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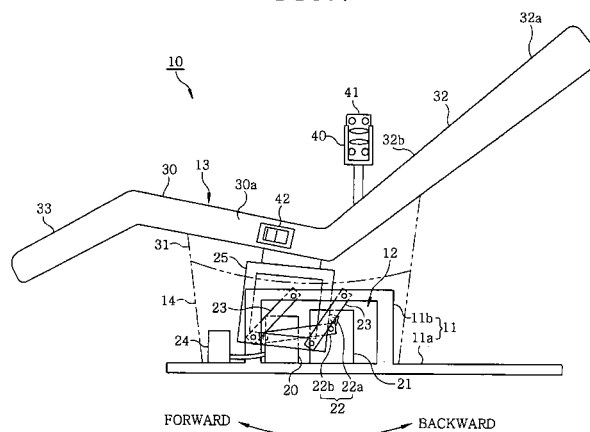
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(54) **Relaxation apparatus**

(57) A relaxation apparatus (10) includes a body-supporting unit (13) for supporting a user's body, a rocking unit (12) for rocking the body-supporting unit at least in one direction and a controller (24) for controlling the rocking unit to rock the body-supporting unit. The controller controls the rocking unit such that, at the end of the rocking motion of the body-supporting unit, a stop position of a seat portion of the body-supporting unit takes

the lowest position during the rocking motion. Further, a cover member (14) is provided between a casing member surrounding the rocking unit and the body-supporting unit, which follows the rocking motion of the body-supporting unit relative to the rocking unit. The cover member is attached to both the casing member and the body-supporting unit to cover a gap between them. The cover member is installed tensely at the stop position of the seat portion of the body-supporting unit.

FIG. 1



Description

Field of the Invention

[0001] The present invention relates to a relaxation apparatus for providing a user with a relaxing effect.

Background of the Invention

[0002] There is disclosed in, e.g., Japanese Patent Laid-open Publication No. 2000-300374 a conventional relaxation apparatus including a rocking unit that rocks back and forth a body-supporting unit supporting the body of a user and a control unit that controls the rocking unit to change the amplitude of the rocking motion of the body-supporting unit. The relaxation apparatus provides a user with a relaxing effect by suitably changing the amplitude of the rocking motion.

[0003] In the relaxation apparatus as described above, however, the body-supporting unit may be stopped in the middle of the rocking motion thereof. In this case, the body-supporting unit is put in a position difficult for a user to get on and off.

[0004] Besides, between a casing member covering the rocking unit of the relaxation apparatus and the body-supporting unit, there is provided a cover member made of, e.g., fabric which follows a rocking motion of the body-supporting unit as well as blocks a gap between the both units as being fixed and attached over the both sides. When the rocking motion of the body-supporting unit stops at a midway position, unnecessary wrinkles occur in the cover member, which mars the appearance of the relaxation apparatus.

Summary of the Invention

[0005] In view of the above, the present invention provides a relaxation apparatus capable of giving a user an enhanced ease of getting on and off the body-supporting unit.

[0006] Further, the present invention provides a relaxation apparatus capable of suppressing the occurrence of unnecessary wrinkles when the rocking motion stops.

[0007] In accordance with an aspect of the present invention, there is provided a relaxation apparatus including a body-supporting unit for supporting a user's body, a rocking unit for rocking the body-supporting unit at least in one direction and a controller for controlling the rocking unit to rock the body-supporting unit, **characterized in that:** the controller controls the rocking unit such that, at the end of the rocking motion of the body-supporting unit, a stop position of a seat portion of the body-supporting unit takes the lowest position during the rocking motion.

[0008] A cover member may be provided between a casing member surrounding the rocking unit and the body-supporting unit, which follows the rocking motion of the body-supporting unit relative to the rocking unit. In this case, the cover member is attached to both the cas-

ing member and the body-supporting unit to cover a gap between them, and is installed tensely at the stop position of the seat portion of the body-supporting unit.

[0009] The cover member may be configured to be stretchable and contractible in accordance with the rocking motion.

[0010] With such configuration, it is possible to cover the gap between the casing member and the body-supporting unit while suitably preventing the cover member from hindering the rocking motion even when the body-supporting unit is in rocking motion.

[0011] The cover member may be made of a fabric having elasticity.

[0012] Alternatively, the cover member may be made of a pleated fabric that is deformable conforming to the direction of the rocking motion.

[0013] With such configuration, it is possible to preventing the cover member from hindering the rocking motion.

[0014] The relaxation apparatus in accordance with the present invention is capable of giving a user an enhanced ease of getting on and off the body-supporting unit.

[0015] Further, the relaxation apparatus of the present invention can prevent the occurrence of unnecessary wrinkles when the rocking motion stops.

Brief Description of the Drawings

[0016]

Fig. 1 shows a schematic diagram of a relaxation apparatus in accordance with an embodiment of the present invention.

Fig. 2 illustrates a perspective view of the relaxation apparatus.

Fig. 3 illustrates a configuration of a manipulator of the relaxation apparatus.

Fig. 4 shows a block diagram that explains a system configuration of the relaxation apparatus.

Fig. 5A explains the start position, stop position and backward turnover position of a body-supporting member of the relaxation apparatus.

Fig. 5B explains the forward turnover position of the body-supporting member of the relaxation apparatus.

Detailed Description of the Embodiments

[0017] Hereinafter, embodiments of the present invention will be described in detail with reference to the accompanying drawings.

[0018] Fig. 1 shows a schematic diagram of a relaxation apparatus in accordance with an embodiment of the present invention. As depicted in Fig. 1, the relaxation apparatus 10 includes a base 11 having a bottom portion 11a placed on the floor (not shown), a rocking mechanism 12 as a rocking unit provided to the base 11 and a body-

supporting member 13 as a body-supporting unit driven by the rocking mechanism 12.

[0019] The rocking mechanism 12 has a motor 20, a reduction gear 21, a crank mechanism 22 and link members 23 and is mostly surrounded by a casing member 14. The motor 20 is provided on the bottom portion 11a of the base 11 and the operation thereof is controlled by a controller 24 provided on the bottom portion 11a. The reduction gear 21 is also provided on the bottom portion 11a of the base 11. The reduction gear 21 is operationally coupled with the motor 20 and serves to reduce the power of the motor 20. Further, the motor 20 has a position sensor (not shown) such as an encoder that detects the number of revolutions and revolutionary position.

[0020] The crank mechanism 22 has a crank member 22a and a connection rod 22b, and converts the rotating motion of the reduction gear 21 into a large circular motion. The base end of the crank member 22a is connected to and rotates with the output shaft of the reduction gear 21, while its leading end is rotatably connected to the base end of the connecting rod 22b. The leading end of the connecting rod 22b is connected to the lower portion of a rectangular frame 25 to which the body-supporting member 13 is fixed.

[0021] The aforementioned base 11 also has a support frame 11b protruded upward from the bottom portion 11a. The base ends of the link members 23 are rotatably connected to the upper portion of the support frame 11b at an interval, while their leading ends are rotatably connected to the lower portion of the rectangular frame 25. The two link members 23 rotate around their base ends and, therefore, the body-supporting member 13, fixed to the rectangular frame 25, can be rocked back and forth by the power delivered from the crank mechanism 22, like a rocking chair.

[0022] The body-supporting member 13 of a chair shape includes a seat portion 30 which is fixed to an upper portion of the rectangular frame 25 so that they can move together. Further, a prescribed gap is provided between the seat portion 30 of the body-supporting member 13 and the casing member 14 to avoid a mutual interference during a rocking motion of the body-supporting member and a cover member 31 made of a stretchable fabric is provided from the upper end of the casing member 14 to the body-supporting member 13 such that the parts 20 to 23 of the rocking mechanism 12 through the gap. And, as shown in Fig. 5A, the cover member 31 is installed tensely so as not to have any wrinkles when the rocking motion of the seat portion 30 of the body-supporting member 13 stops.

[0023] The body-supporting member 13 further includes a back portion 32 attached to the rear side of the seat portion 30, and an ottoman 33 fixed at the front side of the seat portion 30. The seat portion 30, the back portion 32 and the ottoman 33 are integrally formed. As viewed from above, the body-supporting member 13 has a width gradually increased from a head support portion 32a on the rear side thereof (on the side of head of the

user M shown in Figs. 5A and 5B), which supports the head of the user M, to a waist support portion 32b that supports the waist portion including the arms of the user M, so that the width Y at the waist support 32b is larger than the width X at the head support 32a. On the other hand, the width of the body-supporting member 13 is gradually decreased from the front side of the waist support portion 32b, i.e., the rear side of the seat portion 30 to the front edge of the ottoman 33, forming a curved shape as a whole.

[0024] As shown in Figs. 1 and 2, a manipulator 40 that is detachably held by a manipulator holder (not shown) is provided on a side of the back portion 32 of the body-supporting member 13. In addition, on a side 30a of the seat portion 30 of the body-supporting member 13, there are provided a main power supply switch 41 for turning on and off the power supply.

[0025] As illustrated in Fig. 3, the manipulator 41 includes various switches 43 to 49 such as course selection switches 43, a swing regulator switch 44, a reclining-angle regulator switch 45, a volume regulator switch 46, a vibration regulator switch 47, an air-bag regulator switch 48 and a start-up switch 49, each of which having an electrostatic sensor 50 (see Fig. 4), and indicators 51 that can respectively show on and off positions of the various switches 43 to 49.

[0026] The course selection switches 43 include multiple switches 43a to 43d to select one of multiple courses (four courses A to D in the present embodiment) and, as shown in Fig. 4, according to the selections of the respective switches 43a to 43d, corresponding control signals are output to the controller 24 from the control selector 41a where multiple rocking patterns are set up.

[0027] The swing regulator switch 44 is electrically connected to a speed regulator 41b and an amplitude regulator 41c for regulating respectively the speed and amplitude of a rocking motion, as shown in Fig. 4. By the user operating the swing regulator switch 44, the speed and amplitude of the rocking motion of the body-supporting member 13 can be changed in three steps.

[0028] By the user operating the reclining-angle regulator switch 45, a reclining control signal is outputted to the controller 24 through the reclining regulator 41d, as shown in Fig. 4, and the controller 24 that receives the signal controls the reclining driver 13a properly to regulate the reclining angle of the body-supporting member 13.

[0029] The volume regulator switch 46 is to regulate the volume of speakers (not shown) and, in the present embodiment, is configured to regulate the volume in five levels. The vibration regulator switch 47 is to regulate the degree of vibration of a vibrator (not shown), which, in the present embodiment, is configured to regulate the vibration in five levels. In addition, the air-bag regulator switch 48 is to vary the amount of expansion of air bags (not shown) and, in the present embodiment, the amount of expansion can be regulated in five levels. The start-up switch 49 is to turn the relaxation apparatus 10 on and

off. When the start-up switch 56 is turned on, the respective parts can be controlled by the controller 24.

[0030] The indicators 51 include light-emitting diodes within a transparent cell of a casing of the manipulator 41 and are installed in the interior of the respective switches 43 to 49, and level displays 44a, 46a, 47a and 48a provided to show the current status of the motion by the respective switches 44, 46, 47 and 48.

[0031] In the relaxation apparatus 10 configured as in the above, the controller controls the motor 20 to perform a relax-rocking in which the body-supporting member 13 is rocked slowly back and forth within the range of the rocking shown in Figs. 5A and 5B. Here, Fig. 5A shows the start position, stop position and backward turnover position of the body-supporting member 13 at which the rocking motion of the body-supporting member 13 is reversed to the backward direction, while Fig. 5B shows the forward turnover position of the body-supporting member 13 at which the rocking motion of the body-supporting member 13 is reversed to the forward direction.

[0032] Further, the controller 24 controls the motor 20 of the rocking mechanism 12 so that, at the end of the rocking motion, the stop position of the seat portion 30 of the body-supporting member 13 takes the lowest position during the rocking motion. Hence, when the relaxation apparatus 10 is in use or after the rocking motion is stopped, the user M can seat on or get off the seat portion 30 with ease, providing him/her with an increased convenience in using the relaxation apparatus 10.

[0033] Besides, as addressed in the above, because the cover member 31 made of a stretchable fabric is installed tensely without any wrinkles at the stop position, i.e., the lowest position, of the seat portion 30 of the body-supporting member 13, the occurrence of wrinkles at the stop position is prevented, thereby enhancing the appearance of the relaxation apparatus 10. In addition, because the cover member 31 is made of a stretchable material, it follows elastically the rocking motion of the body-supporting member 13 and, therefore, the rocking motion is free from the potential hindrance due to the cover member.

[0034] Next, the characteristic effects of the present embodiment will be described.

(1) The rocking mechanism 12 is controlled by the controller 24 such that, at the end of a rocking motion, the stop position of the seat portion 30 of the body-supporting member 13 becomes the lowest position during the rocking motion. In other words, at the end of a rocking motion, the seat portion 30 is located at the lowest position during the rocking motion, so that the seat portion 30 (the body-supporting member 13) gets close to the floor on which the relaxation apparatus 10 is installed. Accordingly, the user M can get on and off the seat portion 30 with ease.

(2) The cover member 31, provided between the casing member 14 surrounding the rocking mechanism 12 and the body-supporting member 13, follows the

rocking motion of the body-supporting member 13 relative to the rocking mechanism 12, and is attached to the both members to cover a gap between them. The cover member 31 is installed uniformly and tensely at the stop position of the body-supporting member 13, so that the occurrence of unnecessary wrinkles is suppressed at the stop position, thereby enhancing the appearance of the relaxation apparatus 10.

(3) The cover member 31 is made of fabric having high elasticity (stretchable material) in order to be able to expand and contract in accordance with the rocking motion. That is, the cover member 31 is stretched and contracted conforming to the motion even during the rocking motion of the body-supporting member 13, the interference to the rocking motion gets suppressed appropriately and the gap between the body-supporting member 13 and the casing member 14 can be covered to provide a good look.

[0035] The embodiment of the present invention may be modified as described below.

[0036] Although, in the embodiment described above, the cover member 31 is made of a stretchable fabric, the present invention is not limited thereto. The cover member may be made of any fabric other than the stretchal fabric. In addition, the material used for the cover member 31 may not have elasticity. In this case, however, it is desirable to employ a pleated fabric that can expand and contract in accordance with the direction of the rocking motion. By installing the pleated fabric tensely at the stop position (the lowest position), it is possible to suppress unnecessary wrinkles from occurring at the stop position.

[0037] Although, in the embodiment described above, the cover member 31 is installed tensely without occurring wrinkles at the lowest position, the cover member 31 may have wrinkles. The point is that the cover member 31 has no unnecessary wrinkles at the stop position (lowest position).

[0038] Even though it is not mentioned explicitly in the embodiment described above, it may be configured that the angle between the upper surface of the seat portion and the horizontal plane at the lowest position of the seat portion 30 of the body-supporting member 13 becomes the minimum during the rocking motion. With this configuration, the upper surface of the seat portion 30 gets parallel with the horizontal plane or the floor, which makes it easier to seat on and get off the seat portion 30.

[0039] Although, in the embodiment described above, the body-supporting member 13 is rocked back and forth, the present invention is not limited thereto. For example, the body-supporting member 13 may be rocked in the left-right direction.

[0040] Even though it is not mentioned explicitly in the embodiment described above, air bags may be provided on the respective portions of the body-supporting member 13 to give a user a relaxing effect like massaging by

suitably performing expansion and contraction of the air bags.

[0041] Even though it is not mentioned explicitly in the embodiment described above, the controller 24 may control the motor 20 to perform a refresh rocking that awakes the user M from a state of being relaxed (sleeping) after relax-rocking by making the amplitude and/or frequency of the rocking motion higher than those in the relax-rocking. 5

[0042] Even though it is not mentioned explicitly in the embodiment described above, there may be provided a mechanism for generating music or vibration corresponding to the relaxation rocking or refresh rocking. 10

[0043] While the invention has been shown and described with respect to the embodiments, it will be understood by those skilled in the art that various changes and modifications may be made without departing from the scope of the invention as defined in the following claims. 15

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Claims

1. A relaxation apparatus comprising a body-supporting unit for supporting a user's body, a rocking unit for rocking the body-supporting unit at least in one direction and a controller for controlling the rocking unit to rock the body-supporting unit, **characterized in that:** 25

the controller controls the rocking unit such that, at the end of the rocking motion of the body-supporting unit, a stop position of a seat portion of the body-supporting unit takes the lowest position during the rocking motion. 30
2. The relaxation apparatus of claim 1, wherein a cover member is provided between a casing member surrounding the rocking unit and the body-supporting unit, which follows the rocking motion of the body-supporting unit relative to the rocking unit, the cover member being attached to both the casing member and the body-supporting unit to cover a gap between them, and 40

the cover member is installed tensely at the stop position of the seat portion of the body-supporting unit. 45
3. The relaxation apparatus of claim 2, wherein the cover member is configured to be stretchable and contractible in accordance with the rocking motion. 50
4. The relaxation apparatus of claim 3, wherein the cover member is made of a fabric having elasticity.
5. The relaxation apparatus of claim 3, wherein the cover member is made of a pleated fabric that is deformable conforming to the direction of the rocking motion. 55

FIG. 1

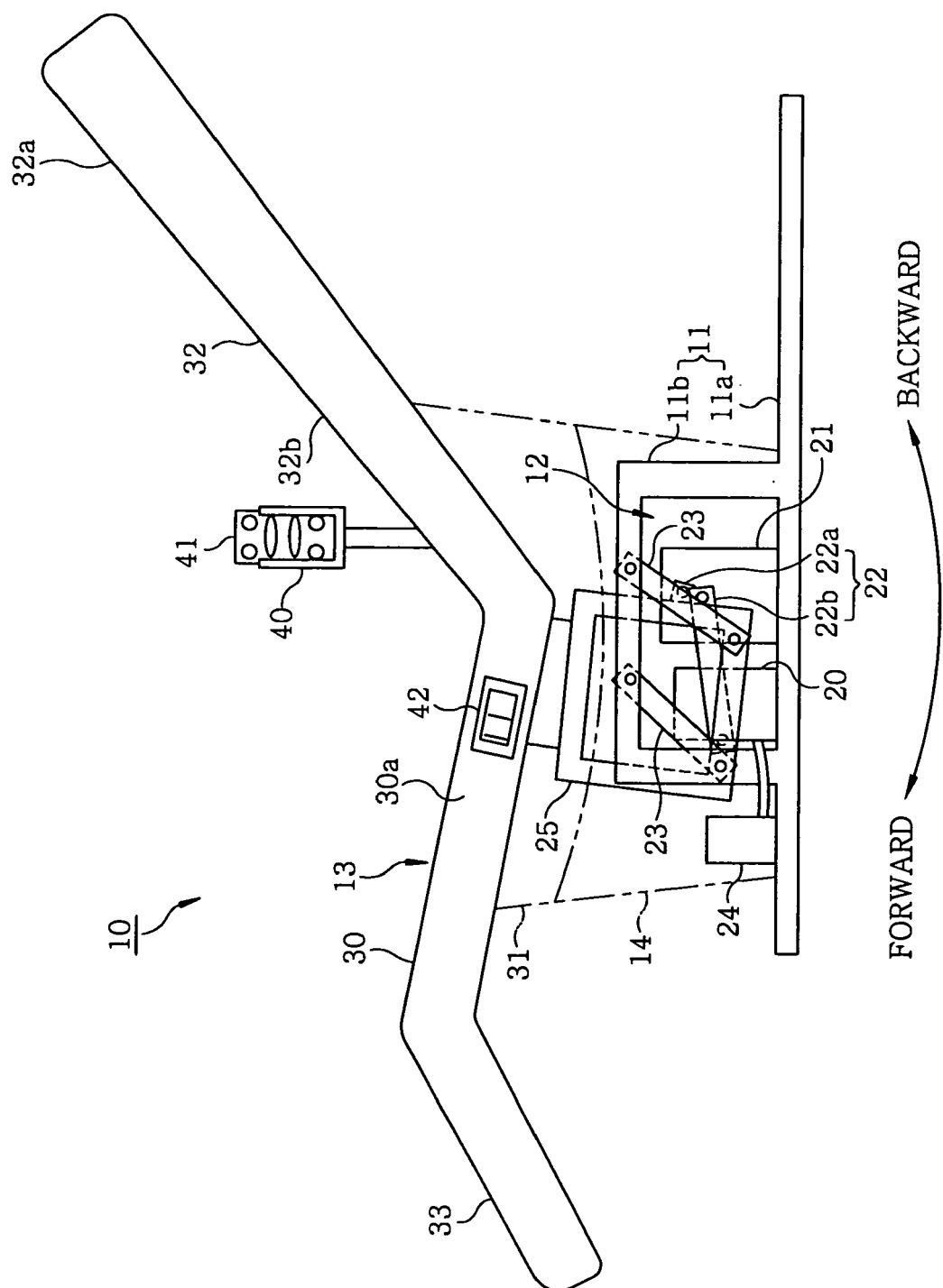


FIG. 2

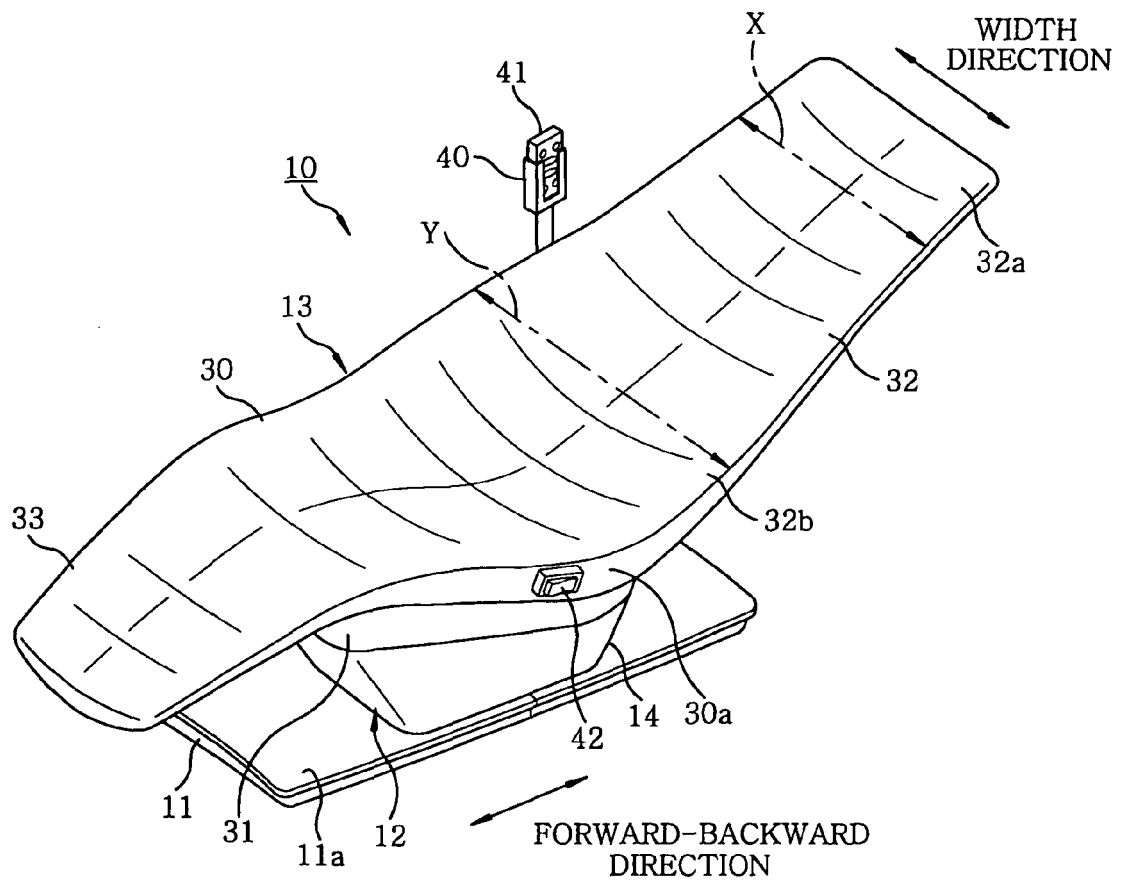


FIG. 3

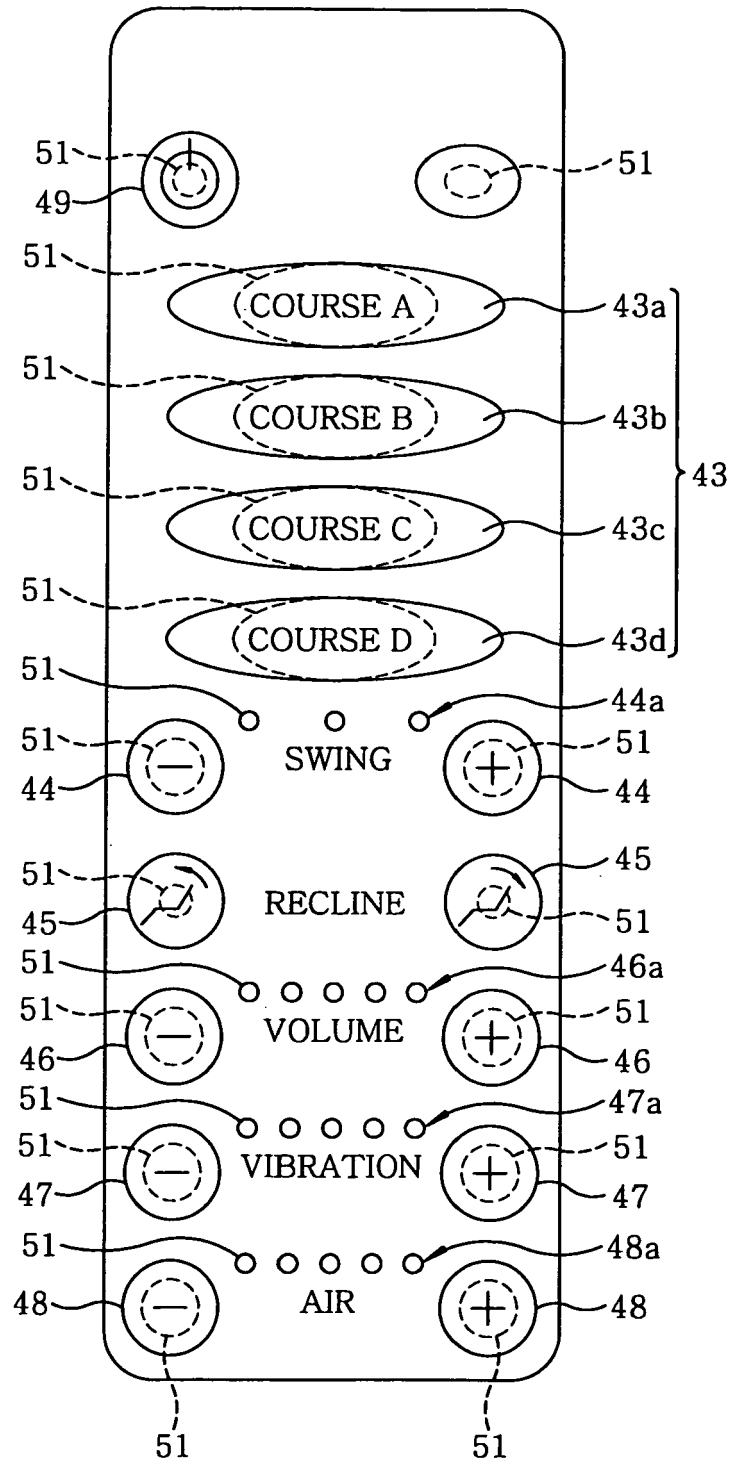


FIG. 4

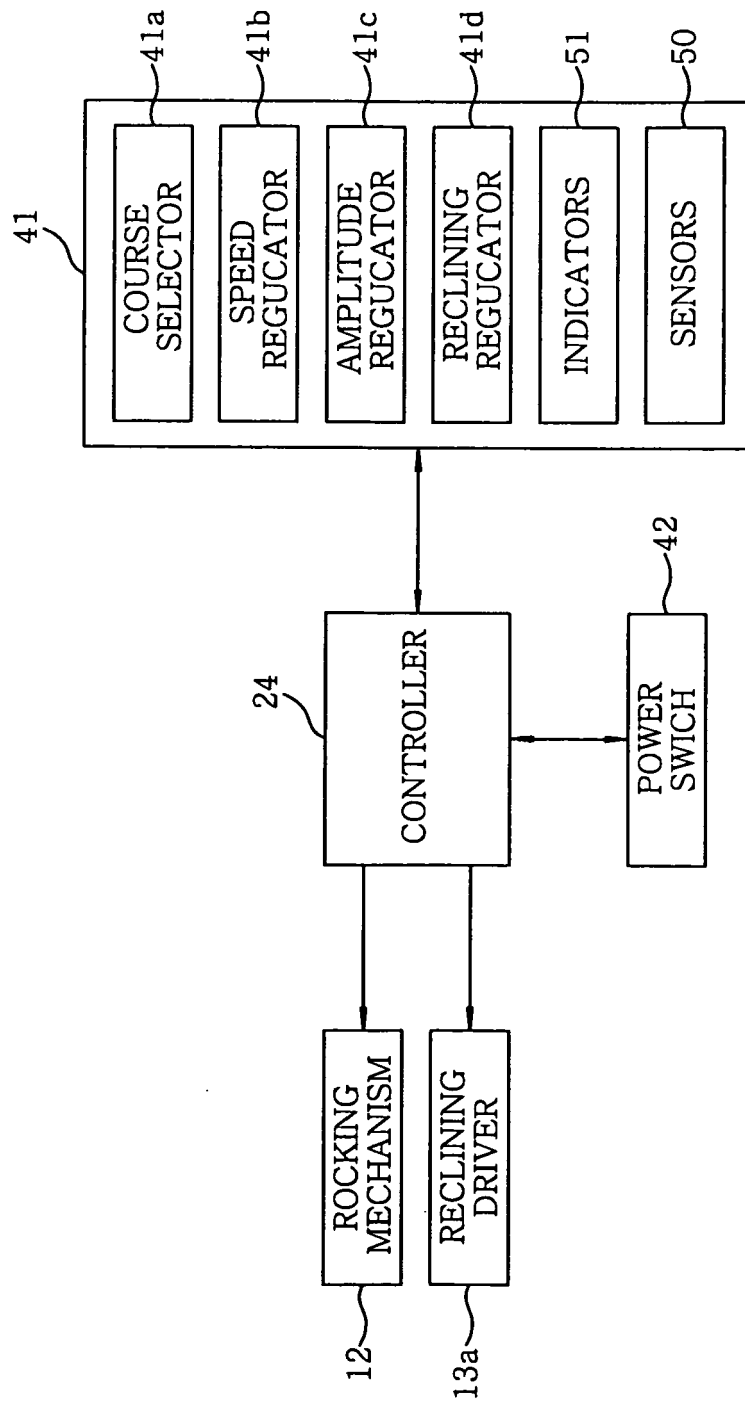


FIG. 5A

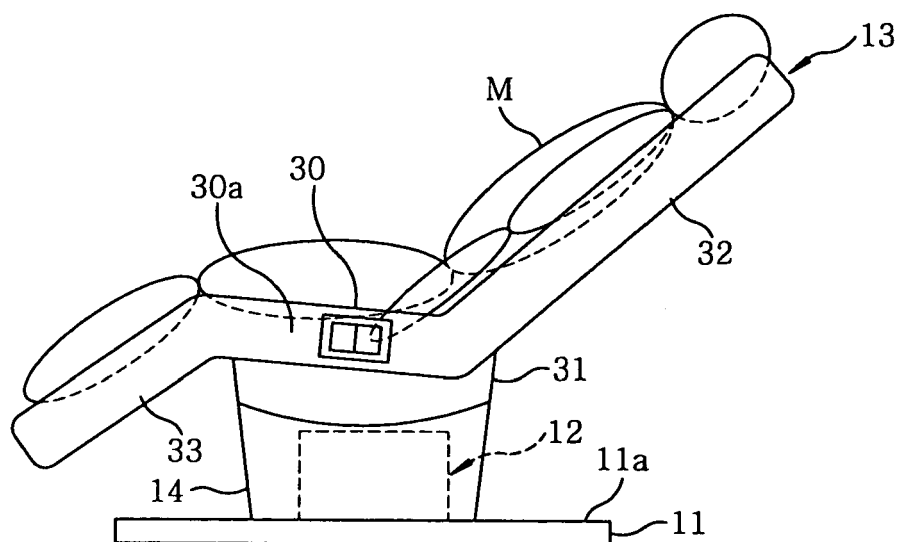
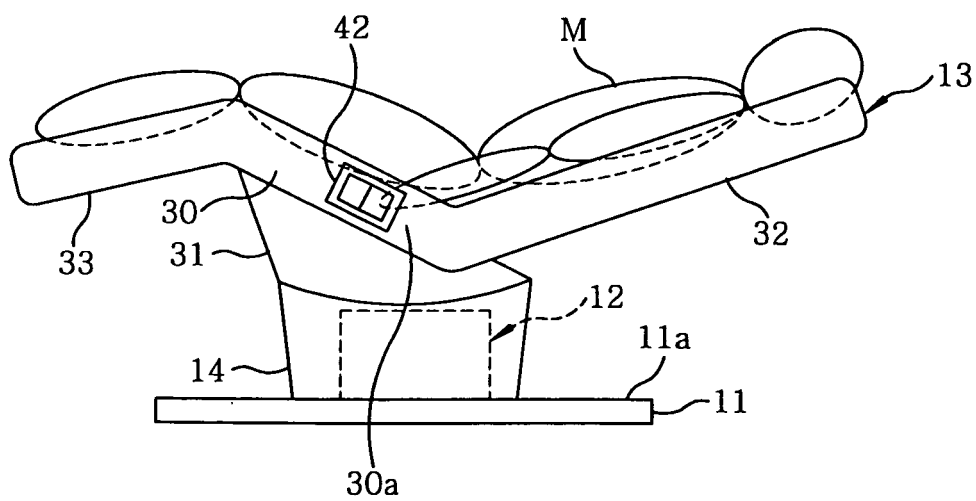


FIG. 5B





EUROPEAN SEARCH REPORT

Application Number
EP 09 01 5498

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 2001 178576 A (MATSUSHITA ELECTRIC WORKS LTD) 3 July 2001 (2001-07-03) * abstract; figures 1-13 *	1-5	INV. A47C3/02
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			TECHNICAL FIELDS SEARCHED (IPC)
			A47C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 April 2010	Examiner Klintebäck, Daniel
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 01 5498

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16-04-2010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2001178576 A	03-07-2001	NONE	
JP 2001149164 A	05-06-2001	NONE	
JP 2000300374 A	31-10-2000	NONE	

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2000300374 A [0002]