

SPECIFICATION

Title of Invention

REMOTE CONTROL DEVICE PROVIDED IN CHAIR-TYPE MASSAGE
MACHINE

Technical Field

The present invention relates to a remote control device which can be appropriately used for a massage machine such as a chair-type massage machine.

Background Art

There is known a massage machine such as a chair-type massage machine attached with a remote control device including a display device (e.g., see Patent Literature 1).

This conventional remote control device has a structure that the remote control device is connected to a main body side of the massage machine via a signal line.

Citation List

Patent Literature

Patent Literature 1: Japanese Unexamined Patent Publication JP-A 2006-43249 (Fig. 1)

Summary of Invention

Technical Problem

In such a remote control device, there is also a problem such that a signal line is impeditive when the remote control device is not used.

Further, in the case of a chair-type massage machine having a reclining function, there is also included a risk that a following problem arises during use of a remote control device.

For example, it is assumed a case that, for example, in a chair-type massage machine in a state of a backrest part being fallen down rearward (i.e., in a reclining state), a user accidentally drops a remote control device from a hand on a floor while sitting on the chair-type massage machine. In this case, the user is required to sit up by oneself and stretch his hand or once get down the massage machine and take the remote control device in hand, in order to stop a massage operation or cause the backrest part to stand up to be in an almost vertical state (non-reclining state). However, it may be possibly considered a case that some users having, for example, lack of physical strength cannot stand up and pick up the remote control device and the users are in physically entangled problematic situations and not being able to move on the chair-type massage machine in a reclining state.

The present invention has been made in

consideration of the problems described above and its object is to provide a remote control device provided in a chair-type massage machine capable of accommodating the remote control device so as to prevent a signal line from being impeditive and an operation of the chair-type massage machine can be performed by a user while being in a reclining posture.

Solution to Problem

In order to attain the object mentioned above, following technical measures have been taken in the present invention.

That is, a remote control device according to the present invention is provided in a chair-type massage machine including a seat part for a user to sit on and a backrest part for supporting a back side of the user. The remote control device is configured to operate a reclining mechanism or a massage mechanism which are provided in the seat part or the backrest part. The remote control device is connected to a side of the chair-type massage machine via a signal line, and an end portion of the signal line in the side of the massage machine is allowed to be accommodated inside the chair-type massage machine in a reel-up state. A pocket portion is provided in the chair-type massage machine for accommodating the remote control device attached to

a tip end of the signal line in the case where the signal line is reeled up. The pocket portion is configured to allow a part of the remote control device to be exposed to the outside of the pocket portion upon accommodation of the remote control device, and an operation switch for operating a reclining mechanism or a massage mechanism is provided in a position on the remote control device where the position is to be exposed to the outside of the pocket portion.

Preferably, the pocket portion is formed in an upper front portion of an armrest part provided on a side of the seat part.

Preferably, a reeling mechanism for reeling up the signal line is provided inside the armrest part.

Preferably, a friction preventing mechanism is formed on an opening edge of the pocket portion for preventing the signal line from rubbing against the opening edge.

Preferably, the pocket portion is formed in a position where a user's hand is reachable in a state that the user is leaning on the backrest part in a reclining state in the case where the backrest part is fallen down rearward in the reclining state.

Preferably, the operation switch is a standing button for swinging the backrest part in a standing up

direction using the reclining mechanism.

Preferably, the operation switch is a stop button for stopping a massage operation performed by the massage mechanism.

Preferably, the reeling mechanism is provided with lock means that is capable of locking a withdrawal of the signal line in a manner of changing a withdrawal length of the signal line from the chair-type massage machine in multi-stages.

Preferably, the pocket portion is configured to be able to accommodate the remote control device so that an upper surface of the remote control device is coplanar with an upper surface of the armrest part, and the operation switch is formed on the upper surface of the remote control device which is coplanar with the upper surface of the armrest part.

Advantageous Effects of Invention

According to the remote control device of the present invention, it becomes possible to accommodate the remote control device so as to prevent a signal line from being impeditive and an operation of the chair-type massage machine can be performed by a user while being in a reclining posture.

Brief Description of Drawings

Fig. 1 is a perspective view of a chair-type massage machine of the present invention in a state of a remote control device being accommodated;

Fig. 2 is a perspective view of the chair-type massage machine of the present invention in a state during a withdrawal of the remote control device;

Fig. 3 is a perspective view of the chair-type massage machine of the present invention in a state of the maximum withdrawal of the remote control device;

Fig. 4 is an enlarged view of a friction preventing mechanism;

Fig. 5 is an enlarged view of the remote control device in a state of being accommodated; and

Fig. 6 is a perspective view of a main body of the remote control device.

Description of Embodiments

Hereinafter, embodiments of the present invention will be described with reference to the accompanying drawings. Note that the same component members common to each of the embodiments to be described below are denoted by the same names with the same reference numerals. Therefore, the same explanations for the component members denoted by the same names with the same reference numerals are not repeated.

The following describes an embodiment of the present invention with reference to the drawings.

Fig. 1 shows an example of a chair-type massage machine 2 equipped with a remote control device 1.

As shown in Fig. 1, the chair-type massage machine 2 includes: a seat part 3 having a space wide enough to support buttocks of a user from below; a backrest part 4 provided on a rear side of the seat part 3; and a footrest 5 provided on a front side of the seat part 3.

A leg body 6 is provided under the seat part 3 for installing the chair-type massage machine 2 on a floor, so that the seat part 3 is supported at a predetermined height by the leg body 6.

In the following description, a back and forth direction (i.e., longitudinal direction) and right and left direction (i.e., lateral direction) of the massage machine 2 are explained based on arrow marks showing the back and forth direction (i.e., longitudinal direction) and right and left direction (i.e., lateral direction) in Fig. 1. Each of the directions is consistent with those seen from a user sitting on the massage machine 2.

The backrest part 4 is a member for supporting a shoulder region, back region and waist region of a user from behind, and it is provided on a rear part of the

seat part 3 or a rear part of the leg body 6. The lower end portion of the backrest part 4 is rotatably pivoted about an axis oriented in the lateral direction with respect to a rear part of the seat part 3 or a rear part of the leg body 6. The upper end portion of the backrest part 4 is held in a manner of freely swingable back and forth with respect to the lower end portion pivoted by the seat part 3 or the leg body 6. This backrest part 4 is made operable of reclining by a reclining mechanism such as a linear actuator mechanism arranged in the leg body 6.

Further, inside the backrest part 4, there is provided a back massage mechanism (not shown) for performing a massage operation such as kneading, tapping or vibration. This back massage mechanism is movable along an inclination direction of the backrest part 4, and the back massage mechanism can be moved to a shoulder region, back region or lumbar region of a user and these treatment regions can be selectively treated.

On both right and left sides of the backrest part 4, there are provided a pair of side kneading mechanisms 7. These side kneading mechanisms 7 are configured to repeat such as contraction and swelling of an air bag in a predetermined rhythm to thereby press the side regions of both arms or both shoulders of a user who is

leaning on the backrest part 4 to thereby perform a massage operation of these treatment regions.

That is, the back massage mechanism and the side kneading mechanisms 7 are provided in the chair-type massage machine 2 to configure a massage mechanism for performing a massage for treatment regions of a user.

The footrest 5 is provided so as to be able to support lower limbs (i.e., regions from calves of right and left legs to feet) of a user sitting on the seat part 3. This footrest 5 is made movable by a footrest moving mechanism (not shown) arranged inside the leg body 6 in a range from an accommodation position to a second usage position via a first usage position. That is, in the accommodation position, the footrest 5 is accommodated below the seat part 3 as shown in Fig. 1. In the first usage position, the footrest 5 is protruded forward from the seat part 3 and bridges between a front floor surface of the seat part 3 and the upper surface of the seat part 3 in a posture inclined in a forwardly downward direction. In the second usage position, the footrest 5 is floated upward the floor surface from the inclined posture to be kept in a substantially horizontal posture at the same height as the seat part 3.

Further, on both right and left sides of the seat part 3, there are provided a pair of armrest parts 8.

On inner surfaces facing each other of these right and left armrest parts 8, i.e., on the right side surface of the left side armrest part 8 and on the left side surface of the right side armrest part 8, there may be provided thigh/lumbar massage mechanisms which are one kind of the massage mechanism.

By the way, the chair-type massage machine 2 is provided with the remote control device 1 which is configured to operate the reclining mechanism or the massage mechanism.

This reclining mechanism or the massage mechanism and the remote control device 1 are connected by a signal line 9 (cable wire) through a control part (not shown) inside the chair-type massage machine 2. In other words, the remote control device 1 is connected to a side of the chair-type massage machine 2 by the signal line 9. This signal line 9 is made to be freely bent and freely reeled up.

An end portion of the signal line 9 in a side of the chair-type massage machine 2 is allowed to be accommodated inside the chair-type massage machine 2 in a reeled up state, and upon reeling up the signal line 9, the remote control device 1 attached to the tip end of the signal line 9 is accommodated in a pocket portion 10 which is provided in the chair-type massage machine

2. The pocket portion 10 is configured to expose a part (e.g., an upper surface) of the remote control device 1 to the outside of the pocket portion 10 at the time of accommodating the remote control device 1. At a position in the remote control device 1 to be exposed to the outside of the pocket portion 10, there is provided an operation switch 11 for changing a posture of the massage machine 2 to a standing posture in which the backrest part 4 is standing.

In the following, the pocket portion 10 having a specific feature of the present invention and the remote control device 1 to be accommodated in this pocket portion 10 will be described.

As shown in Fig. 6, the remote control device 1 has a longitudinally long shape with a thickness thinner compared to lengths in the longitudinal and lateral directions. In a surface side (operation side) of the remote control device 1, a screen part 12 is provided on an upper portion thereof, a drive operation button part 14 is provided in a central portion thereof, and a display operation button part 13 is provided between the screen part 12 and the drive operation button part 14 as shown in Figs. 5 and 6. The display operation button part 13 includes a power supply button, a pause button and a stop button.

The screen part 12 displays operation contents of a massage performed by each of the massage parts such as the back part massage mechanism, side part kneading mechanism 7, the foot kneading mechanism, the thigh/lumbar massage mechanism and the arm massage mechanism of the massage machine 2 in a manner of "character display" and "icon" display. The "character display", "icon" and the like display are referred to as "item" collectively, hereinafter. Item(s) displayed in the screen part 12 may be one or more.

Further, the drive operation button part 14 is provided for selecting an item displayed by the screen part 12 and defining the selected item (instructions to execute the operation indicated by the item).

By this drive operation button part 14, operations mainly associated with the massage contents such as selection of a massage course and massage strength are operated.

In the present embodiment, the drive operation button part 14 includes a determination button 15 located at the center thereof and a selection button 16 provided surrounding the determination button 15. The selection button 16 is formed in a circular shape (ring shape) with a center hole, and total four positions of an upper portion, lower portion, left portion and right portion

along the outer periphery thereof can be separately operated by pressing. Further, the determination button 15 formed in the circular shape is disposed in the center hole of the selection button 16, and a notation "OK" is shown on the surface of the determination button 15.

In addition, a plurality of operation buttons are also provided surrounding the selection button 16 in this drive operation button part 14.

Moreover, on the upper surface of the remote control device 1, that is a top portion opposite to the bottom surface to which the signal line 9 is attached, the operation switch 11 such as a standing button is arranged to be described later. Note that, depending on a manner of inserting the remote control device 1 to the pocket portion 10, the operation switch 11 may be arranged on the bottom surface of the remote control device 1 to which the signal line 9 is attached.

The pocket portion 10 for accommodating the remote control device 1 is formed to have a vertical hole shape extending downward in the left side armrest part 8 and having an opening at an upper surface thereof. Thus, the remote control device 1 can be accommodated inside this armrest part 8 in a state that the remote control device 1 is standing along the vertical direction. The opening of the pocket portion 10 is formed to have a shape

corresponding to a cross sectional shape of the remote control device 1, i.e., a cross sectional shape obtained by cutting in the horizontal direction. Note that, in the present embodiment, although the shape of this opening is elliptical (squashed circular) one when viewed from above, the opening can be also formed to have a rectangular like shape.

The opening of the pocket portion 10 is formed so that the orientation of the remote control device 1 to be accommodated in the pocket portion 10 is slightly inclined with respect to the lateral direction. Thus, the remote control device 1 can be accommodated inside the pocket portion 10 so that the standing button and the like can be easily seen from a user and can be easily operated by a user.

Further, the pocket portion 10 is formed to have a size (inner size) in the vertical direction that is substantially equal to or slightly smaller than the size (outer size) of the remote control device 1 in the vertical direction. In the case where the size of the pocket portion 10 is made substantially equal to the size of the remote control device 1, the upper surface of the remote control device 1 (main body) is coplanar with the upper surface of the armrest part 8 when the remote control device 1 is accommodated into the pocket portion

10, thereby preventing the remote control device 1 from being impeditive at the time of putting one's hand on the armrest part 8. In the case where the size of the pocket portion 10 is made slightly smaller than the vertical size of the remote control device 1, a part of the remote control device 1 protrudes upward above the upper surface of the armrest part 8 and therefore it becomes easier to operate the operation switch 11 to be described later.

In addition, the pocket portion 10 is formed in a position within a reachable range by a user with his hand. More specifically, the pocket portion 10 is formed in a position where a user sufficiently reaches the operation switch 11 by hand (fingers tip) in the case where the user sitting on the seat part 3 of the massage machine 2 in a reclining state stretches the hand.

Incidentally, the remote control device 1 described above is appropriately used in a type of the chair-type massage machine 2 in which the backrest part 4, the seat part 3 and the armrest part 8 are moved together (for example, a chair-type massage machine 2 as disclosed in JP-A 2012-179214). In the reclining mechanism of this type of the chair-type massage machine 2, even in the case where the backrest part 4 is largely reclined backward, a positional relationship between a user

leaning on the backrest part 4 and the operation switch 11 (the position of the pocket portion 10) is not changed so much. Therefore, even though the reclining operation of the backrest part 4 is performed, it is possible for a user to reliably operate the operation switch 11 of the remote control device 1 accommodated in the pocket portion 10.

The operation switch 11 is provided in order to perform a minimum required operation for a user to sit up by oneself from the chair-type massage machine 2 or interrupt a treatment by transmitting instructions to the reclining mechanism or the massage mechanism. In specific, the minimum required operation implies an operation of changing (returning) a posture of the massage machine 2 to a standing posture in which the backrest part 4 is standing or an operation of temporarily interrupting a swinging operation or a massage operation. The operation switch 11 is a part of the remote control device 1 and this switch 11 is provided at a position so as to be exposed to the outside of the pocket portion 10 in the case where the remote control device 1 is accommodated in the pocket portion 10.

In the present description, "a part of the remote control device 1 is exposed to the outside of the pocket portion 10 in the case where the remote control device

1 is accommodated in the pocket portion 10" means that, in the case where the remote control device 1 is accommodated in the pocket portion 10 so as to be coplanar, the upper surface of the remote control device 1 is a part exposed to the outside of the pocket portion 10. In the case where the remote control device 1 is accommodated in the pocket portion 10 in a state of protruding upward above the upper surface of the armrest part 8, a part positioned above the upper surface of the armrest part 8 in the remote control device 1 is a part exposed to the outside of the pocket portion 10. By providing the operation switch 11 in such a part exposed to the outside of the pocket portion 10, the operation switch 11 of the remote control device 1 is to be provided on the upper surface of the armrest part 8 or a position facing a user side. Thus, it becomes possible for a user to reliably and sufficiently operate the operation switch 11 with a hand (finger).

Specifically, as the operation switch 11, there can be adopted a stand-up button (non-reclining switch) which acts on the reclining mechanism to thereby swing the backrest part 4 in a standing up direction with respect to the seat part 3. Further, as the operation switch 11, there can be adopted a stop button for stopping a massage operation performed by a massage part. Only one or both

of these stand-up button and stop button may be adopted.

By adopting such a stand-up button as the operation switch 11, it becomes possible for a user leaning on the backrest part 4 in a reclining state to operate the massage mechanism or the reclining mechanism using the operation switch 11 by stretching his (or her) own hand. That is, even in the case where a user uses the operation switch 11 in a reclining state, the user can easily cause the backrest part to stand up to be in a nearly vertical state while the user is in a posture of being fallen down rearward.

Further, by adopting the stop button as the operation switch 11, a massage operation can be interrupted in a reclining state.

In a bottom part of the pocket portion 10, there is formed a guide hole (not shown) for guiding the signal line 9 of the remote control device 1. This guide hole is formed so as to pass through the bottom part of the pocket portion 10 and communicate the inside and the outside of the armrest part 8. And at a distal end of the signal line 9 extending to the inside of the armrest part 8 through the guide hole, there is provided a reeling mechanism 17 for reeling up the signal line 9.

The reeling mechanism 17 includes a cylindrical spool for reeling up the signal line 9 on an outer

peripheral surface thereof. In this embodiment, the spool is installed inside the left side armrest part 8 in a manner of rotatable about an axis oriented in the lateral direction. Further, the spool is provided with biasing means such as rotating spring (not shown) for biasing the spool so as to rotate toward a reeling up direction. By providing the reeling mechanism 17 which is biased so as to rotate the spool toward the reeling up direction in this way, it is possible to pull the signal line 9 to the inside of the armrest part 8 in the case where the remote control device 1 is not used. Thus, an excessive signal line 9 can be accommodated in a reeled up state, and it is possible to prevent the signal line 9 from being impeditive even in the case where the remote control device 1 is connected using the signal line 9. Moreover, since the body of the remote control device 1 is biased via the signal line 9 in a manner of pulling into the pocket portion 10, the remote control device 1 is always accommodated inside the pocket portion 10 by the reeling mechanism 17 in the case where the remote control device 1 is not used. Therefore, it becomes possible to always hold the remote control device 1 at a position in a range of user's hand reach when stretching the hand. Thus, the operability by the remote control device 1 can be remarkably improved.

Note that the spool may be provided with lock means such as a ratchet mechanism for suppressing the spool from rotating against the biasing force when the spool is rotated by a predetermined angle in the reel-up direction. Further, in order to releasing the locking of the spool by the lock means, a lock releasing mechanism may be provided so that the locking of the spool is released by pulling out the signal line 9 in the withdrawal direction (rotating the spool in the withdrawal direction).

By providing the lock means and the lock releasing mechanism as described above, the signal line 9 can be pulled out in multiple stages while the pulling out length is changed. That is, in the case where a user wants to attract the remote control device 1 at hand, the pulling out length of the signal line 9 may be longer using the lock means and the lock releasing mechanism. Meanwhile, in the case where the signal line 9 is excessive to be impeditive, the pulling out length of the signal line 9 may be shorter. Thus, it is possible to further improve the convenience of the remote control device 1.

As shown in Fig. 5, a friction preventing mechanism 18 (rubbing prevention mechanism) is provided on the opening edge (aperture edge) of the pocket portion 10 for preventing the signal line 9 from rubbing. This

friction preventing mechanism 18 is used for preventing a coating film for coating the signal line 9 from being damaged due to wearing caused by rubbing of the signal line 9 against the opening edge of the pocket portion 10. As the friction preventing mechanism 18 like this, it may be possible to prevent the signal line 9 from being damaged by, for example, forming an R curved surface around the opening edge of the pocket portion 10. However, in the present embodiment, there is provided a bar-shaped roller which is rotatable about a horizontal axis core on the opening edge of the pocket portion 10.

That is, as shown in Fig. 5, only by providing the rotatable bar-shaped roller on the opening edge of the pocket portion 10, the rubbing of the signal line 9 against the opening edge can be suppressed by the rolling of the roller at the time of pulling-out or reeling-in of the signal line 9. Therefore, the wearing of the coating film for coating the signal line 9 and the like can be prevented and the signal line 9 can be prevented from being damaged.

The following describes an operation mode of the remote control device 1 provided in the chair-type massage machine 2 of the present embodiment.

First, in the case of the chair-type massage machine 2 of the present embodiment, the remote control device

1 can be accommodated in the pocket portion 10 of the armrest part 8 and is being biased in a retracted state toward the side of the massage machine 2 (i.e., toward the inside of the pocket portion 10). Therefore, the remote control device 1 is hardly positioned far from a user.

In addition, the remote control device 1 accommodate in the pocket portion 10 is provided with the operation switch 11 on the upper surface of the remote control device 1 or a surface facing the user side for facilitating the operation by the user. Therefore, only by pressing the operation switch 11, the posture of the chair-type massage machine 2 can be set to a non-reclining state or a massage operation can be emergently stopped.

For example, upon pressing the standing switch as the operation switch 11, a command is transmitted to the reclining mechanism for standing up the backrest part 4, so that the posture of the chair-type massage machine 2 is set to a standing posture (a posture in which the backrest part 4 stands up in the vertical direction). Therefore, a user can stand up from the chair-type massage machine 2 with no difficulty. Further, upon pressing the stop switch as the operation switch 11, the massage mechanism can be emergently stopped.

Note that, it should be considered that each of the

embodiments disclosed here is illustrative in all respects but not restrictive. In particular, in each of the embodiments disclosed here, not explicitly disclosed matters, for example, driving conditions and operating conditions, various parameters, size, weight and volume of components, and the like are not depart from a range for those skilled in the art to usually carry out, adopting values which can be readily assumed by those ordinary skill in the art.

Note that, in the present embodiments, although the front surface side of the remote control device 1 is provided so as to be oriented to a side away from a user side, the remote control device 1 can be accommodated in the pocket portion 10 so that the front surface side of the remote control device 1 may be oriented to a user side (i.e., to an inward direction).

Reference Signs List

- 1 Remote control device
- 2 Chair-type massage machine
- 3 Seat part
- 4 Backrest part
- 5 Footrest
- 6 Leg body
- 7 Side kneading mechanism

- 8 Armrest part
- 9 Signal line (cable line)
- 10 Pocket portion
- 11 Operation switch (standing button)
- 12 Screen part
- 13 Display operation button part
- 14 Drive operation button part
- 15 Determination button
- 16 Selection button
- 17 Reeling mechanism
- 18 Friction preventing mechanism

CLAIMS

1. A remote control device provided in a chair-type massage machine including a seat part for a user to sit on and a backrest part for supporting a back side of the user, the remote control device being configured to operate a reclining mechanism or a massage mechanism which are provided in the seat part or the backrest part, wherein

the remote control device is connected to a side of the chair-type massage machine via a signal line,

an end portion of the signal line in the side of the massage machine is allowed to be accommodated inside the chair-type massage machine in a reel-up state,

a pocket portion is provided in the chair-type massage machine for accommodating the remote control device attached to a tip end of the signal line upon reeling up the signal line,

the pocket portion is configured to allow a part of the remote control device to be exposed to the outside of the pocket portion upon accommodation of the remote control device, and

an operation switch for operating the reclining mechanism or the massage mechanism is provided in a position on the remote control device where the position

is to be exposed to the outside of the pocket portion.

2. The remote control device provided in the chair-type massage machine according to claim 1, wherein the pocket portion is formed in an upper front portion of an armrest part provided on a side of the seat part.

3. The remote control device provided in the chair-type massage machine according to claim 2, wherein a reeling mechanism for reeling up the signal line is provided inside the armrest part.

4. The remote control device provided in the chair-type massage machine according to claim 3, wherein a friction preventing mechanism is formed on an opening edge of the pocket portion for preventing the signal line from rubbing against the opening edge.

5. The remote control device provided in the chair-type massage machine according to any one of claims 1 to 4, wherein the pocket portion is formed in a position where a user's hand is reachable in a state that the user is leaning on the backrest part in a reclining state in the case where the backrest part is fallen down rearward in the reclining state.

6. The remote control device provided in the chair-type massage machine according to any one of claims 1 to 5, wherein the operation switch is a standing button for swinging the backrest part in a standing up direction using the reclining mechanism.

7. The remote control device provided in the chair-type massage machine according to any one of claims 1 to 5, wherein the operation switch is a stop button for stopping a massage operation performed by the massage mechanism.

8. The remote control device provided in the chair-type massage machine according to any one of claims 3 to 7, wherein the reeling mechanism is provided with lock means that is capable of locking a withdrawal of the signal line in a manner of changing a withdrawal length of the signal line from the chair-type massage machine in multi-stages.

9. The remote control device provided in the chair-type massage machine according to any one of claims 2 to 8, wherein the pocket portion is configured to be able to accommodate the remote control device so that

an upper surface of the remote control device is coplanar with an upper surface of the armrest part, and wherein the operation switch is formed on the upper surface of the remote control device which is coplanar with the upper surface of the armrest part.