

SPECIFICATION

Title of Invention

MESSAGE DEVICE

Technical Field

[0001]

The present invention relates to a message device.

Background Art

[0002]

There is known a message device that performs a grasping message so as to grasp (sandwich) a treatment region using two treating tips which are vertically moved close to and separated away from each other for treating the treatment region from a shoulder region to a lumbar region through a back of a user.

For example, Patent Literature 1 discloses a message machine that swings a first link with a first treating finger at a distal end and a third link with a second treating finger at a distal end about a proximal end side of each of message members using a parallel link mechanism to grasp the treatment region between the first treating finger and the second treating finger while the first and second treating fingers are moved close to and separated away from each other by the swinging to thereby

perform a grasping massage.

[0003]

The massage machine disclosed in Patent Literature 1 mentioned above includes a rail member along a vertical direction inside a backrest, and the massage machine main body vertically moves along the rail member. The first massage member and the second massage member are provided in this massage machine main body. That is, in the case where the massage machine main body is positioned at the upper end side of the rail member, a grasping massage is performed to the treatment region of the shoulder region. In the case where the massage machine main body is positioned at the middle side or lower end side of the rail member, a grasping massage is performed to the treatment region of the lumbar or back region.

Citation List

Patent Literature

[0004]

Patent Literature t 1: Japanese Unexamined Patent Publication JP-A1998-258103

Summary of Invention

Technical Problem

[0005]

By the way, in the massage machine of Patent Literature 1 mentioned above adapted to perform a massage

not only to a shoulder region but also to a lumbar region, there arises a large difference in distance from the massage machine main body to the respective treatment regions. That is, since the treatment region of the shoulder region is positioned more forward compared to the treatment regions of lumbar and back regions when viewed from the massage machine main body, it is necessary to project the first massage member more forward when massaging the treatment region of the shoulder region. Therefore, in the conventional massage device, the massage of the shoulder region has been performed by providing such as biasing means for biasing the first massage member forward to thereby provide the first massage member projectable more forward.

[0006]

However, in the case where the first massage member is provided movably back and forth, the attitude of the first massage member is easily changed according to a direction of the force acting on the first massage member. For example, in the case where the first massage member is rotatably mounted to such as a rotating shaft, in the case where a large force is applied to the first massage member at such a time of raising the massage machine main body, the massage member is easily rotated about the rotating shaft. As a result, although the attitude of

the massage member is originally preferable to be oriented toward the front and upper side, the attitude of the massage member is oriented towards such as a front and lower side, and therefore the attitude of the massage member becomes unsuitable for treating a treatment region. In the case where a massage is performed while the attitude remains unsuitable, it becomes difficult to obtain a sufficient massage effect.

[0007]

The present invention has been made in consideration of the circumstances described above and its essential object is to provide a massage device capable of retaining a good massage effect while an attitude of a massage member is hardly to change even in the case where the massage member is movably provided in the back and forth (i.e., longitudinal) direction.

Solution to Problem

[0008]

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

That is, a massage device of the present invention includes: a first massage member having a first treating tip provided at its distal end for treating a treatment region of a user; a second massage member having a second

treating tip provided at its distal end in a position below and facing the first treating tip, for treating a treatment region; and

a massage mechanism for swinging the first massage member and the second massage member so as to swing the second treating tip to be close to and away from the first treating tip, wherein the massage mechanism is provided in a forward protruded position with respect to the first treating tip and includes a third treating tip provided in a laterally outer side of the first treating tip and in an upper side with respect to the first treating tip.
[0009]

Preferably, the massage mechanism comprises a rotating shaft extending in a lateral direction and a proximal side of the first massage member is swingable about the rotating shaft, and the first massage member is being biased so as to forward protrude the first treating tip, thereby allowing the massage mechanism to be movable in a vertical direction and allowing the third treating tip of the massage mechanism to cause a force to swing the first treating tip upward at the time of rising of the massage mechanism.

[0010]

Preferably, an upward upswing angle of the third treating tip with respect to the first treating tip is

10 to 40 degrees.

Preferably, a forward protruding amount of the third treating tip with respect to the first treating tip is 10 to 40 mm.

Preferably, a laterally outward protruding amount of the third treating tip with respect to the first treating tip is 5 to 30 mm.

[0011]

Preferably, the massage device further includes: a rotating shaft extending in the lateral direction; a drive unit for driving the rotating shaft to rotate; and a conversion unit for converting a rotational movement of the rotating shaft to a swinging movement, and using the swinging movement caused by the conversion unit, it is configured that the first treating tip is allowed to cause the swinging movement in the lateral direction and the second treating tip is allowed to be moved close to and separated away from the first treating tip.

Advantageous Effects of Invention

[0012]

According to the massage device of the present invention, it becomes possible to retain a good massage effect while the attitude of the massage member is hardly to change even in the case where the massage member is movably provided in the back and forth (i.e.,

longitudinal) direction.

Brief Description of Drawings

[0013]

Fig. 1 is a perspective view of a massage device of the present embodiment;

Fig. 2 is a perspective view of a massage machine main body of the present embodiment, showing a state excluding a left-side first massage member and a left-side second massage member;

Fig. 3A is a diagram showing a massage mechanism in a state of the second massage member being close to the first massage member;

Fig. 3B is a diagram showing the massage mechanism in a state of the second massage member being separated from the first massage member;

Fig. 4 is a cross-sectional view along a line X-X in Fig. 3A;

Fig. 5 is a diagram showing a change in attitude of the massage machine main body when lowering the massage machine main body of the present embodiment;

Fig. 6 is a diagram showing a change in attitude of the massage machine main body when raising the massage machine main body of the present embodiment; and

Fig. 7 is a diagram showing a change in attitude of a conventional massage machine main body when raising

the massage machine main body.

Description of Embodiments

[0014]

Hereinafter, the 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 a massage device 1 of the present embodiment with reference to Figs. 1 to 7.

As shown in Fig. 1, a massage device 1 of the present embodiment is intended to massage all treatment regions S included in a range from a shoulder region to a lumbar region through a back of a user U. This massage device 1 is intended to be used in a state of being built in such as a chair-type massage machine having a massage function in a backrest part.

[0015]

Note that, in the following embodiments, although a chair-type massage machine is described as an example, the massage device 1 of the present invention is not limited to this type and it may be a sheet-type massage

machine and the like which is used in a state of being placed on a backrest of an existing chair or a sofa.

The chair-type massage machine of the present embodiment includes a seat part on which a user U sits and a backrest part provided behind the seat part for the user U to lean on. As shown in Fig. 1, the massage device 1 is built in the backrest part and it is possible to massage the treatment regions S in a range from the shoulder, back, lumbar regions and even more to buttocks of the user U while leaning on the backrest part.

[0016]

The massage device 1 described above includes rail members 3 provided inside the backrest part and extending in a vertical direction, and further includes a massage machine main body 4 which is movable (vertically movable) along a laying direction of the rail members 3.

Straight-type gear portions 39 are provided on the rail members 3 along the laying direction of the rail members 3 (i.e., vertical direction). Meanwhile, the massage machine main body 4 is provided with drive gears (not shown) which are engaged with the straight-type gear portions 39 of the rail members 3, and thus the massage machine main body 4 can be guided along the laying direction of the rail members 3 (i.e., vertical direction).

[0017]

The massage machine main body 4 is a member which is movable along the rail members 3 and includes a first massage member 5 and a second massage member 6 which are protruded toward a side of the treatment regions S. Thus, a target treatment region S is massaged by grasping the target treatment region S between the first massage member 5 and the second massage member 6. In more specific, the massage machine main body 4 includes a first treating tip 7 provided at a distal end of the first massage member 5 for treating the treatment region S of the user U and a second treating tip 8 provided at a distal end of the second massage member 6 in a position below and facing the first treating tip 7, for treating the treatment region S. The massage machine main body 4 further includes a massage mechanism for swinging the first massage member 5 and the second massage member 6 so that the first treating tip 7 and the second treating tip 8 are swung to be close to and away from each other.

[0018]

Next, the first massage member 5, the first treating tip 7, the second massage member 6, the second treating tip 8 and the massage mechanism, which are provided in the massage machine main body 4, will be described.

Note that, in the following description, the

components and members of the device are explained using the directions of arrow marks shown in Figs. 1, 2 and the like. For example, it is assumed that, the left side of the drawing sheet of Fig. 3A represents the front side when explaining the massage device 1 and the right side of the drawing sheet of Fig. 3A represents the rear side when explaining the massage device 1. Further, it is assumed that, the upper side of the drawing sheet of Fig. 3A represents the upper side when explaining the massage device 1 and the lower side of the drawing sheet of Fig. 3A represents the lower side when explaining the massage device 1. Note that these directions are appropriately denoted by the arrow marks shown in the drawings.

[0019]

As shown in Figs. 1 to 4, the first massage member 5 is an elongated rod-shaped member extending from the rear side toward the front side. The first massage member 5 is formed to have its rear end side (i.e., proximal end side) being thicker compared to its front end side (i.e., distal end side) and the first treating tip 7 is provided on the narrow front end side of the first massage member 5 for massaging the treatment region S of the user U by contacting therewith. Further, a first annular fitting portion 10 is provided on the rear end side of the first massage member 5, and by fitting this

first annular fitting portion 10 to an outer circumference of an inclined boss portion 12 provided on the rotating shaft 11 to be described later, the rotational driving force of the rotating shaft 11 can be transferred to the first massage member 5.

[0020]

The first treating tip 7 is swingable along the lateral direction to be in contact with the treatment region S of the user U from one side thereof (i.e., from the upper side in the case of massaging the treatment region S of the back). Meanwhile, the second treating tip 8 is in contact with the treatment region S from the other side thereof (i.e., from the lower side in the case of massaging the treatment region S of the back). Thus, by grasping the treatment region S between the first treating tip 7 and the second treating tip 8, the grasping massage is performed to the treatment region S. Although the first treating tip 7 is formed to have a spherical shape in the illustrated example, it may be formed to have various shapes such as a disk-shape or the like.

[0021]

As shown in Figs. 1 to 4, the second massage member 6 is an elongated member extending in a back and forth (i.e., longitudinal) direction similarly to the first massage member 5. The rear end of the second massage

member 6 is located in a front side of the rear end of the first massage member 5 and the front end of the second massage member 6 is located in a rear side of the front end of the first massage member 5, and therefore the length of the second massage member 6 in the back and forth (i.e., longitudinal) direction is shorted compared to that of the first massage member 5. In the front end side of the second massage member 6, there is provided a pivot pin 13 which passes through the second massage member 6 in the lateral direction. On this pivot pin 13, there is provided the second treating tip 8 for massaging the treatment region S of the user U by contacting with the treatment region S. Further, a second annular fitting portion 14 is provided in a middle side of the thickest portion of the second massage member 6 in the back and forth direction. This second annular fitting portion 14 is also a cylindrical member with its axis oriented in the lateral direction similarly to the first annular fitting portion 10, and by fitting this second annular fitting portion 14 to an outer circumference of an eccentric boss portion 15 provided on the rotating shaft 11, it is configured that the rotational driving force of the rotating shaft 11 is transferred to the second massage member 6. Further, a crank member 17 of a second restricting portion 16 to be described later

is coupled to the rear end side of the second massage member 6 which is thinner compared to the middle side thereof, in a manner of being rotatable about a shaft oriented in the lateral direction.

[0022]

The second treating tip 8 is in contact with the treatment region S of the user U from an opposite side to the first treating tip 7 (i.e., from the lower side in the case of massaging the treatment region S of the back), and by grasping the treatment region S between the first treating tip 7 and the second treating tip 8, the grasping massage is performed to the treatment region S. The second treating tip 8 is disk-shaped and it is attached to the distal end side of the second massage member 6 in a manner of being rotatable about a shaft oriented in the lateral direction.

[0023]

The massage mechanism is intended to perform a kneading massage to the treatment region S by swinging the first massage member 5 in the lateral direction and also perform a grasping massage to the treatment region S grasped between the first treating tip 7 of the first massage member 5 and the second treating tip 8 of the second massage member 6 by swinging the second massage member 6 in the vertical direction.

Specifically, the massage mechanism includes: the rotating shaft 11 provided with its axis oriented in the lateral direction; a drive unit 18 (i.e., drive motor) for driving the rotating shaft 11; and a conversion unit 19 for converting a rotational movement of the rotating shaft 11 to a swinging movement.

[0024]

The rotating shaft 11 is a shaft member provided in the lower side of the massage mechanism main body 4 with its axis oriented in the lateral direction. Specifically, bearing portions 20 are provided on the left side in the front and lower side of the massage machine main body 4 and the rotating shaft 11 is bridged along the lateral direction between the left-side bearing portions 20. Thus, the rotating shaft 11 is rotatably supported by these bearing portions 20 about an axis oriented in the lateral direction.

[0025]

As shown in detail in Fig. 2, a worm wheel 21 is rotatably provided in the left and lower side of the massage machine main body 4 with its axis oriented in the lateral direction, and on the rotating shaft 11 located in the right side of the worm wheel 21, there is provided a driven gear 22 which is engaged with the worm wheel 21. Further, in the middle side of the

rotating shaft 11 in the longitudinal direction, there are provided an inclined boss portion 12 for transferring the rotational driving force of the rotating shaft 11 to the first massage member 5 and an eccentric boss portion 15 for transferring the rotational driving force of the rotating shaft 11 to the second massage member 6.

[0026]

The drive unit 18 (i.e., drive motor) is provided in the left and lower side of the massage machine main body 4 with its output shaft 18a extending downward. The output shaft 18a of this drive unit 18 is provided with a worm gear (not shown) and this worm gear is integrally formed with the driven gear 22 with their axes aligned on the same line to each other. Therefore, in the case where the driven gear 22 is engaged with the worm wheel 21, the rotational driving force generated by the drive unit 18 can be transferred to the worm gear, the worm wheel 21 and the driven gear 22 in this order are transferred to the rotating shaft 11 at a predetermined reduction ratio and it becomes possible to rotate the rotating shaft 11 at a desired rotational speed.

[0027]

The conversion unit 19 is configured to transfer the rotational driving force of the rotating shaft 11

rotating about its axis oriented in the lateral direction to the first massage member 5 and the second massage member 6 to thereby swing the first massage member 5 so that the first treating tip 7 is moved along the lateral direction and swing the second massage member 6 so that the second treating tip 8 is moved along the back and forth direction (i.e., longitudinal direction).

Specifically, the conversion unit 19 includes: the inclined boss portion 12 having an inclined cam surface 26 orbiting about the axis of the rotating shaft 11 in an inclined orbit with respect to the axis of the rotating shaft 11; the first annular fitting portion 10 provided in the proximal end side (lower end side) of the first massage member 5 and slidably fitted to the inclined cam surface 26 of the inclined portion 12; and a first restricting portion 27 for restricting a rotation of the first massage member 5 accompanying the rotation of the rotating shaft 11.

[0028]

Further, the conversion unit 19 includes: the eccentric boss portion 15 having an eccentric cam surface 28 orbiting about the axis of the rotating shaft 11 in an eccentric orbit with respect to the axis of the rotating shaft 11; the second annular fitting portion 14 provided in the proximal end side (rear end side) of

the second massage member 6 and slidably fitted to the eccentric cam surface 28 of the eccentric portion 15; and the second restricting portion 16 for restricting an accompanying rotation of the second massage member 6 accompanying the rotation of the rotating shaft 11.

[0029]

The following describes first of all the members for swinging the first massage member 5 (i.e., laterally moving the first treating tip 7), that is, the first annular fitting portion 10, the inclined portion 12 and the first restricting portion 27 among the members constituting the conversion unit 19.

The first annular fitting portion 10 is a member for converting the rotational driving force of the rotating shaft 11 of the massage mechanism to a translational movement reciprocating along the lateral direction and the resultant converted movement is transferred to the first massage member 5. Specifically, the first annular fitting portion 10 is a cylindrical member provided in the proximal end side of the first massage member 5 and it is provided with its axis oriented in the inclined direction with respect to the axis of the rotating shaft 11.

[0030]

One pair of the inclined bosses 12 are arranged in

separation into right and left sides in the middle sides in the lateral direction of the rotating shaft 11. Each of the inclined bosses 12 is a cylindrical member with its axis oriented in the lateral direction and it is mounted on the rotating shaft 11 so as to be coaxial with the axis of the rotating shaft 11. On the outer peripheral surface of the inclined boss portion 12, there is formed the inclined cam surface 26 which can guide the first annular fitting portion 10 mentioned above.

This inclined cam surface 26 of the inclined boss portion 12 is formed to have an endless orbit orbiting about the axis inclined with respect to (the axis of) the rotating shaft 11. Bearings are slidably fitted to the inclined cam surface 26 of the inclined boss portion 12 and the second annular fitting portion 14 is made slidable along the inclined cam surface 26 of the inclined boss portion 12 by the bearings.

[0031]

The first restricting portion 27 is a member for restricting the rotation of the first mass member 5 accompanying the rotation of the rotating shaft 11, and by restricting the accompanying rotation, the first mass member 5 is allowed to swing only in the lateral direction. The first restricting portion 27 of the present embodiment includes: a protruding piece 29

provided on the rear end side of the first massage member 5; and a joint arm 30 vertically extending downward from the massage machine main body 4, and by coupling the protruding piece 29 and the joint arm 30 via a ball joint, the first restricting portion 27 is configured to restrict the rotation of the first massage member 5.

[0032]

As shown in detail in Fig. 4, the projecting piece 29 projecting inward in the width direction is formed in the rear end side (proximal end side) of the first massage member 5 as described above. This projecting piece 29 has a projection end formed to be spherical and the joint arm 30 is pivotally supported on the spherical projection end via a ball joint. Further, the joint arm 30 is an elongated rod-shaped member extending in the vertical direction, and one end thereof in the longitudinal direction is coupled to the distal end of the projecting piece 29 and the other end thereof in the longitudinal direction is coupled to the drive unit 18 for a tapping massage to be described later. Moreover, the longitudinal middle side of the joint arm 30 is swingably coupled about an axis oriented in the back and forth direction, and the joint arm 30 is freely bendable in the lateral direction.

[0033]

That is, in the first restricting portion 27, since the rear end side of the first massage member 5 is coupled to the massage machine main body 4 via the projecting piece 29 and the joint arm 30, the first massage member 5 is prevented from accompanying the rotation of the rotating shaft 11 even if the first massage member 5 is urged to accompany the rotation of the rotating shaft 11. Meanwhile, since the joint arm 30 is bendable in the lateral direction, the first massage member 5 is allowed to be swung along the lateral direction. Therefore, with this first restricting member 27, the first massage member 5 is made swingable only in the lateral direction while restricting the swing in the back and forth direction.

[0034]

Next, the following describes first of all the members for swinging the second treating tip 8, that is, the second annular fitting portion 14, the eccentric boss portion 15 and the second restricting portion 16 among the members constituting the conversion unit 19.

The second annular fitting portion 14 is a member for converting the rotational driving force of the rotating shaft 11 of the massage mechanism to a translational movement reciprocating along the back and forth direction and the resultant converted movement is

transferred to the second massage member 6.
Specifically, the second annular fitting portion 14 is a cylindrical member provided in the proximal end side of the second massage member 6. The inner circumferential diameter of the second annular fitting portion 14 is substantially the same as the outer circumferential diameter of the eccentric cam surface 28 of the eccentric boss portion 15 and the second annular fitting portion 14 is slidably fitted to the eccentric cam surface 28 of the eccentric boss portion 15.

[0035]

One pair of the eccentric boss portions 15 are provided on the axial intermediate portion (i.e., middle side in the lateral direction) of the rotating shaft 11 while each of the eccentric boss portions 15 is adjacent to the inside of the inclined boss portion 12. Each of the eccentric boss portions 15 is formed in a cylindrical shape having its axis oriented in the lateral direction, and the rotating shaft 11 oriented in the lateral direction is inserted to the inside of each of the eccentric boss portions 15 so as to pass through the same.

Note that the eccentric boss portion 15 is mounted on the rotating shaft 11 in an eccentric state so that the axis of the eccentric boss portion 15 passes differently (i.e., to have different axis) from the axis

of the rotating shaft 11 and the eccentric boss portion 15 is made rotatable in an eccentric state with respect to the axis of the rotating shaft 11. Further, the eccentric cam surface 28 is formed on the outer circumferential surface of the eccentric boss portion 15, and in the case where the eccentric boss portion 15 is rotated in the eccentric state with respect to the axis of the rotating shaft 11, the eccentric cam surface 28 is also adapted to orbit in an eccentric orbit with respect to the axis of the rotating shaft 11.

[0036]

The second restricting portion 16 is a member for restricting the rotation of the second massage member 6 accompanying the rotation of the rotating shaft 11, and in the present embodiment, it is composed of the crank member 17 provided between the rear end side of the second massage member 6 and the massage machine main body 4. Specifically, the second restricting member 16 is an elongated (elliptical) plate member extending in an inclined manner from the rear and lower side toward the front and upper side when viewed from the lateral direction. One end side (front end side) in the longitudinal direction of the second restricting portion 16 is coupled to the rear end side of the second massage member 6 rotatably about an axis oriented in the lateral

direction. Further, the other end side (rear end side) in the longitudinal direction of the second restricting portion 16 is coupled to the front surface of the massage machine main body 4 rotatably about an axis oriented in the lateral direction. Therefore, since the rear end side of the second massage member 6 is coupled to the massage machine main body 4 via the second restricting member 16, the second massage member 6 is prevented from accompanying the rotation of the rotating shaft 11 even if the second massage member 6 is urged to accompany the rotation of the rotating shaft 11. Meanwhile, since the crank member 17 constituting the second restricting member 16 is swingable in the back and forth direction, the second massage member 6 is allowed to be swung along the back and forth direction. Therefore, with this second restricting member 16, the second massage member 6 is made swingable in the back and forth direction and vertical direction while restricting the swing in the lateral direction.

[0037]

By the way, in the massage mechanism described above, the first treating tip 7 is adapted to swing along the lateral direction while the second treating tip 8 is adapted to swing along the back and forth direction, and these first and second treating tips 7 and 8 are

repeatedly close to and separated away from each other. Thus, it is possible to perform an effective grasping massage to a treatment region S by grasping the treatment region S between the first treating tip 7 and the second treating tip 8.

However, since the treatment region S of the shoulder region is positioned forward compared to the treatment regions S of the lumbar and back regions among the treatment regions in a range from the shoulder region to the lumbar region (or buttocks), in order to perform a satisfactory massage to the treatment region S of the shoulder region, it is necessary to project the first treating tip 7 further forward from the treatment regions S of the lumbar and back regions to thereby bring the first treating tip 7 into contact with the treatment region S of the shoulder region.

[0038]

Therefore, in the massage device 1 of the present invention, biasing means 31 is provided for biasing the first massage member 5 forward to thereby project the first treating tip 7, and thus a satisfactory massage can be also performed to the treatment region S of the shoulder region in the forward position as well.

Specifically, the biasing means 31 includes: a guide member 32 provided along the vertical direction;

a tapping drive unit 33 which is vertically movable along the guide member 32; a spring member 34 for biasing the tapping drive unit 33 upward; and a casing 35 for accommodating the guide member 32 and the tapping drive unit 33.

[0039]

The guide member 32 is a rod-shaped member vertically provided near the front side of the massage machine main body 4. One pair of the right and left guide members 32 are provided in the intermediate side in the lateral direction of the massage machine main body 4. And these guide members 32 vertically extend and pass through the casing 35, thereby making it possible to vertically guide the tapping drive unit 33 accommodated in the casing 35. Further, the spring member 34 having a winding diameter slightly larger than the outer diameter of the guide member 32 is wound around the guide member 32, thereby making it possible to bias the tapping drive unit 33 upward with respect to the massage machine main body 4.

[0040]

The tapping drive unit 33 includes: a tapping drive motor (not shown) provided in the rear side of the massage machine main body; a tapping rotating shaft 36 which is rotationally driven by the tapping drive motor; and the

casing 35 to which the tapping drive motor and the tapping rotating shaft 36 are attached. The tapping rotating shaft 36 is provided so as to pass through the casing 35 in the lateral direction with its axis oriented in the lateral direction with its both end sides further protruded outward the casing 35. Cylindrical tapping boss portions 37 are attached to the both end sides of the outward protruded tapping rotating shaft 36 in a state of being eccentric with respect to the axis of the rotating shaft 36. And the other end of the joint arm 30 described above is coupled to each of the tapping boss portions 37. Therefore, in the case where the tapping rotating shaft 36 is rotated by the tapping drive unit 33, the tapping boss portions 37 mounted on the both end sides of the tapping rotating shaft 36 are eccentrically rotated, and this results in that the joint arm 30 with its other end side coupled to each of the tapping boss portions 37 performs a crank movement.

[0041]

As described above, the spring member 34 is wound around the guide member 32, thereby making it possible to exert a biasing force in the vertical direction. The upper end of the spring member 34 is fixed to the casing 35 and the lower end of the spring member 34 is fixed to the massage machine main body 4, so that the casing

35 can be biased upward with respect to the massage machine main body 4.

That is, according to the biasing means 31 described above, the casing 35 is biased upward with respect to the massage machine main body 4 by the biasing force of the spring member 34 and the biasing force is also applied upward to the tapping rotating shaft 36 accommodated in the casing 35. Then, the upward force is applied to the rear end side of the first massage member 5 via the joint arm 30 and the protruding piece 29 and a force is applied in a direction of protruding the first treating tip 7 forward. That is, in the case where a massage is performed to the treatment region S of the shoulder region which is positioned forward relative to the treatment region S of the lumbar region, the first massage member 5 swings forward about the rotating shaft 11 to thereby protrude the first treating tip 7 forward. Thus, it becomes possible to perform a sufficient grasping massage also to the treatment region S of the shoulder region.

[0042]

By the way, the massage device 1 of the present invention is characterized in that, the massage mechanism includes a third treating tip 40, which is provided in a position protruded forward with respect to the first treating tip 7, is provided outside the first treating

tip 7 in the lateral direction and that this third treating tip 40 is provided in the upper side of the first treatment tip 7.

Specifically, in the middle side of the first massage member 5 in the back and forth (i.e., longitudinal) direction, there is provided an arm-shaped third massage member 38 further extending outwardly in the width direction from the middle side. This third massage member 38 is extending outwardly in the width direction and then bending forward at the middle in the longitudinal direction, and the third treating tip 40 is provided on the front end side of the third massage member 38.

[0043]

The third treating tip 40 is a disk-shaped member having a diameter larger than those of the first and second treating tips 7 and 8, and this third treating tip 40 is rotatable about its axis oriented in the lateral direction. Further, the third treating tip 40 is formed with a soft resin such as PVC, and it is considered for a user U not to be affected by an adversely pain even in contact with the user U.

Further, the third treating tip 40 is positioned in the front and upper side in the outside in the width direction when considering the middle side of the first

massage member 5 as a reference. More specifically, this third treating tip 40 is preferably provided at a position as shown in the following.

[0044]

That is, when considering the position of the first treating tip 7 as a reference, the third treating tip 40 may have an upward angle θ of 5 to 40 degrees, preferably 15 to 30 degrees above the first treating tip 7. More specifically, as shown in Fig. 3A, the angle θ made by a line connecting between the center of the first treating tip 7 and the center of the rotating shaft 11 and a line connecting between the center of the third treating tip 40 and the center of the rotating shaft 11, is, for example, 20 degrees.

[0045]

Further, a forward projection amount δ of the third treating tip 40 with respect to the first treating tip 7 is 5 to 40mm, preferably may be 10 to 30mm. More specifically, as shown in Fig. 3A, the distance δ between the distal end of the first treating tip 7 in the back and forth direction and the distal end of the third treating tip 40 in the back and forth direction is set to, for example, 15mm. This distance is substantially the same as a half of the diameter of the first treating tip 7.

Moreover, a projection amount λ in the lateral direction of the third treating tip 40 with respect to the first treating tip 7 may be 5 to 30mm, preferably 10 to 20mm. More specifically, as shown in Fig. 4, the distance λ between the center of the first treating tip 7 and the inner side edge of the third treating tip 40 in the width direction is set to, for example, 10mm. This distance is substantially the same as a half of the diameter of the first treating tip 7.

[0046]

Thus, by providing the third treating tip 40 at a position protruding forward and upward with respect to the first treating tip 7, in the case where the first massage member 5 is moved upward, the first treating tip 7 is strongly brought in contact with the user U. Therefore, even though a large downward force is applied to the distal end of the first massage member 5, the first massage member 5 is hardly to rotate about the rotating shaft 11 and it becomes possible to retain the attitude of the first massage member 5.

[0047]

Further, by providing the third treating tip 40 at the same position (i.e., $\lambda = 0\text{mm}$) as the first treating tip 7 in the lateral direction, the third treating tip 40 may be disadvantageously brought into contact with

the crest of neck or head of the user U when massaging the shoulder by the first treating tip 7. However, by positioning the third treating tip 40 outside (i.e., $\lambda = 5$ to 30mm) the first treating tip 7 in the lateral direction, there is no fear that the third treating tip 40 may be brought into contact with the crest of neck or head of the user U when massaging the shoulder by the first treating tip 7.

[0048]

Note that, in the case where the projection amount λ in the lateral direction of the third treating tip 40 with respect to the first treating tip 7 is extremely large ($\lambda > 30\text{mm}$), although there is no possibility of the third treating tip 40 being brought into contact with the crest of neck or head of the user U, the third treating tip 40 may be disadvantageously brought into contact with the flanks or ribs of the user U when massaging the back region of the U by the first treating tip 7. Therefore, it is not preferable that the outward projection amount λ of the third treating tip 40 is larger than 30mm.

[0049]

More specifically, according to the massage device 1 including the third treating tip 40 as described above, the massage is performed as follows.

That is, as shown in Fig. 5 (a), in the case where

the massage machine main body 4 is positioned in the upper end side of the rail member 3, the first massage member 5 is in a state of being projected forward by the biasing force of the biasing means 31, and it becomes possible to perform the grasping massage to the treatment region S of the shoulder region by grasping the treatment region S of the shoulder region between the forward projected first treating tip 7 and the second treating tip 8.

[0050]

Next, it is assumed that the massage machine main body 4 in the state shown in Fig. 5 (a) is lowered along the rail member 3 and the height of the massage machine main body 4 becomes equal to the height of the treatment region S of the back as shown in Fig. 5 (b).

In this state, since the treatment region S of the back is positioned in the rear side with respect to the treatment region S of the shoulder region, the first treating tip 7 is positioned more rearward and takes a front and upward attitude. That is, in the state shown in Fig. 5 (b), the first massage member 5 is further swung rearward against the biasing force of the biasing means 31 and the position thereof is displaced more rearward compared to the position of the first treating tip 7. Therefore, it becomes possible to massage the treatment region S of the back by the first treating tip 7.

[0051]

After the state shown in Fig. 5 (b), the treatment region S treated by the massage device 1 is changed from the back to the buttocks through the lumbar region as shown in Fig. 5 (c) or Fig. 5 (d). However, the attitude of the first massage member 5 remains substantially in the same attitude as in the state shown in Fig. 5 (b), that is, the attitude as positioning the first treating tip 7 in the front upper side of the rotating shaft 11 is retained.

That is, when the massage machine main body 4 is lowered, the biasing force caused by the biasing means 31 acts in the direction of swinging the first massage member 5 forward. However, upon contacting the first massage member 5 with the treatment region S, the force is also applied to the first massage member 5 in the direction of swinging the first massage member 5 rearward, and therefore these forward force and rearward force are counterbalanced each other, so that the attitude of the first massage member 5 remains in the front and upward state. Thus, according to the massage device 1 of the present embodiment, while the massage machine main body 4 is lowered, the state of the first treating tip 7 moving along on the back of the user U is kept and it is possible to exert a good massage effect on the treatment region

S.

[0052]

However, when the massage machine main body 4 is raised again up to the shoulder region along the rail member 3 after reaching the buttocks or the lumbar region, the biasing force caused by the biasing means 31 and the force applied to the first massage member 5 (first treating tip 7) caused by contacting with the treatment region S are directed in the same direction. Therefore, unless the third treating tip 40 is provided, the attitude of the first massage member 5 is easily changed.

In a conventional massage device 101, for example, shown in Fig. 7, in other words, in the massage device 101 without including the third treating tip, the biasing force caused by the biasing means acts in the direction of swinging the first massage member 105 front-downward. Meanwhile, in the massage machine main body moving from the lower side toward the upper side, the force applied to the first massage member 105 caused by contacting the first treating tip 107 with the treatment region S also acts in the direction of swinging the first massage member 105 front-downward. As a result, as shown in Fig. 7 (c), the attitude of the first massage member 105 inclined toward the front and upper side as shown in Fig. 7 (d) is changed to an attitude such as horizontally lying

frontward, in other words, changed to a direction perpendicular to the treatment region S of the lumbar region.

[0053]

Further, when the massage machine main body is moved upward from the lower side, the attitude of the first massage member 105 falls down forward and is changed to an attitude as shown in Fig. 7 (b), that is, an attitude that the first treating tip 107 is positioned in the front and lower side of the rotating shaft 111. The attitude as shown in Fig. 7 (b) is extremely abnormal for the first massage member 105 that normally perform the massage in an attitude of the first treating tip 107 being positioned in the front and upper side of the rotating shaft 111, and consequently this impedes a good massage and also gives extra burdens on the spring member.

[0054]

Eventually, when the massage machine main body reaches the same level in height as the treatment region S of the shoulder region as shown in Fig. 7 (a), the distance between the first treating tip 107 and the treatment region S is temporarily away from each other and the first massage member 105 falls down vigorously rearward. As a result, there may be a case of generating a violent sound and shock in the first massage member

105, and there may be also a possibility of making a user U having a massage treatment uncomfortable.

[0055]

In contrast, according to the massage device 1 of the present embodiment provided with the third treating tip 40, as shown in Fig. 6 (c), when the first massage member 5 is about to fall down forward, the third treating tip 40 is brought into contact with the treatment region S of the user U, so that a force pushing back the third treating tip 40 rear and upward will act from the back of the user U. By this force acting on the third treating tip 40, the first massage member 5 is restricted from swinging toward the front and lower side. Thus, the first massage member 5 can retain the forward and upward attitude (shown in Fig. 5 (c)) similar to that in the lowering of the massage machine main body, and thus a good massage can be treated. That is, the third treating tip 40 exerts the force for swinging the first treating tip 7 upward.

[0056]

Thereafter, as shown in Fig. 6 (b), even in the case where the massage machine main body 4 is raised in position along the rail member 3, the third treating tip 40 is in contact with the treatment region S of the user U and the force pushing back the third treating tip 40

toward the rear and upper side will act from the back region of the user U. By this force acting on the third treating tip 40, the first massage member 5 is restricted from swinging toward the front and lower side. Thus, the first massage member 5 can retain the forward and upward attitude (shown in Fig. 5 (b)) similar to that in the lowering of the massage machine main body, and thus a good massage can be treated.

[0057]

In Fig. 6 (b) and (c), the third treating tip 40 is in contact with the back of the user U and performs a swinging movement in the lateral direction accompanying the first treating tip S. Therefore, a kneading massage is performed by the two treating tips of the first and third treating tips 7 and 40 and it is possible to perform an unconventional effective massage to the back region.

As described above, since the massage device 1 of the present invention includes the third treating tip 40, i.e., a reversal-preventing member (member having an automatic return function) with respect to the first treating tip 7, even when the massage device 1 is rising, the attitude of the first massage member 5 is hardly changed and it becomes possible to retain a good massage effect. Note that the member indicated by reference numeral "40" is not necessarily a treating tip for

treating a massage for a user. The member indicated by reference numeral "40" may be a member having a reversal-preventing function (automatic return function).

[0058]

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.

Reference Signs List

[0059]

- 1 Message device
- 3 Rail member
- 4 Message machine main body
- 5 First message member
- 6 Second message member
- 7 First treating tip
- 8 Second treating tip
- 10 First annular fitting portion

- 11 Rotating shaft
- 12 Tilt boss portion
- 13 Pivot pin
- 14 Second annular fitting portion
- 15 Eccentric boss portion
- 16 Second restricting portion
- 17 Crank member
- 18 Drive unit (drive motor)
- 19 Conversion unit
- 20 Bearing section
- 21 Worm wheel
- 22 Driven gear
- 26 Inclined cam surface
- 27 First restricting portion
- 28 Eccentric cam surface
- 29 Protruding piece
- 30 Joint arm
- 31 Biasing means
- 32 Guide member
- 33 Tapping drive unit
- 34 Spring member
- 35 Casing
- 36 Striking axis of rotation
- 37 Striking boss portion
- 38 Third mass member

39 Straight-type gear portion

40 Third treating tip

U User

S Treatment region

CLAIMS

1. A massage device comprising:

a first massage member having a first treating tip provided at a distal end thereof for treating a treatment region of a user;

a second massage member having a second treating tip provided at a distal end thereof in a position below and facing the first treating tip, for treating a treatment region; and

a massage mechanism for swinging the first massage member and the second massage member so that the second treating tip is swung to be close to and away from the first treating tip, wherein the massage mechanism is provided in a forward protruded position with respect to the first treating tip and includes a third treating tip provided in a laterally outer side of the first treating tip and in an upper side with respect to the first treating tip.

2. The massage device according to claim 1, wherein the massage mechanism comprises a rotating shaft extending in a lateral direction and a proximal side of the first massage member is swingable about the rotating shaft, wherein the first massage member is being biased

so as to forward protrude the first treating tip, thereby allowing the massage mechanism to be movable in a vertical direction and allowing the third treating tip of the massage mechanism to cause a force to swing the first treating tip upward at the time of rising of the massage mechanism.

3. The massage device according to claim 1 or 2, wherein an upward upswing angle of the third treating tip with respect to the first treating tip is 10 to 40 degrees.

4. The massage device according to any one of claims 1 to 3, wherein a forward protruding amount of the third treating tip with respect to the first treating tip is 10 to 40 mm.

5. The massage device according to any one of claims 1 to 4, wherein a laterally outward protruding amount of the third treating tip with respect to the first treating tip is 5 to 30 mm.

6. The massage device according to any one of claims 1 to 5 further comprising: a rotating shaft extending in the lateral direction; a drive unit for driving the

rotating shaft to rotate; and a conversion unit for converting a rotating movement of the rotating shaft to a swinging movement, whereby, using the swinging movement caused by the conversion unit, it is configured that the first treating tip is allowed to cause the swinging movement in the lateral direction and the second treating tip is allowed to be moved close to and separated away from the first treating tip.