

## SPECIFICATION

Title of Invention

MESSAGE MECHANISM AND CHAIR-TYPE MESSAGE MACHINE

[Technical Field]

[0001]

The present invention relates to a message mechanism capable of holding a treatment region and performing a gripping message and a chair-type message machine including the message mechanism.

[Background Art]

[0002]

Conventionally, there has been known a chair-type message machine including a seat part for a user to seat on and a backrest part for supporting a back side of the user seated on the seat part. Inside the backrest part of this chair-type message machine, there is provided a message mechanism for applying a message to a treatment region such as a shoulder region, a back region, and a lumbar region of a user. This message mechanism generates at least one or more message operations of kneading, tapping, acupressure, and vibration and applies a message operation to a treatment region of the user.

[0003]

As such a massage mechanism, there has been a mechanism, for example, disclosed in Patent Literature 1.

[Citation List]

[Patent Literature]

[0004]

Patent Literature 1: Japanese Unexamined Patent Publication JP-A2010-252905

[Summary of Invention]

[Technical Problem]

[0005]

The massage mechanism disclosed in Patent Literature 1 is one capable of applying a massage to a treatment region such as a shoulder.

However, in recent years, there has been a wide variety of demands concerning massage feelings, for example, there has been requested by a user, such as "wishing to realize a shoulder kneading operation like a shoulder being gripped and treated by a person".

[0006]

Therefore, the present invention has been made in consideration of the above situation, having an object to provide a massage mechanism and a chair-type massage machine capable of applying a massage to a treatment

region while holding the treatment region between a gripping treatment element and a treatment element opposite thereto.

[Solution to Problem]

[0007]

In order to accomplish the object mentioned above, the following technical means has been taken in the present invention.

A massage mechanism of the present invention includes: a gripping arm provided with a gripping treatment element for performing a gripping massage on one side; a kneading arm provided with a kneading treatment element for performing a kneading massage on one side; and gripping massage means adapted to drive the gripping arm, and in this configuration, the gripping massage means drives the gripping arm so that the gripping treatment element is moved close to and separated from the kneading treatment element.

[0008]

Preferably, the gripping massage means includes: a rotating shaft for transmitting a rotational drive force of a drive motor; an eccentric boss part attached to the rotating shaft in an eccentric state and having a cam surface formed on an outer peripheral surface; an annular fitting portion provided on the gripping arm and

fitted to the cam surface of the eccentric boss part; and a regulation part for regulating the gripping arm from adjoint-rotating in accordance with a rotation of the rotating shaft.

[0009]

Preferably, the gripping arm has a proximal end portion attached to the rotating shaft in an eccentric state, and there are formed two protruding parts protruding from the proximal end portion of the gripping arm toward directions separated from each other, and the gripping treatment element is provided at a distal end of one of the protruding parts and the regulation part is provided at a distal end of the other of the protruding parts.

Preferably, the regulation part includes: a regulation pin provided at the distal end of the protruding part protruding toward the other side from the proximal end portion of the gripping arm; and a regulation hole formed in a portion facing the regulation pin for inserting the regulation pin thereinto, and in this configuration, the gripping arm is made rotatable about a shaft center of the regulation pin inserted into the regulation hole and is regulated from adjoint-rotating with the rotating shaft.

[0010]

Preferably, the proximal end portion of the gripping arm is formed with a groove portion extending from one side to the other side of the gripping arm, the groove portion is provided with a slider slidably moving in the groove portion, and a through-hole formed in a center of the slider is used as an annular fitting portion fitted to the cam surface of the eccentric boss part.

Preferably, the kneading treatment element is provided at a distal end of the kneading arm, and the rotating shaft penetratingly passes through an intermediate portion or the proximal end portion of the kneading arm, and the kneading arm is adapted to be driven so as to be swung in a left and right direction based on the drive force of the rotating shaft.

[0011]

A chair-type massage machine of the present invention includes: a seat part which can be placed on a floor surface and on which a user can seat; and a backrest part which is disposed in a rear portion of the seat part and is provided so as to be able to support a back portion of the user, and in this configuration, the massage mechanism mentioned above is incorporated in the backrest part.

[Advantageous Effects of Invention]

[0012]

According to the present invention, it becomes possible to perform a gripping massage by holding a treatment region between the gripping treatment element and a treatment element opposite thereto.

[Brief Description of Drawings]

[0013]

[Fig. 1] Fig. 1 is a perspective view of a chair-type massage machine provided with a massage mechanism of the present invention.

[Fig. 2] Fig. 2 is a perspective view showing an inner structure of a backrest part in a state that the massage mechanism is positioned at an upper end side of a movement rail.

[Fig. 3] Fig. 3 is a frontward perspective view showing an inner structure of the massage mechanism.

[Fig. 4] Fig. 4 is a rearward perspective view showing the inner structure of the massage mechanism.

[Fig. 5] Fig. 5 is an exploded view of the massage mechanism.

[Fig. 6] Fig. 6 is a side view of the massage mechanism showing an operation of a gripping treatment element and a treatment element opposite thereto.

[Fig. 7] Fig. 7 is a side view of the massage mechanism showing an operation of the gripping treatment element.

[Description of Embodiments]

[0014]

The following describes an embodiment of a massage mechanism 7 and a chair-type massage machine 1 of the present invention with reference to the drawings.

Note that the embodiment to be described below is one example specifying the present invention but not limit the configuration of the present invention with its specific example.

In addition, in the following description, directions indicated by arrow marks in Fig. 1 are taken as the directions when explaining the chair-type massage machine 1. These are coincident with directions seen by a user seated on the chair-type massage machine 1. These directions are indicated by appropriately using arrow marks in the drawings.

[0015]

the chair-type massage machine 1 provided with the massage mechanism 7 of the present invention includes: a seat part 2 for a user to seat thereon; a backrest part 3 for a user seating on the seat 2 to lean thereon; and armrest part 4 for supporting both arms of the user seated on the seat part 2. Further, the chair-type massage machine 1 of the present embodiment is adapted to be able to accommodate a footrest part 5 for massaging user's

lower limbs, in a lower side of the seat part 2.

[0016]

As shown in Figs. 1 and 2, the seat part 2 is a member flatly spreading along a horizontal direction (back and forth direction and left and right direction), and a cushion material is provided thereon.

In a lower side of the seat part 2, provided is a support frame 6a for supporting the seat part 2. This support frame 6a is a combination of square bars (bars) oriented in the back and forth direction, left and right direction, and vertical direction in a lattice shape. The support frame 6a is coupled to a ground frame (frame body grounded to a floor surface or the like). That is, the support frame 6a is allowed to hold the seat part 2 at a position separated upward from the floor surface.

[0017]

The backrest part 3 is disposed on a rear side of the seat part 2 and is a member having a support frame 6b which is a combination of square bars (bars) in a lattice shape. A surface side contacting a user of this backrest part 3 is formed of a cushion material in a similar manner to the seat part 2. Further, inside the backrest part 3, there are incorporated the massage mechanism 7 for massaging (treating) a treatment region such as a shoulder region, back, lumbar region, and

buttocks of a person seated thereon, and further incorporated a movement rail 45 disposed along the vertical direction and guiding the massage mechanism 7 in the vertical direction.

[0018]

A lower end of this support frame 6b of the backrest part 3 and a rear end of the support frame 6a of the seat part 2 are pivotally supported so as to be freely swingable about an axis oriented in the left and right direction. That is, the backrest part 3 is made reclinable back and forth about the axis oriented in the left and right direction with respect to the seat part 2.

The armrest part 4 is composed of a left armrest part 4a disposed on a left side of the seat part 2 and a right armrest part 4b disposed on a right side of the seat part 2. Upper surfaces of these left and right armrest parts 4 are formed as flat surfaces elongated in the back and forth direction so that a user can place his or her elbows or arms thereon.

[0019]

A space below the seat part 2 and between these left and right armrest parts 4 is defined to be a storage chamber 9 for storing the footrest part 5.

The footrest part 5 is a square member slightly

smaller than the storage chamber 9 and includes a lower limb insertion part 8 so as to be opened forward and upward in order to be able to insert lower limbs of a user. Further, inside the footrest part 5, provided is a lower limb massage part for massaging lower limbs inserted in the lower limb insertion part 8, so that it is configured to be able to massage the lower limbs of the user.

[0020]

Now, the massage mechanism 7 disposed inside the backrest part 3 is provided with treatment elements 13, 14, and 28 for massaging treatment regions such as a shoulder of a user, and it is adapted to apply massages by bringing the treatment elements 13, 14, and 28 into contact with the treatment regions.

Specifically, as shown in Figs. 3 to 5, the massage mechanism 7 of the present embodiment is provided with a first arm 11 (kneading arm) extending to a frontward upper side and a second arm 12 extending to a frontward and lower side, as viewed from the massage mechanism 7. That is, the first arm 11 and the second arm 12 are provided so as to protrude toward the treatment element side.

[0021]

In the present embodiment, the first arm 11 and the second arm 12 have a common (the same) proximal end

portion. That is, the first arm 11 and the second arm 12 are integrally formed to be a curved (boomerang-shaped) massage member 10, and a pair of left and right massage members is disposed. Further, an intermediate portion in a longitudinal direction of each massage member 10 is adapted to be the proximal end portion.

A first annular fitting portion 20 of a penetrating shape (to be described in detail later) is formed in this proximal end portion. The massage member 10 is disposed so that the shaft center of the first annular fitting portion 20 in the proximal end portion is oriented in the left and right direction. In the proximal end portion, a rotating shaft 17, to be described later, is disposed in a penetrating manner while being oriented in the left and right direction.

[0022]

That is, the first arm 11 is provided radially outside with the shaft center of the rotating shaft 17 as a reference, so as to protrude substantially forward from the proximal end portion. Further, the second arm 12 is provided radially outside and substantially orthogonal to the first arm 11, so as to extend substantially downward from the proximal end portion.

Thus, the proximal end portion in common of the

first arm 11 and the second arm 12 is attached so as to be swingable about a shaft center oriented in the left and right direction with respect to the rotating shaft 17. That is, the first arm 11 and the second arm 12 are integrally swingable via the common proximal end portion.

[0023]

Note that, as described above, in the present embodiment, although the first arm 11 and the second arm 12 are integrally formed to be a curved massage member 10, only the first arm 11 except for the second arm 12 may be used as the massage member 10.

At a distal end portion of the first arm 11, there is formed a shaft part 15 extending along an extension arrangement direction of the first arm 11. Also, at a distal end portion of the second arm 12, there is formed the shaft part 15 extending along an extension arrangement direction of the second arm 12.

[0024]

The first treatment element 13 (kneading treatment element) is rotatably attached to the shaft part 15 of the first arm 11 (kneading arm). Further, the second treatment element 14 is rotatably attached to the shaft part 15 of the second arm 12. That is, the first treatment element 13 is disposed on a frontward upper side and the second treatment element 14 is disposed on a frontward

lower side, when viewed from the massage mechanism 7. Each of these first treatment element 13 and second treatment element 14 is formed in a rounded shape like a spherical shape.

[0025]

In specific, the first treatment element 13 is attached to the shaft part 15 of the first arm 11 so as to be rotatable about its shaft center (extension arrangement direction of the first arm 11).

Note that, in the present embodiment, the shaft part 15 of the first arm 11 is provided with a shaft part 16 oriented in a direction substantially orthogonal to the shaft center thereof (substantially vertical direction). The first treatment element 13 is also rotatable about a shaft center of the shaft part 16 oriented in a direction substantially orthogonal to the shaft part 15 of the first arm 11.

[0026]

Further, the second treatment element 14 is attached to the shaft part 15 of the second arm 12 so as to be rotatable about its shaft center (extension arrangement direction of the second arm 12).

Thus, there are disposed a pair of left and right curved massage members 10 each of which is provided with the first treatment element 13 and the second treatment

element 14, and between the paired left and right massage members 10, there is provided kneading massage means adapted to convert a rotational movement of the rotating shaft 17 into a swinging movement of the first arm 11 and the second arm 12 and generating a kneading massage operation.

[0027]

As shown in Figs. 3 to 5, the kneading massage means swings the respective first arms 11 and the respective second arms 12 disposed in opposing positions in a direction moved close to and separated from each other along the left and right direction and holds a treatment region of a user between the paired left and right disposed first treatment elements 13 or between the paired left and right disposed second treatment elements 14 to thereby make it possible to apply a kneading massage to the treatment region.

[0028]

In specific, the kneading massage means includes: the rotating shaft 17 with its shaft center oriented in the left and right direction; and a pair of left and right inclined boss parts 18 of substantially cylindrical shapes which are integrally rotatable with the rotating shaft 17 and disposed at both end portions of the rotating shaft 17.

An inclined cam surface 19 is formed on an outer peripheral surface of each of the inclined boss parts 18 so as to circulate the same. The shaft center of the inclined cam surface 19 is disposed so as to be oriented in a direction intersecting the shaft center of the rotating shaft 17. The inclined cam surface 19 circulates around the shaft center of the rotating shaft 17 in an inclined state with respect to a direction of the shaft center of the rotating shaft 17.

[0029]

This inclined boss part 18 is provided at the proximal end portion of the massage member 10 (first arm 11 and second arm 12), and the first annular fitting portion 20 of an annular-shape opened toward the left and right direction is slidably externally-fitted with respect to the inclined cam surface 19. That is, the first annular fitting portion 20 is fitting to the inclined cam surface 19 from the outside slidably along the inclined cam surface 19, and thus the massage member 10 (first arm 11 and second arm 12) is made swingable (rotatable) with respect to the rotating shaft 17.

[0030]

Further, as shown in Fig. 5, at the proximal end portion of the massage member 10, there is formed a protruding piece 21 protruding toward an opposite side

to the extending direction of the first arm 11 and the second arm 12. A spherical body 21a is formed at a distal end of this protruding piece 21. This spherical body 21a is adapted to be rotatably fitted into a concave portion 23 of a coupling arm 22.

The coupling arm 22 is an elongated member and it is disposed such that its distal end portion is suspended. At an proximal end portion of this coupling arm 22, there is provided a third annular fitting portion 24 which is opened toward the left and right direction, and a tapping drive shaft 41 (to be described in detail later) is penetratingly disposed in the third annular fitting portion 24 in a state of being oriented in the left and right direction. Meanwhile, at a distal end portion of the coupling arm 22, there is provided a concave portion 23 which is opened frontward and into which the spherical body 21a is rotatably fitted. Further, an intermediate portion in the longitudinal direction of the coupling arm 22 is made swingable in the left and right direction.

[0031]

The spherical body 21a of this protruding piece 21 is rotatably fitted into the concave portion 23 of the coupling arm 22 to couple the massage member 10 and the coupling arm 22, and thus it is configured to regulate the proximal end portion of the massage member 10 from

rotating integrally with the inclined boss part 18. That is, the coupling arm 22 is attached to a shaft oriented in the left and right direction swingably about the shaft center by a ball bearing mechanism with respect to the distal end of the protruding piece 21.

[0032]

Moreover, in a front surface side of the massage mechanism 7, there is provided a kneading and gripping drive motor 25 for rotationally driving the rotating shaft 17 with its output shaft oriented downward. A gear box 26 for kneading and gripping drive is provided below this kneading and gripping drive motor 25. That is, an output shaft of the kneading and gripping drive motor 25 is inserted in the gear box 26 for kneading and gripping drive. In addition, the rotating shaft 17 is penetratingly disposed in the gear box 26 for kneading and gripping drive.

[0033]

That is, in the kneading massage means, a rotational drive force outputted by the kneading and gripping drive motor 25 is decelerated to a predetermined speed in the gear box 26 for kneading and gripping drive and transmitted to the rotating shaft 17, and in the case where the rotating shaft 17 is rotationally driven about the axis oriented in the left and right direction, the

proximal end portion of the massage member 10 externally fitting the inclined boss part 18 via the first annular fitting portion 20 slides (rotates) about the shaft center of the rotating shaft 17 in an inclined state, along the inclined cam surface 19 which circulates about the shaft center of the rotating shaft 17 in an inclined state.

[0034]

Then, the first arm 11 including the first treatment element 13 and the second arm 12 including the second treatment element 14 become swingable in a direction to be moved close to and separated from each other along the left and right direction.

At this time, since the massage member 10 is coupled by the coupling arm 22, the massage member 10 and the inclined boss part 18 are regulated from integrally rotating.

Thus, since the massage member 10 (first arm 11 and second arm 12) repeatedly swings in a reciprocating manner in the left and right direction in a state that the rotation of the rotating shaft 17 about the shaft center, the first treatment element 13 and the second treatment element 14 swing in the left and right direction and it becomes possible to perform a kneading massage to a treatment region in a manner of holding the treatment

region between these treatment elements 13 and 14.

[0035]

By the way, as shown in Figs. 5 to 7, the massage mechanism 7 of the present embodiment is provided with a gripping arm 27 for applying a grip massage operation to a treatment region. The gripping arm 27 is provided inside in the left and right direction of the massage member 10 and is provided so as to be extended frontward (toward the treatment region side) from the side of the massage mechanism 7. This gripping arm 27 has its proximal end portion rotatably coupled to the rotating shaft 17.

[0036]

The gripping arm 27 is provided with two protruding parts 29 each protruding outward in a radial direction (in a direction away from the shaft center of the rotating shaft 17) with respect to the proximal end portion rotatably coupled to the rotating shaft 17. At a distal end of one protruding part 29a of these two protruding parts 29 (one side of the gripping arms 27), the gripping treatment element 28 is provided for enabling the gripping massage to a treatment region. That is, as shown in side view in Fig. 6, the gripping treatment element 28 is provided between the first treatment element 13 and the second treatment element 14 (in a space

in the vertical direction).

[0037]

Meanwhile, there is provided a through-hole 30 with its shaft center oriented in the left and right direction in a distal end of a protruding part 29b (in the other side of the gripping arm 27). Into this through-hole 30, a regulation pin 32 constituting a regulation part 31 is penetratingly inserted.

The regulation part 31 includes the regulation pin 32 for regulating a swinging direction of the gripping arm 27 and a regulation hole 33 into which the regulation pin 32 is inserted.

[0038]

One end of the regulation pin 32 is flange-shaped and the other end thereof is provided one through-hole penetrating in a direction substantially orthogonal to the shaft center of the regulation pin 32. This regulation pin 32 is a member having a longer length than that of the through-hole 30 of the protruding part 29b (thickness of the gripping arm 27 in the left and right direction). The regulation pin 32 is inserted into the through-hole 30 of the protruding part 29b and a flange portion abuts to the gripping arm 27, so that the regulation pin 32 is slidably engaged with the gripping arm 27.

[0039]

The regulation hole 33 is provided in the gear box 26 for kneading and gripping drive (in a main body side of the massage mechanism 7) so that the shaft center is oriented in the left and right direction. In an outer peripheral surface of the regulation hole 33, there is provided one through-hole (orthogonal hole) 33a penetrating in a direction substantially orthogonal to the shaft center of the regulation hole 33.

Upon inserting the regulation pin 32 into the through-hole 30 of the protruding part 29b and further inserting into the regulation hole 33, an engagement pin is inserted into the orthogonal hole 33a of the regulation hole 33 and into a through-hole 32a of the regulation pin 32, so that the gripping arm 27 is thereby coupled to the main body side of the massage mechanism 7 and is made rotatable about the shaft center of the regulation pin 32, and thus the gripping arm 27 is regulated from adjoint-rotating with the rotating shaft 17.

[0040]

Note that, the regulation pin 32 may be fixedly formed at the distal end of the protruding part 29b so as to protrude inward in a widthwise direction.

In addition, contrary to the present embodiment described above, the regulation hole 33 may be formed

in a side of the gripping arm 27 and the regulation pin 32 may be fixedly provided at a position opposite thereto (e.g., a main body side of the massage mechanism 7). That is, the positions for disposing the regulation pin 32 and the regulation hole 33 may be reversed.

[0041]

Further, in the present embodiment, although the regulation pin 32 and the regulation hole 33 are used, these members are not necessarily required to be members such as pins (rod bodies) or cylindrical members. That is, any configuration is sufficient so long as the member denoted by reference numeral 32 engages with the member denoted by reference numeral 33 to prevent the gripping arm 27 from co-rotation with the rotating shaft 17.

By the way, as shown in Figs. 5 and 7, in the intermediate portion in the longitudinal direction of the gripping arm 27, there is formed a groove portion 34 extending from one side to the other side of the gripping arm 27. This groove portion 34 is formed as a substantially rectangular shaped hole in side view with its opening oriented in the left and right direction. The groove portion 34 has an edge (side) 35 extending in a direction from one side to the other side being made slightly longer than an edge in a direction orthogonal thereto.

[0042]

A slider 36 is adapted to be fitted into the groove portion 34 such that the slider 36 slidably reciprocates between one side and the other side in the groove portion 34.

The slider 36 is a thin plate piece, and a pair of left and right sliders are disposed so as to hold the groove portion 34 of the gripping arm 27. This slider 36 includes a pair of side wall surfaces 37 which abut to the long edges (long sides) 35 provided in the groove portion 34. That is, a distance between the pair of side wall surfaces 37 provided on the slider 36 is the same as the distance between the pair of opposing long edges 35 in the groove portion 34. Further, one end of the slider 36 to be used as an outer periphery of the gripping arm 27 is flange-shaped.

[0043]

Further, in a center portion of the slider 36, there is formed an annular through-hole 38 with its opening oriented in the left and right direction. This through-hole 38 serves as a second annular fitting portion to be fitted to an eccentric cam surface 40 formed on an outer peripheral surface of an eccentric boss part 39.

The slider 36 is inserted so that the side wall

surface 37 slidably abuts to the long edge 35 of the groove portion 34, and the flange portion abuts to the gripping arm 27 and the eccentric boss part 39 is slidably fitted to the second annular fitting portion 38, and thus the slider 36 is engaged with the gripping arm 27 slidably from one side to the other side.

[0044]

Further, the massage mechanism 7 of the present embodiment is provided with gripping massage means adapted to perform a gripping massage by holding a treatment region between the first treatment element 13 of the first arm 11 and the gripping treatment element 28 of the gripping arm 27.

The gripping massage means is configured to drive the gripping arm 27 so that the gripping treatment element 28 disposed at a distal end side is moved close to and separated from the first treatment element 13.

[0045]

This gripping massage means includes: the rotating shaft 17 for transmitting a rotational drive force of the drive motor; the eccentric boss part 39 eccentrically attached to the rotating shaft 17 and having the eccentric cam surface 40 formed on the outer peripheral surface; the second annular fitting portion 38 fitted to the eccentric cam surface 40 of the eccentric boss part 39

and the regulation part 31 for regulating the gripping arm 27 from adjoint-rotating with the rotating shaft 17.

[0046]

In specific, gripping massage means includes the eccentric boss part 39 integrally rotatable with respect to the rotating shaft 17 and the regulation part 31, similarly to the inclined boss part 18 described above.

In the present embodiment, the eccentric boss part 39 and the inclined boss part 18 are integrally formed members, and a pair of left and right thereof are disposed. That is, the eccentric boss part 39 is provided inside the inclined boss part 18 in the widthwise direction. Note that, the eccentric boss part 39 and the inclined boss part 18 may be separate members. For example, the eccentric boss part 39 may be attached to a position adjacent to the inclined boss part 18.

[0047]

On the outer peripheral surface of the eccentric boss part 39, there is formed the eccentric cam surface 40 having an orbit eccentric to the shaft center of the rotating shaft 17, so that the eccentric cam surface 40 draws an orbit eccentric to the shaft center of the rotating shaft 17 in the case where the rotating shaft 17 is rotated.

Further, the second annular fitting portion 38

formed on the slider 36 is slidably fitted from the outside to the eccentric cam surface 40 of this eccentric boss part 39.

[0048]

That is, a position on the rotating shaft 17 where the eccentric boss part 39 (gripping arm 27) is located inside the proximal end portion of the massage member 10 in the widthwise direction of the rotating shaft 17 and adjacent to the inclined boss part 18.

In this gripping massage means, a rotational drive force outputted by the kneading and gripping drive motor 25 is decelerated to a predetermined speed in the gear box 26 for kneading and gripping drive and transmitted to the rotating shaft 17, and in the case where the rotating shaft 17 is rotationally driven about the axis oriented in the left and right direction, the proximal end portion of the gripping arm 27 externally fitting the eccentric boss part 39 via the second annular fitting portion 38 slides (rotates) about the shaft center of the rotating shaft 17 in an eccentric state, along the eccentric cam surface 40 which circulates about the shaft center of the rotating shaft 17 in an eccentric state.

[0049]

Then, the gripping arm 27 including the gripping treatment element 28 becomes swingable in a direction

to be moved close to and separated from the first arm 11 including the first treatment element 13.

At this time, the regulation pin 32 is fitted into and engaged with the through-hole 30 provided in the protruding part 29b of the gripping arm 27 and the regulation hole 33 provided in the gear box 26 for kneading and gripping drive, thereby regulating the gripping arm 27 and the eccentric boss part 39 from integrally rotating.

[0050]

Further, since the regulating pin 32 is allowed to move only along the vertical direction in a state of being fitted into the through-hole 30 and the regulation hole 33 of the protruding part 29b, the distal end of the protruding part 29a of the gripping arm 27 provided with the gripping treatment element 28 results in repeating reciprocating movement in the back and forth direction and the vertical direction.

In this way, since the gripping treatment element 28 of the gripping arm 27 that reciprocally moves in the back and forth direction and the vertical direction repeats the reciprocal swinging such that it relatively moves close to and separates from the first treatment element 13 of the first arm 11 which swings in the left and right direction, it becomes possible to perform a

gripping massage by holding a treatment region between the gripping treatment element 28 and the first treatment element 13.

[0051]

That is, the gripping treatment element 28 and the first treatment element 13 become possible to perform a gripping massage operation by, for example, gripping and releasing a shoulder region.

Also, a structure of the gripping arm 27 of the present embodiment may be considered as follows.

That is, the gripping treatment element 28 is provided at the distal end side of the gripping arm 27, and the through-hole 30 through which the regulation pin 32 penetrates is formed in the proximal end side of the arm 27, and the groove portion 34 is formed in the intermediate portion of the gripping arm 27, and the eccentric cam surface 40 rotating by the slider 36 and the rotating shaft 17 is configured to be fitted into this groove portion 34.

[0052]

By the way, in the massage mechanism 7 of the present embodiment, there is provided tapping massage means generating a tapping massage operation for a treatment region using the first treatment element 13 of the first arm 11 and the second treatment element 14 of the second

arm 12.

In specific, as shown in Fig. 4, the tapping massage means includes: a tapping drive motor 42 disposed in the rear side of the massage mechanism 7; a tapping drive shaft 41 provided above the tapping drive motor 42; the coupling arm 22 for externally fitting the tapping drive shaft 41, and the protruding piece 21 formed on the massage member 10 and coupling the coupling arm 22.

[0053]

The tapping drive shaft 41 is a shaft attached in a manner of being oriented in the left and right direction and it is allowed to be rotationally driven by the tapping drive motor 42. The tapping drive motor 42 is disposed so that an output shaft thereof is oriented upward. A gear box 43 for tapping drive is disposed above this tapping drive motor 42. In the gear box 43 for tapping drive, the output shaft of the tapping drive motor 42 is inserted and the tapping drive shaft 41 is penetratingly disposed.

[0054]

Cylindrical tapping boss parts 44 are attached to both end sides of this tapping drive shaft 41 in a state of being eccentric to the shaft center of the tapping drive shaft 41. Each tapping boss part 44 is rotatably loosely fitted to the third annular fitting portion 24

provided at the proximal end portion of the coupling arm 22 and is adapted to externally fit the tapping drive shaft 41.

That is, in the case where the tapping drive shaft 41 is rotated by the tapping drive motor 42, the tapping boss part 44 attached in the eccentric state is eccentrically rotated about the shaft center of the tapping drive shaft 41 and the third annular fitting portion 24 loosely fitting the tapping boss part 44 is also eccentrically rotated, and therefore the coupling arm 22 swings in the vertical direction.

[0055]

Then, in accordance with the eccentric rotation of the third annular fitting portion 24 of the coupling arm 22, the proximal end portion side of the massage member 10 is to reciprocate and rotate so as to repeat forward rotation and reverse rotation about the shaft center of the rotating shaft 17, and therefore it becomes possible to give the tapping massage operation tapping the first treatment element 13 of the first arm 11 and the second treatment element 14 of the second arm 12 alternately on a treatment region.

[0056]

According to the massage mechanism 7 of the present invention described above, it becomes possible to realize

a desire of, for example, a shoulder kneading operation (gripping massage) as being treated with a shoulder gripped by a person, by holding a treatment region between the gripping treatment element 28 and the first treatment element 13 opposite thereto.

Further, in the present invention, since the first arm 11 including the first treatment element 13 and the gripping arm 27 including the gripping treatment element 28 perform a smooth gripping massage operation, a treatment region is not strongly held. Further, since the gripping treatment element 28 provided at the distal end portion of the gripping arm 27 of the present embodiment moves as sliding (performs an arcuate movement) along a case (not shown) (a case covering the kneading and gripping drive motor 25 and the like) without a gap, there is no possibility of inconveniences such as an object caught between the gripping treatment element 28 and the case not shown.

[0057]

It is to be understood that each embodiment disclosed this time is an example in all respects and is not restrictive. In particular, in each embodiment disclosed this time, items which are not explicitly disclosed, for example, operating conditions or handling conditions, and various parameters, dimensions, weights,

and volumes of constituents, are not deviated from a range generally adopted by those skilled in the art, adopting values that can be easily perceived by those ordinary skilled in the art.

[0058]

For example, in the present specification, the explanation of the chair-type massage machine 1 is made as an example, it is also possible to mount the massage mechanism 7 on a seat-type massage machine, a seat-chair type massage machine, and a hand-hold type massage machine.

[Reference Signs List]

[0059]

- 1 ...Chair-type massage machine
- 2 ... Seat part
- 2a ... Seat surface
- 3 ... Backrest part
- 3a ...Backrest surface
- 4 ... Armrest part
- 4a ... Left armrest part
- 4b ... Right armrest part
- 5 ... Footrest part
- 6 ... Support frame
- 6a ... Support frame (Seat part)
- 6b ... Support frame (Backrest part)

7 ... Massage mechanism  
8 ... Lower limb insertion part  
9 ... Storage chamber  
10 ... Massage member  
11 ... First arm  
12 ... Second arm  
13 ... First treatment element  
14 ... Second treatment element  
15 ... Shaft part (extending arrangement direction)  
16 ... Shaft part (vertical direction)  
17 ... Rotating shaft  
18 ... Inclined boss part  
19 ... Inclined cam surface  
20 ... First annular fitting portion  
21 ... Protruding piece  
21a ... Spherical body  
22 ... Coupling arm  
23 ... Concave portion  
24 ... Third annular fitting portion  
25 ... Kneading and gripping drive motor  
26 ... Gear box for kneading and gripping drive  
27 ... Gripping arm  
28 ... Gripping treatment element  
29 ... Protruding part  
29a ... Protruding part positioned on lower side

29b ... Protruding part positioned on upper side  
30 ... Through-hole  
31 ... Regulation part  
32 ... Regulation pin  
32a ... Through-hole  
33 ... Regulation hole  
33a ... Orthogonal hole (Through-hole)  
34 ... Groove portion  
35 ... Long edge (side)  
36 ... Slider  
37 ... Side wall surface  
38 ... Second annular fitting portion (Through-hole)  
39 ... Eccentric boss part  
40 ... Eccentric cam surface  
41 ... Tapping drive shaft  
42 ... Tapping drive motor  
43 ... Gear box for tapping drive (guide body)  
44 ... Tapping boss part  
45 ... Movement rail

## CLAIMS

1. A massage mechanism comprising: a gripping arm provided with a gripping treatment element for performing a gripping massage on one side; a kneading arm provided with a kneading treatment element for performing a kneading massage on one side; and gripping massage means adapted to drive the gripping arm, wherein

the gripping massage means drives the gripping arm so that the gripping treatment element is moved close to and separated from the kneading treatment element.

2. The massage mechanism according to claim 1, wherein the gripping massage means comprises:

a rotating shaft for transmitting a rotational drive force of a drive motor;

an eccentric boss part attached to the rotating shaft in an eccentric state and having a cam surface formed on an outer peripheral surface;

an annular fitting portion provided on the gripping arm and fitted to the cam surface of the eccentric boss part; and

a regulation part for regulating the gripping arm from adjoint-rotating in accordance with a rotation of the rotating shaft.

3. The massage mechanism according to claim 2, wherein the gripping arm has a proximal end portion attached to the rotating shaft in an eccentric state,

there are formed two protruding parts protruding from the proximal end portion of the gripping arm toward directions separated from each other, and

the gripping treatment element is provided at a distal end of one of the protruding parts and the regulation part is provided at a distal end of the other of the protruding parts.

4. The massage mechanism according to claim 3, wherein the regulation part comprises: a regulation pin provided at the distal end of the protruding part protruding toward the other side from the proximal end portion of the gripping arm; and a regulation hole formed in a portion facing the regulation pin for inserting the regulation pin thereinto, and wherein the gripping arm is made rotatable about a shaft center of the regulation pin inserted into the regulation hole and is regulated from adjoint-rotating with the rotating shaft.

5. The massage mechanism according to claim 4, wherein the proximal end portion of the gripping arm is

formed with a groove portion extending from one side to the other side of the gripping arm,

the groove portion is provided with a slider slidably moving in the groove portion, and

a through-hole formed in a center of the slider is used as an annular fitting portion fitted to the cam surface of the eccentric boss part.

6. The massage mechanism according to claim 5, wherein the kneading treatment element is provided at a distal end of the kneading arm, and the rotating shaft penetratingly passes through an intermediate portion or the proximal end portion of the kneading arm, and wherein the kneading arm is adapted to be driven so as to be swung in a left and right direction based on the drive force of the rotating shaft.

7. A chair-type massage machine comprising: a seat part which can be placed on a floor surface and on which a user can seat; and a backrest part which is disposed in a rear portion of the seat part and is provided so as to be able to support a back portion of the user, and wherein the massage mechanism according to any one of claims 1 to 6 is incorporated in the backrest part.