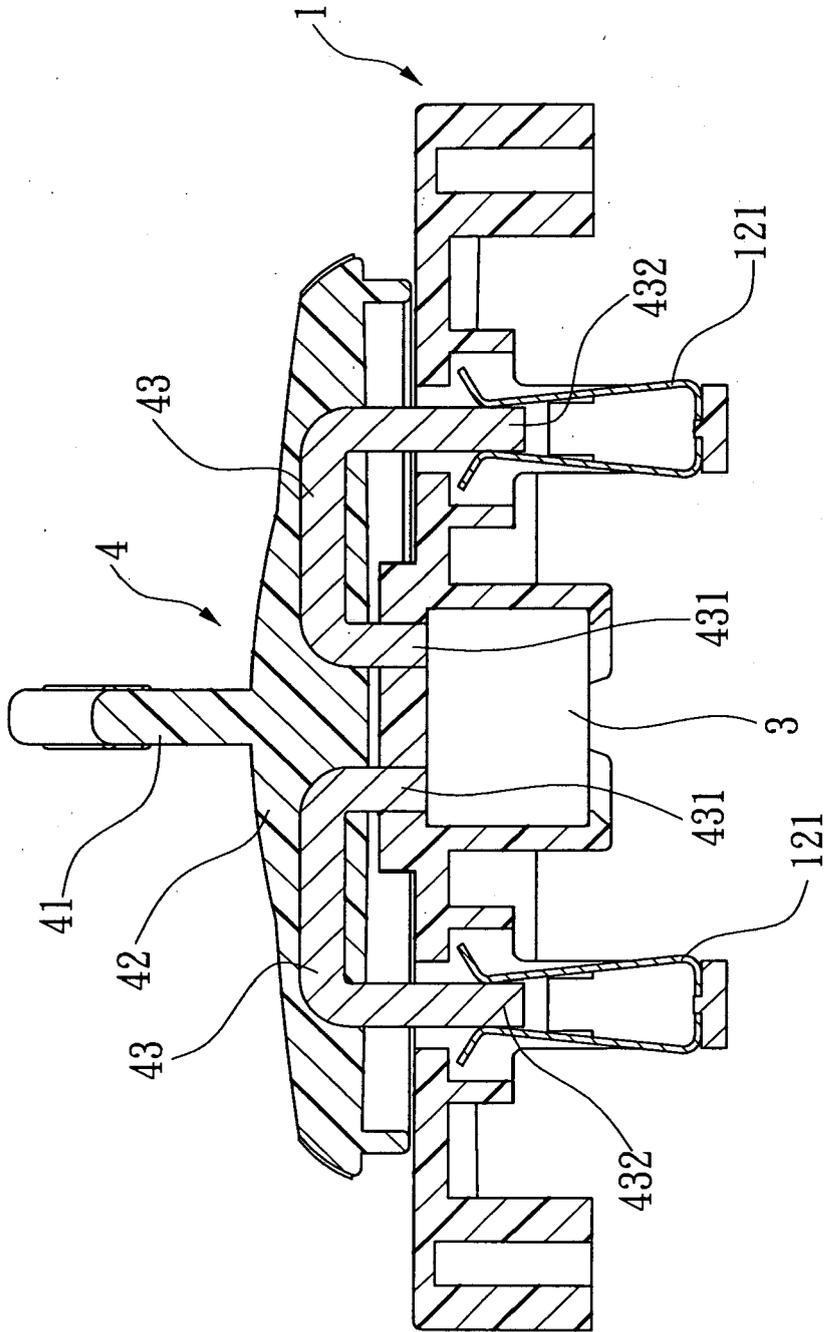


FIG. 2



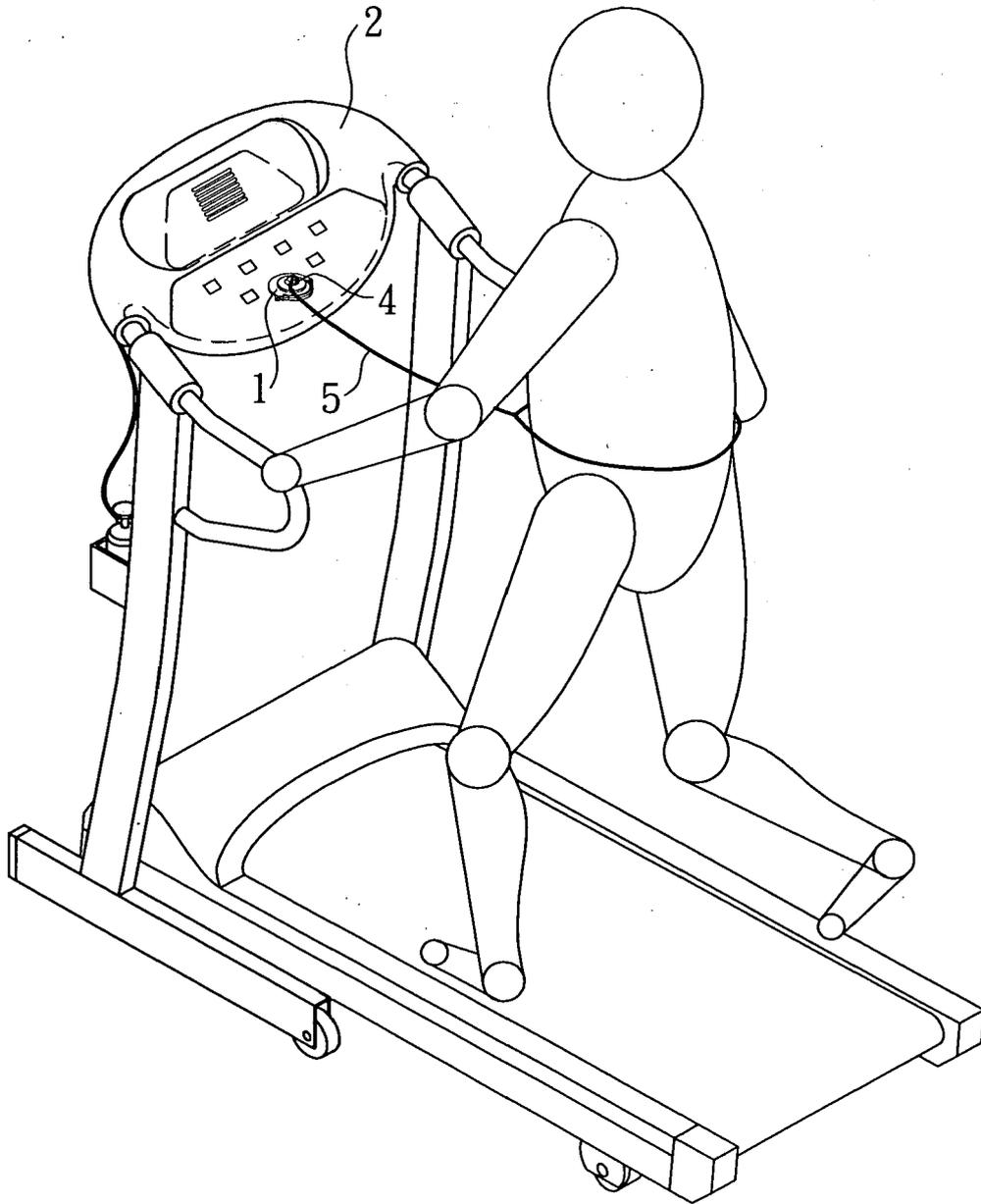


FIG. 4

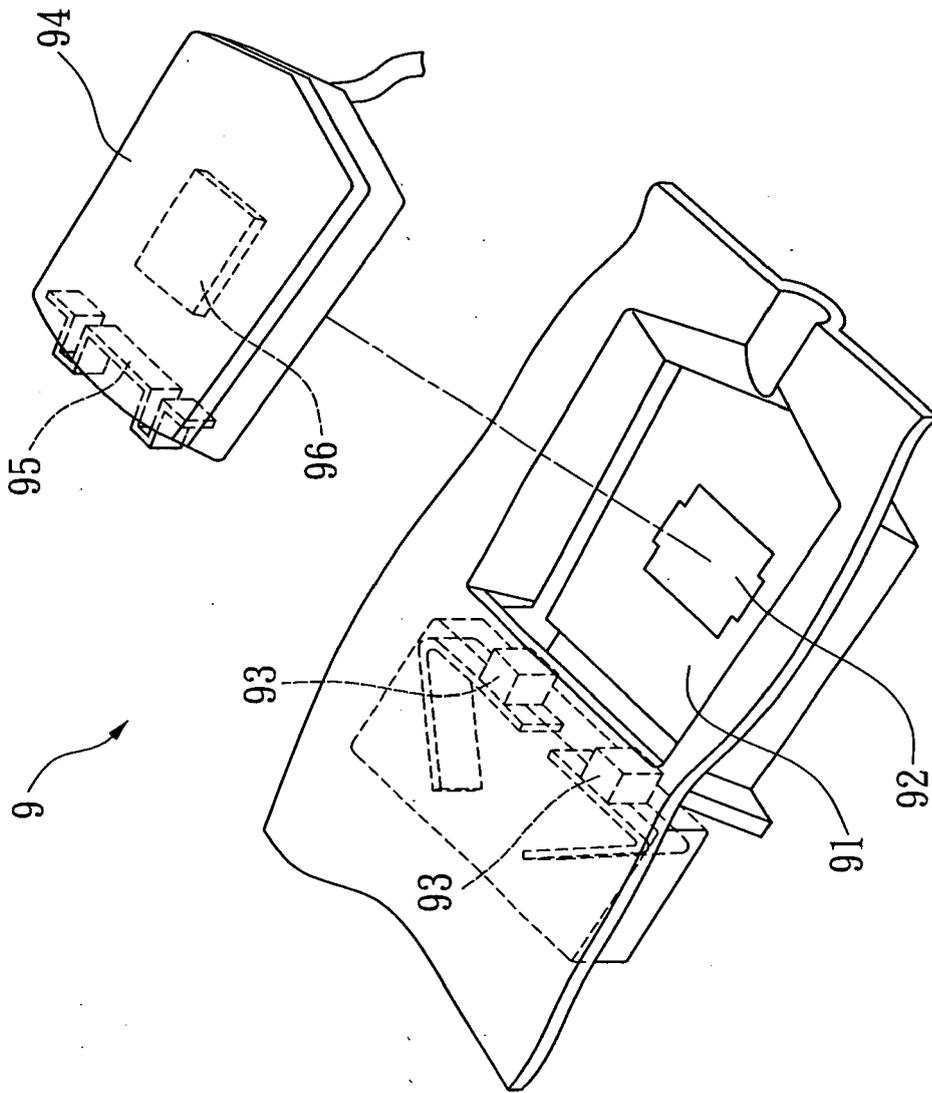


FIG. 5  
PRIOR ART



DOCUMENTS CONSIDERED TO BE RELEVANT				
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)	
A	US 2005/272565 A1 (HAO KUO-WU [TW]) 8 December 2005 (2005-12-08) * paragraph [0004] * * paragraph [0014] - paragraph [0017]; figures 1-3c *	1	INV. A63B22/02 H01H27/00 H01H3/02	
A	DE 297 22 021 U1 (BERNSTEIN HANS SPEZIALFABRIK [DE]) 29 January 1998 (1998-01-29) * page 2, line 4 - line 25; figures 1,4 *	1		
A	US 6 875 157 B1 (WANG LEAO [TW] ET AL) 5 April 2005 (2005-04-05) * abstract; figures 1-4 *	1		
A	DE 203 14 378 U1 (HEINZ KETTLER GMBH & CO KG [DE]) 18 December 2003 (2003-12-18) * paragraph [0007] - paragraph [0009] * * paragraph [0022] - paragraph [0023]; figures *	1		
A	US 6 087 792 A (WANG LEAO [TW]) 11 July 2000 (2000-07-11)			TECHNICAL FIELDS SEARCHED (IPC)
A	US 5 034 576 A (DALEBOUT WILLIAM T [US] ET AL) 23 July 1991 (1991-07-23)			A63B H01H
The present search report has been drawn up for all claims				
Place of search The Hague		Date of completion of the search 21 January 2008	Examiner Michels, Norbert	
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  
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 01 5386

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.

21-01-2008

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005272565 A1	08-12-2005	NONE	
DE 29722021 U1	29-01-1998	NONE	
US 6875157 B1	05-04-2005	NONE	
DE 20314378 U1	18-12-2003	NONE	
US 6087792 A	11-07-2000	NONE	
US 5034576 A	23-07-1991	NONE	

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