

DESCRIPTION

TITLE OF INVENTION: **CHAIR-TYPE MASSAGER**

TECHNICAL FIELD

[0001] The present invention relates to techniques to control massage operation which is to be performed by a chair-type massager.

BACKGROUND ART

[0002] Massage devices capable of grasping and kneading massage, such as is shown in Patent Literature 1, are well known. For instance, chair-type massagers having a backrest internally provided with such a grasping-kneading massage device are currently on the market. There are also commercially available chair-type massagers including an air-bag arrangement which serves as a massage system. In such a massager, for example, an air bag is provided at the upper face of a seat thereof on which a user sits, at each side of the seat, or at each side of a backrest thereof (refer to Patent Literature 2, for instance).

PRIOR ART REFERENCE

CITATION LIST

[0003] Patent Literature 1: Japanese Unexamined Patent Publication JP-A 2018-029772

Patent Literature 2: Japanese Unexamined Patent Publication JP-A 2010-162071

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0004] There have been diverse user requests for massagers in recent years. Examples of massage treatments expected of a chair-type massager capable of grasping and kneading massage include "stiffness-relieving massage by even greater pressing force" and "stretch-added massage". To achieve the stiffness-relieving massage, the massager grasps and kneads a massage-treatment target body region of a user (hereinafter called "treatment area"), e.g., the shoulder, while pressing the treatment area more deeply with increased pressing force (for deeper grasping-kneading massage). To achieve the stretch-added massage, the massager gives a stretch to the treatment area while keeping hold of it. There have also been user demands for a grasping-kneading massager capable of adjusting the strength of pressing force applied to the treatment area.

[0005] In response to the above issue, it is an object of the present invention to provide a chair-type massager which includes an arrangement capable of pressing a treatment area with increased pressing force and also stretching the treatment area while keeping hold of it, and which can relieve stiffness in the treatment area, such as the shoulder, without causing user discomfort.

SOLUTION TO PROBLEM

[0006] To achieve the above object, the present invention adopts the following technical means.

[0007] A chair-type massager according to an aspect of the present invention includes a seat on which a user sits, a backrest provided at the rear portion of the seat, a back massage mechanism, mounted to the backrest, for performing grasping and kneading massage on a treatment area of the user, a pressing massage mechanism to give pressing massage to the user, and a control unit to cause the back massage mechanism and the pressing massage mechanism to perform a grasping-kneading massage operation and pressing operation in a cooperative manner. The grasping-kneading massage operation is performed by the back massage mechanism. The pressing operation is performed by the pressing massage mechanism.

[0008] The pressing massage mechanism may include one or more air bags.

[0009] The back massage mechanism may include a pair of right and left first arm members, each of the first arm members being provided at the tip with a first treatment element, and a pair of right and left second arm members, each of the second arm members being provided at a tip thereof with a second treatment element. The back massage mechanism may be configured to perform grasping-kneading massage, which comprises alternating grasping-kneading action for the right part of the treatment area and grasping-kneading action for the left part of the

treatment area, by alternating approaching-separating movement of the right first and second treatment elements with approaching-separating movement of the left first and second treatment elements. The one or more air bags may include at least one air bag located at at least one of an upper face of the seat, right and left sides of the seat, right and left sides of the backrest, and a front face of the backrest.

[0010] The control unit, while causing the right first treatment element and the right second treatment element to move close to each other for grasping the right part of the treatment area of the user, may keep the left first treatment element and the left second treatment element separated away from each other, and inflates the air bag located at a right portion of the upper face of the seat, and/or the air bag located at the right side of the seat, thereby increasing the strength of massage treatment applied to the right part of the treatment area in a grasped state.

[0011] The control unit, while causing the right first treatment element and the right second treatment element to move close to each other for grasping the right part of the treatment area of the user, may keep the left first treatment element and the left second treatment element separated away from each other, and inflate one of the air bag located at the left side of the backrest and the air bag located at the right side of the backrest, thereby increasing the strength of massage treatment applied

to the right part of the treatment area in a grasped state.

[0012] The control unit, while causing the left first treatment element and the left second treatment element to move close to each other for grasping the left part of the treatment area of the user, may keep the right first treatment element and the right second treatment element separated away from each other, and inflate the air bag located at a left portion of the upper face of the seat, and/or the air bag located at the left side of the seat, thereby increasing the strength of massage treatment applied to the left part of the treatment area in a grasped state.

[0013] The control unit, while causing the left first treatment element and the left second treatment element to move close to each other for grasping the left part of the treatment area of the user, may keep the right first treatment element and the right second treatment element separated away from each other, and inflate one of the air bag located at the left side of the backrest and the air bag located at the right side of the backrest, thereby increasing the strength of massage treatment applied to the left part of the treatment area in a grasped state.

[0014] The control unit, while causing the right first treatment element and the right second treatment element to move close to each other for grasping the right part of the treatment area of the user, may keep the left first treatment element and

the left second treatment element separated away from each other, and inflate the air bag located at a left portion of the upper face of the seat, and/or the air bag located at the left side of the seat, thereby providing an action to give a stretch to the right part of the treatment area in a grasped state.

[0015] The control unit, while causing the left first treatment element and the left second treatment element to move close to each other for grasping the left part of the treatment area of the user, may keep the right first treatment element and the right second treatment element separated away from each other, and inflate the air bag located at a right portion of the upper face of the seat, and/or the air bag located at the right side of the seat, thereby providing an action to give a stretch to the left part of the treatment area in a grasped state.

[0016] The control unit, while causing the right first treatment element and the right second treatment element to move close to each other for grasping the right part of the treatment area of the user, may keep the left first treatment element and the left second treatment element separated away from each other, and inflate the air bag located at a left portion of the front face of the backrest, thereby causing a twist of the left part of the upper body of the user.

[0017] The control unit, while causing the left first treatment element and the left second treatment element to move close to each other for grasping the left part of the treatment

area of the user, may keep the right first treatment element and the right second treatment element separated away from each other, and inflate the air bag located at a right portion of the front face of the backrest, thereby causing a twist of the right part of the upper body of the user.

[0018] The control unit, when allowing grasping-kneading massage for the left part of the treatment area of the user by the left first and second treatment elements and grasping-kneading massage for the right part of the treatment area of the user by the right first and second treatment elements to be alternately performed, may inflate the air bag located at the left side of the backrest and the air bag located at the right side of the backrest so as to hold the upper body of the user.

[0019] The back massage mechanism may include a switch to enable switching between a first squeezing operation to cause the right first treatment element and the right second treatment element to effect squeezing action in a phase delayed with respect to the phase of squeezing action of the left first treatment element and the left second treatment element, and a second squeezing operation to cause the right first and second treatment elements, and the left first and second treatment elements to effect squeezing actions in phase with each other.

[0020] In the first squeezing operation, the left first and second treatment elements, and the right first and second

treatment elements may perform the respective grasping-kneading massages on the left part and the right part of the treatment area of the user by turns, and, in the second squeezing operation, the left first and second treatment elements, and the right first and second treatment elements may perform the respective grasping-kneading massages on the left part and the right part of the treatment area of the user simultaneously.

[0021] The pressing message mechanism may comprise a mechanical message system including a pair of right and left message members capable of eccentric motion or rocking motion, a treatment element mounted to the tip of the right message member, and a treatment element mounted to the tip of the left message member.

ADVANTAGEOUS EFFECTS OF INVENTION

[0022] The chair-type massager embodying the principles of the invention includes an arrangement capable of pressing a treatment area with increased pressing force and also stretching the treatment area while keeping hold of it, and can thus relieve stiffness in the treatment area, such as the shoulder, without causing user discomfort.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023]

FIG. 1 is a perspective view generally showing in schematic form a chair-type massager embodying the principles of the invention. FIG. 2A is a front view generally showing in schematic form an

example of grasping-kneading massage operation (cooperative massage 1) which is controllable by a control unit mounted in the chair-type massager.

FIG. 2B is a front view generally showing in schematic form Example 1 of Modification 1 in the cooperative massage 1, or specifically a condition where, while a right shoulder region is being grasped, an air bag F is inflated.

FIG. 2C is a front view generally showing in schematic form Example 2 of Modification 1 in the cooperative massage 1, or specifically a condition where, while the right shoulder region is being grasped, an air bag E is inflated.

FIG. 3A is a front view generally showing in schematic form an example of grasping-kneading massage operation (cooperative massage 2) which is controllable by the control unit mounted in the chair-type massager.

FIG. 3B is a front view generally showing in schematic form Example 1 of Modification 1 in the cooperative massage 2, or specifically a condition where, while a left shoulder region is being grasped, the air bag E is inflated.

FIG. 3C is a front view generally showing in schematic form Example 2 of Modification 1 in the cooperative massage 2, or specifically a condition where, while the left shoulder region is being grasped, the air bag F is inflated.

FIG. 4 is a front view generally showing in schematic form an example of grasping-kneading massage operation (cooperative

message 3) which is controllable by the control unit mounted in the chair-type massager.

FIG. 5 is a front view generally showing in schematic form an example of grasping-kneading message operation (cooperative message 4) which is controllable by the control unit mounted in the chair-type massager.

FIG. 6 is a front view generally showing in schematic form an example of grasping-kneading message operation (cooperative message 5) which is controllable by the control unit mounted in the chair-type massager.

FIG. 7 is a front view generally showing in schematic form an example of grasping-kneading message operation (cooperative message 6) which is controllable by the control unit mounted in the chair-type massager.

FIG. 8 is a front view generally showing in schematic form an example of grasping-kneading message operation (cooperative message 7) which is controllable by the control unit mounted in the chair-type massager.

FIG. 9 is a left side view schematically showing an example of grasping-kneading message operation which is controllable by the control unit mounted in the chair-type massager.

FIG. 10 is a perspective view showing the configuration of a back message mechanism, in which a switch is illustrated as being in disassembled condition.

FIG. 11 is a bottom view showing how grasping-kneading message

operation is to be performed by the back massage mechanism (the left part of FIG. 11 depicts a first squeezing operation [right-left alternate grasping-kneading operation], and the right part of FIG. 11 depicts a second squeezing operation [right-left concurrent grasping-kneading operation]).

FIG. 12 is a front view showing how grasping-kneading massage operation is to be performed by the back massage mechanism (the left part of FIG. 12 depicts the first squeezing operation [right-left alternate grasping-kneading operation], and the right part of FIG. 12 depicts the second squeezing operation [right-left concurrent grasping-kneading operation]).

DESCRIPTION OF EMBODIMENTS

[0024] A chair-type massager according to an embodiment of the present invention will now be described with reference to the drawings.

[0025] The following embodiment is given by way of example of carrying the invention into practice, and hence is not intended to be limiting of the structural features of the invention. In the drawings, some constituent members are not shown or are indicated by imaginary lines or similar representation for clarity of illustration.

[0026] The directions with respect to the chair-type massager 1, including a front-rear direction, and a right-left direction, or lateral direction, are as shown in the drawings. These directions coincide with those as viewed from a user sitting

in the chair-type massager 1. The directions indicated in the drawings are used as the reference to describe the chair-type massager 1 embodying the principles of the invention.

[0027] An example of the chair-type massager 1 embodying the principles of the invention is shown in FIG. 1.

[0028] As shown in FIG. 1, the chair-type massager 1 according to the present embodiment comprises a seat 2 on which a user U sits, a backrest 3 provided at the rear of the seat 2, and a footrest 4 provided at the front of the seat 2.

[0029] Moreover, the chair-type massager 1 according to the present embodiment includes a back massage mechanism 5, a pressing massage mechanism, and a control unit. The back massage mechanism 5 applies grasping-kneading massage to treatment areas (e.g. the shoulder and the back) of the user U. The pressing massage mechanism applies pressing massage to treatment areas (e.g. the body region from the lateral side of each shoulder to the lateral side of each upper arm, the buttocks, and the thighs) of the user U. The control unit allows grasping-kneading massage operation of the back massage mechanism 5 and pressing operation of the pressing massage mechanism to be carried out in a cooperative manner.

[0030] The pressing massage mechanism includes first pressing means, second pressing means, and third pressing means. The first pressing means presses the buttocks and the thighs of the user U upward. The second pressing means presses the

upper body of the user U frontward. The third pressing means presses the upper body of the user U inward from each of right and left sides of the body.

[0031] One or more air bags may be used for each of the first to third pressing means. Each pressing means in the present embodiment will be described in detail with respect to air bags.

[0032] The pressing massage mechanism includes one or more air bags as each of the first to third pressing means. Of air bags A to D as the first pressing means, at least one air bag is located at each of the upper face of the seat 2 and the right and left sides of the seat 2. Of air bags G to H as the second pressing means, at least one air bag is located at the front face of the backrest 3. Of air bags E and F as the third pressing means, at least one air bag is located at each of the right and left sides of the backrest 3.

[0033] In this way, the pressing massage mechanism may include such air bags. Alternatively, in the present invention, although not shown in the drawings, a mechanical massage system may be used for the first pressing means. In this case, the mechanical massage system is disposed within the seat 2.

[0034] The footrest 4 is provided with a pair of left and right recessed parts 6L and 6R for insertion of legs (hereinafter called "insertion recessed parts 6L and 6R), each of which receives the below-knee area of the corresponding leg (lower leg) of the user U. Each of the left and right insertion recessed

parts 6L and 6R incorporates a leg kneading mechanism 7 to apply kneading massage to the corresponding lower leg (one of treatment areas). For example, the leg kneading mechanism 7 may include kneading plates or air bags arranged so as to press and massage the lower leg of the user U from both sides in the lateral direction. Moreover, the footrest 4 may be formed as a retractable part which can be moved below the seat 2 by a footrest moving mechanism 8.

[0035] The seat 2 is provided at the bottom thereof with a frame body 9 for the placement of the chair-type massager 1 on a floor surface. The frame body 9 is obtained by combining several rectangular steel bars into a platform. The seat 2 is supported at a predetermined height by the frame body 9.

[0036] The seat 2 has a width large enough to support the buttocks of the user U from below. The seat 2 is internally provided with a cushion material to add comfort to the user sitting on the seat 2. Moreover, the exterior of the seat 2 is covered with, for example, a cloth. This allows the seat 2 to have a surface (upper face) which gives pleasant feel to the user sitting on the seat 2.

[0037] In the present embodiment, two air bags A and B (the first pressing means) are located at the upper face of the seat 2 (i.e., on the back side of the cloth covering the upper face of the seat 2). The air bags A and B are arranged in the lateral direction, and constitute a seat's massage mechanism 10 (buttocks

massage mechanism 10). The air bag A, which is located at the right portion of the seat 2, applies pressing massage to the body of the user U in the range of the right buttocks region to the back side of the right thigh. The air bag B, which is located at the left portion of the seat 2, applies pressing massage to the body of the user U in the range of the left buttocks region to the back side of the left thigh. That is, the air bags A and B are placed as a pair on the upper face of the seat 2.

[0038] In the seat's massage mechanism 10, with the supply of air by an air compressor, the two air bags, namely the right and left air bags A and B are each inflated and deflated repeatedly in a predetermined rhythm. This process allows the seat's massage mechanism 10 to press the buttocks (one of treatment areas) from below upward as pressing massage. The inflating operation of the two, right and left air bags A and B will be detailed later.

[0039] Moreover, in the present embodiment, an armrest 11L and an armrest 11R for placement of forearms are located at the left side and the right side, respectively, of the seat 2. The inner side face of the armrest 11L and the inner side face of the armrest 11R, which are opposed to each other, are each provided with an air bag. That is, two air bags C and D (the first pressing means) are arranged in the lateral direction, and constitute a thigh massage mechanism 12. Moreover, in the present embodiment, the left and right armrests 11L and 11R each have

a built-in arm massage mechanism 13.

[0040] The air bag C, which is situated between the left side surface of the right armrest 11R and the right side of the seat 2, applies pressing massage to the right thigh of the user U. The air bag D, which is situated between the right side surface of the left armrest 11L and the left side of the seat 2, applies pressing massage to the left thigh of the user U. That is, the two air bags, namely the right and left air bags C and D are mounted, as a pair, so as to lie at the right side and the left side, respectively, of the seat 2. The air bags C and D are spaced apart by a distance corresponding to the width of the seat 2.

[0041] In the thigh massage mechanism 12, with the supply of air by an air compressor, the two air bags, namely the right and left air bags C and D are each inflated and deflated repeatedly in a predetermined rhythm. This process allows the thigh massage mechanism 12 to press each thigh (one of treatment areas) inward from the lateral side as pressing massage. The inflating operation of the two, right and left air bags C and D will be detailed later.

[0042] The backrest 3 has a lower end pivotally mounted to the rear portion of the seat 2, and is thus held for free rocking motion in the front-rear direction. The backrest 3 can be moved into reclining position with respect to the seat 2 by a reclining mechanism constituted by a linear actuator mounted

within the frame body 2. Moreover, the backrest 3 is internally provided with the back massage mechanism 5 capable of performing right-left (side-to-side) alternate grasping-kneading massage.

[0043] The back massage mechanism 5 includes a pair of right and left first arm members 14 (kneading arm members 14) and a pair of right and left second arm members 16 (grasping arm members 16). The first arm members 14 are each provided at the tip thereof with a first treatment element 15. The second arm members 16 are each provided at the tip thereof with a second treatment element 17. The first treatment element 15 and the second treatment element 17 are movable close to and away from each other. The back massage mechanism 5 alternates approaching-separating movement of the right first and second treatment elements 15 and 17 with approaching-separating movement of the left first and second treatment elements 15 and 17. This process allows "grasping-kneading massage" (grasping and kneading action) for the right shoulder region (treatment area) and "grasping-kneading massage" for the left shoulder region (treatment area) to be performed alternately. The detailed structure of the back massage mechanism 5 will be described later.

[0044] Moreover, in the present embodiment, side plate parts 18L and 18R are mounted to the left side and the right side, respectively, of the backrest 3. The side plate parts 18L and 18R each have the form of a flat-shaped member for covering

the upper body of the user U laterally. The side plate parts 18L and 18R are each internally provided with an air bag, that is; two air bags E and F (the third pressing means) are arranged in the lateral direction. The air bags E and F constitute a side kneading mechanism 19.

[0045] The air bag E, which is located at the right side of the backrest 3, presses the body of the user U in the range of the lateral side of the right shoulder region to the lateral side of the right upper arm as pressing massage. The air bag F, which is located at the left side of the backrest 3, presses the body of the user U in the range of the lateral side of the left shoulder region to the lateral side of the left upper arm as pressing massage. That is, the two air bags, namely the right and left air bags E and F are mounted, as a pair, so as to lie at the right side and the left side, respectively, of the backrest 3. The air bags E and F are spaced apart by a distance corresponding to the width of the backrest 3.

[0046] In the side kneading mechanism 19, with the supply of air by an air compressor, the two air bags, namely the right and left air bags E and F are each inflated and deflated repeatedly in a predetermined rhythm. This process allows the side kneading mechanism 19 to press the range from the lateral side of each shoulder to the lateral side of each upper arm (one of treatment areas) from each side in the lateral direction as pressing massage. The inflating operation of the two, right and left air bags E

and F will be detailed later.

[0047] Moreover, in the present embodiment, two air bags G and H (the second pressing means) are located on the back of the front surface of the backrest 3. The air bags G and H are arranged in the lateral direction, and constitute a back kneading mechanism 20. The air bag G, which is situated at the right portion of the front face of the backrest 3, presses the right back region of the user U from behind frontward as pressing massage. The air bag H, which is situated at the left portion of the front face of the backrest 3, presses the left back region of the user U from behind frontward as pressing massage. That is, the air bags G and H are placed as a pair at the front face of the backrest 3.

[0048] In the back kneading mechanism 20, with the supply of air by an air compressor, the two air bags, namely the right and left air bags G and H are each inflated and deflated repeatedly in a predetermined rhythm. This process allows the back kneading mechanism 20 to press the back (one of treatment areas) from behind frontward as pressing massage. The inflating operation of the two, right and left air bags G and H will be detailed later.

[0049] Thus, the chair-type massager 1 according to the present embodiment includes a plurality of massage sections for massaging various treatment areas, e.g., the back massage mechanism 5, the seat's massage mechanism 10, the thigh massage

mechanism 12, the side kneading mechanism 19, the back kneading mechanism 20, and the leg kneading mechanism 7.

[0050] In the present embodiment, the chair-type massager 1 is configured to press the shoulder (treatment area) with increased pressing force, and also to stretch the shoulder while keeping hold of it. Such a pressing massage is achieved by operating the back massage mechanism 5 and the air-bag arrangement (e.g., the air bags A to H) in a cooperative manner.

[0051] The chair-type massager 1 embodying the principles of the invention includes the control unit that controls, for example, the actuation and operation of the back massage mechanism 5, and the inflation and deflation of the air bags A to H. A striking feature of the invention is that the control unit allows right-left alternate grasping-kneading massage operation by the back massage mechanism 5 and pressing operation by the plurality of air bags A to H to be carried out in a cooperative manner. In the grasping-kneading massage operation, the back massage mechanism 5 effects alternating grasping-kneading massages for the right and left shoulder regions (treatment areas). In the pressing operation, the air bags A to H press the body regions, including the buttocks, the thighs, the upper arms, and the back, when inflated and deflated.

[0052] The following describes the conditions of pressing massage operation (grasping-kneading massage operation) which is achieved with the cooperative operation of the back massage

mechanism 5 and the plurality of air bags A to H. The pressing message operation is carried out under the control of the control unit incorporated in the chair-type massager 1. The following description deals with the details of pressing message operation involving "cooperative message 1" to "cooperative message 7" in the present embodiment.

[0053]

[Cooperative message 1]

FIG. 2A is a front view generally showing in schematic form an example of grasping-kneading message operation (cooperative message 1) which is controllable by the control unit mounted in the chair-type massager 1.

[0054] As shown in FIG. 2A, the control unit causes the right first treatment element 15R and the right second treatment element 17R to move close to each other for grasping the right shoulder region of the user U. At the same time, the control unit keeps the left first treatment element 15L and the left second treatment element 17L separated away from each other. Moreover, the control unit inflates the air bag A located at the right portion of the upper face of the seat 2, and/or the air bag C located at the right side of the seat 2 (the first pressing means). This process increases the strength of massage treatment applied to the right shoulder region grasped by the right first and second treatment elements 15R and 17R. The "cooperative message 1" is achieved in this way.

[0055] Specifically, the back massage mechanism 5 mounted within the backrest 3 is moved into position for the right first treatment element 15R and the right second treatment element 17R to grasp the right shoulder region, and for the left first treatment element 15L and the left second treatment element 17L to grasp the left shoulder region. The back massage mechanism 5 is then driven to alternate the approaching-separating movement of the right first and second treatment elements 15R and 17R with the approaching-separating movement of the left first and second treatment elements 15L and 17L. This process allows grasping and kneading action for the right shoulder region and that for the left shoulder region to be effected alternately and repeatedly. During this "grasping-kneading massage", the user U manipulates the controller of the chair-type massager 1 to instruct the control unit to carry out the "cooperative massage 1" operation.

[0056] Under the instruction for the "cooperative massage 1", the control unit, while causing the right first treatment element 15R and the right second treatment element 17R to move close to each other to grasp the right shoulder region (to keep hold of the right shoulder region as indicated by thick lines in FIG. 2A), keeps the left first treatment element 15L and the left second treatment element 17L separated away from each other (brings the elements 15L and 17L into open position) to keep the left shoulder region free of restraint.

[0057] With the right first and second treatment elements 15R and 17R in a state of grasping the right shoulder region, as indicated by thick lines in FIG. 2A, the control unit inflates at least one of the air bag A at the right portion of the flat face of the seat 2 (the seat's massage mechanism 10) and the air bag C (the thigh massage mechanism 12).

[0058] Thus, the upper right first and second treatment elements 15R and 17R grasp the right shoulder region, followed by inflation of the lower right air bag A and/or the lower right air bag B. That is, the vertically arranged right mechanisms, namely the upper right mechanism and the lower right mechanism are successively operated in the order named.

[0059] Then, the right upper-body region of the user U is forced upward, thus causing the first treatment element 15R and the second treatment element 17R to catch (nip) the right shoulder region (intended treatment area) in a targeted fashion. This allows effective pressing massage of greater strength to be applied to the right shoulder region.

[0060] That is, the air bag A and/or the air bag C lift/lifts the user's body up when inflated. This brings the right first and second treatment elements 15R and 17R to a state of applying localized pressing force to the right shoulder region (like an acupuncture point-pressing state).

[0061] Even if the right first and second treatment elements 15R and 17R are pressed against the right shoulder region of

the user with excessive force, the air bag A, which is deformable into a downwardly concave shape, minimizes the feeling of pain caused by the acupressure point-pressing action of the treatment elements. This allows comfortable localized-area pressing massage to be achieved.

[0062]

[Modification 1 in Cooperative massage 1]

A modification 1 in the cooperative massage 1 will now be described. In the modification 1, for the cooperative massage 1, while the right first treatment element 15R and the right second treatment element 17R are grasping the right shoulder region, any one of the air bag E and the air bag F is inflated. The air bags E and F are located at the right side and the left side of the backrest 3, respectively.

[0063]

[Example 1]

FIG. 2B is a view generally showing an example 1 of the modification 1 in the cooperative massage 1. In this example, while the right first and second treatment elements 15R and 17R are grasping the right shoulder region, the air bag F located at the left side of the backrest 3 is inflated.

[0064] For the operation of the pressing massage mechanism in the present modification, as shown in FIG. 2B, the control unit causes the right first treatment element 15R and the right second treatment element 17R to move close to each other for

grasping the right shoulder region of the user U. At the same time, the control unit keeps the left first treatment element 15L and the left second treatment element 17L separated away from each other. The control unit then inflates the air bag F located at the left side of the backrest 3. This process increases the strength of massage treatment applied to the right shoulder region in a grasped state.

[0065] Specifically, while the right first treatment element 15R and the right second treatment element 17R are grasping the right shoulder region of the user U in a mutually-approaching state, the left first treatment element 15L and the left second treatment element 17L are kept separated away from each other. The right shoulder region is held by the grasping action of the right first and second treatment elements 15R and 17R.

[0066] More preferably, at this time, at least one of the air bag A located at the right portion of the flat face of the seat 2 (the seat's massage mechanism 10) and the air bag C located at the right side of the seat 2 (the thigh massage mechanism 12) is inflated. The inflated air bag, e.g., the inflated air bag A of the seat 2, holds the body of the user.

[0067] Inflating the air bag F located at the left side of the backrest 3 places, from the left, a load to the right shoulder region grasped by the right first and second treatment elements 15R and 17R. This increases the degree of pressing

force exerted on the right shoulder region, that is; increases the strength of massage treatment applied to the right shoulder region in a grasped state (adds firm pressure on the right shoulder region to relieve stiffness in the shoulder).

[0068]

[Example 2]

FIG. 2C is a view generally showing an example 2 of the modification 1 in the cooperative massage 1. In this example, while the right first and second treatment elements 15R and 17R are grasping the right shoulder region, the air bag E located at the right side of the backrest 3 is inflated.

[0069] For the operation of the pressing massage mechanism in the present modification, as shown in FIG. 2C, the control unit causes the right first treatment element 15R and the right second treatment element 17R to move close to each other for grasping the right shoulder region of the user U. At the same time, the control unit keeps the left first treatment element 15L and the left second treatment element 17L separated away from each other. The control unit then inflates the air bag E located at the right side of the backrest 3. This process increases the strength of massage treatment applied to the right shoulder region in a grasped state.

[0070] Specifically, while the right first treatment element 15R and the right second treatment element 17R are grasping the right shoulder region in a mutually-approaching

state, the left first treatment element 15L and the left second treatment element 17L are kept separated away from each other. The right shoulder region of the user U is held by the grasping action of the right first and second treatment elements 15R and 17R.

[0071] More preferably, at this time, at least one of the air bag A located at the right portion of the flat face of the seat 2 (the seat's massage mechanism 10) and the air bag C located at the right side of the seat 2 (the thigh massage mechanism 12) is inflated. The inflated air bag, e.g., the inflated air bag A of the seat 2, holds the body of the user.

[0072] Inflating the air bag E located at the right side of the backrest 3 causes the upper body to move leftward. This results in stretching action being exerted on the right shoulder region grasped by the right first and second treatment elements 15R and 17R (transverse stretching action). That is, the treatment elements 15R and 17R keeping hold of the right shoulder region (treatment area) are slidably moved transversely, thus adding a stretch to the right shoulder region. This process increases the strength of massage treatment applied to the right shoulder region in a grasped state.

[0073]

[Modification 2 in Cooperative massage 1]

A modification 2 in the cooperative massage 1 will now be described. In the modification 2 in the cooperative massage

1, the first pressing means (the pressing massage mechanism) is implemented by using a mechanical massage system.

[0074] The pressing massage mechanism in the present modification differs from the pressing massage mechanism in the preceding modification in that a mechanical massage system is employed as the first pressing means. For example, it is preferable that the mechanical massage system includes a pair of right and left massage members (a pair of right and left arm members), each of which is provided at the tip thereof with a treatment element, that the mechanical massage system is movable in the front-rear direction within the seat 2, and that the massage members are capable of eccentric motion or rocking motion. Moreover, the right and left massage members may be configured to effect massage actions by turns.

[0075] The mechanical massage system may comprehend a massage system having treatment elements (massage members) capable of arcing motion in the front-rear direction (including an up-and-down motion component). In other words, the mechanical massage system may comprehend a massage system having treatment elements that move upward as seen in side view.

[0076] The above-described design conditions are applicable to both of the second pressing means (the air bags G and H) and the third pressing means (the air bags E and F).

[0077] The following describes briefly the basic process of cooperative operation of the right first, second treatment

elements 15R, 17R with the right treatment element of the right massagemember (themechanicalmassage system). The cooperative operation is substantially the same as the described cooperative operation of the right first, second treatment elements 15R, 17R with the right air bag A and/or the right air bag C.

[0078] The control unit causes the right first treatment element 15R and the right second treatment element 17R to move close to each other for grasping the right shoulder region of the user U. At the same time, the control unit keeps the left first treatment element 15L and the left second treatment element 17L separated away from each other. The control unit then causes the right treatment element of the right massage member (the first pressing means) located at the right side of the seat 2 to press the right buttocks region and/or the right thigh of the user upward. This process increases the strength of massage treatment applied to the right shoulder region grasped by the right first and second treatment elements 15R and 17R. The "cooperative massage 1" is achieved in this way.

[0079] For example, the mechanical massage system mounted within the seat 2 is moved in the front-rear direction into position for the right treatment element to make contact with the right buttocks region. As the right treatment element lifts the right buttocks region up, the upper body (the right upper-body region) of the user U is forced upward correspondingly, thus causing the first treatment element 15R and the second treatment

element 17R to catch (nip) the right shoulder region (intended treatment area) in a targeted fashion. This allows effective pressing massage of greater strength to be applied to the right shoulder region.

[0080]

[Cooperative massage 2]

FIG. 3A is a front view generally showing in schematic form an example of grasping-kneading massage operation (cooperative massage 2) which is controllable by the control unit mounted in the chair-type massager 1.

[0081] As shown in FIG. 3A, the control unit causes the left first treatment element 15L and the left second treatment element 17L to move close to each other for grasping the left shoulder region of the user U. At the same time, the control unit keeps the right first treatment element 15R and the right second treatment element 17R separated away from each other. The control unit then inflates the air bag B located at the left portion of the upper face of the seat 2, and/or the air bag D located at the left side of the seat 2 (the first pressing means). This process increases the strength of massage treatment applied to the left shoulder region grasped by the left first and second treatment elements 15L and 17L. The "cooperative massage 2" is achieved in this way.

[0082] Specifically, the back massage mechanism 5 mounted within the backrest 3 is moved into position for the right first

treatment element 15R and the right second treatment element 17R to grasp the right shoulder region, and for the left first treatment element 15L and the left second treatment element 17L to grasp the left shoulder region. The back massage mechanism 5 is then driven to alternate the approaching-separating movement of the left first and second treatment elements 15L and 17L with the approaching-separating movement of the right first and second treatment elements 15R and 17R. This process allows grasping and kneading action for the left shoulder region and that for the right shoulder region to be effected alternately and repeatedly. During this "grasping-kneading massage", the user U manipulates the controller of the chair-type massager 1 to instruct the control unit to carry out the "cooperative massage 2" operation.

[0083] Under the instruction for the "cooperative massage 2", the control unit, while causing the left first treatment element 15L and the left second treatment element 17L to move close to each other to grasp the left shoulder region (to keep hold of the left shoulder region as indicated by thick lines in FIG. 3A), keeps the right first treatment element 15R and the right second treatment element 17R separated away from each other (brings the treatment elements 15R and 17R into open position) to keep the right shoulder region free of restraint.

[0084] With the left first and second treatment elements 15L and 17L in a state of grasping the left shoulder region,

as indicated by thick lines in FIG. 3A, the control unit inflates at least one of the air bag B at the right portion of the flat face of the seat 2 (the seat's massage mechanism 10) and the air bag D (the thigh massage mechanism 12).

[0085] Thus, the upper left first and second treatment elements 15L and 17L grasp the left shoulder region, followed by inflation of the lower left air bag B and/or the lower left air bag D. That is, the vertically arranged left mechanisms, namely the upper left mechanism and the lower left mechanism are successively operated in the order named.

[0086] Then, the left upper-body region of the user U is forced upward, thus causing the first treatment element 15L and the second treatment element 17L to catch (nip) the left shoulder region (intended treatment area) in a targeted fashion. This allows effective pressing massage of greater strength to be applied to the left shoulder region.

[0087] That is, the air bag B and/or the air bag D lift/lifts the user's body up when inflated. This brings the left first and second treatment elements 15L and 17L to a state of applying localized pressing force to the left shoulder region (like an acupuncture point-pressing state).

[0088] Even if the left first and second treatment elements 15L and 17L are pressed against the left shoulder region of the user with excessive force, the air bag B, which is deformable into a downwardly concave shape, minimizes the feeling of pain

caused by the acupuncture point-pressing action of the treatment elements. This allows comfortable localized-area pressing massage to be achieved.

[0089]

[Modification 1 in Cooperative massage 2]

A modification 1 in the cooperative massage 2 will now be described. In the modification 1, for the cooperative massage 2, while the left first treatment element 15L and the left second treatment element 17L are grasping the left shoulder region, any one of the air bag E and the air bag F is inflated. The air bags E and F are located at the right side and the left side of the backrest 3, respectively.

[0090]

[Example 1]

FIG. 3B is a view generally showing an example 1 of the modification 1 in the cooperative massage 2. In this example, while the left first and second treatment elements 15L and 17L are grasping the left shoulder region, the air bag E at the right side of the backrest 3 is inflated.

[0091] For the operation of the pressing massage mechanism in the present modification, as shown in FIG. 3B, the control unit causes the left first treatment element 15L and the left second treatment element 17L to move close to each other for grasping the left shoulder region of the user U. At the same time, the control unit keeps the right first treatment element

15R and the right second treatment element 17R separated away from each other. The control unit then inflates the air bag E located at the right side of the backrest 3. This process increases the strength of massage treatment applied to the left shoulder region in a grasped state.

[0092] Specifically, while the left first treatment element 15L and the left second treatment element 17L are grasping the left shoulder region of the user U in a mutually-approaching state, the right first treatment element 15R and the right second treatment element 17R are kept separated away from each other. The left shoulder region of the user U is held by the grasping action of the left first and second treatment elements 15L and 17L.

[0093] More preferably, at this time, at least one of the air bag B located at the left portion of the flat face of the seat 2 (the seat's massage mechanism 10) and the air bag D located at the left side of the seat 2 (the thigh massage mechanism 12) is inflated. The inflated air bag, e.g., the inflated air bag B of the seat 2, holds the body of the user.

[0094] Inflating the air bag E located at the right side of the backrest 3 places, from the right, a load to the left shoulder region grasped by the left first and second treatment elements 15L and 17L. This increases the degree of pressing force exerted on the left shoulder region, that is; increases the strength of massage treatment applied to the left shoulder

region in a grasped state (adds firm pressure on the left shoulder region to relieve stiffness in the shoulder).

[0095]

[Example 2]

FIG. 3C is a view generally showing an example 2 of the modification 1 in the cooperative massage 2. In this example, while the left first and second treatment elements 15L and 17L are grasping the left shoulder region, the air bag F at the left side of the backrest 3 is inflated.

[0096] For the operation of the pressing massage mechanism in the present modification, as shown in FIG. 3C, the control unit causes the left first treatment element 15L and the left second treatment element 17L to move close to each other for grasping the left shoulder region of the user U. At the same time, the control unit keeps the right first treatment element 15R and the right second treatment element 17R separated away from each other. The control unit then inflates the air bag F located at the left side of the backrest 3. This process increases the strength of massage treatment applied to the left shoulder region in a grasped state.

[0097] Specifically, while the left first treatment element 15L and the left second treatment element 17L are grasping the left shoulder region in a mutually-approaching state, the right first treatment element 15R and the right second treatment element 17R are kept separated away from each other. The left shoulder

region of the user U is held by the grasping action of the left first and second treatment elements 15L and 17L.

[0098] More preferably, at this time, at least one of the air bag B located at the left portion of the flat face of the seat 2 (the seat's massage mechanism 10) and the air bag D located at the left side of the seat 2 (the thigh massage mechanism 12) is inflated. The inflated air bag, e.g., the inflated air bag B of the seat 2, holds the body of the user.

[0099] Inflating the air bag F located at the left side of the backrest 3 causes the upper body to move rightward. This results in stretching action being exerted on the left shoulder region grasped by the left first and second treatment elements 15L and 17L (transverse stretching action). That is, the treatment elements 15L and 17L keeping hold of the left shoulder region (treatment area) are slidably moved transversely, thus adding a stretch to the left shoulder region. This process increases the strength of massage treatment applied to the left shoulder region in a grasped state.

[0100]

[Modification 2 in Cooperative massage 2]

A modification 2 in the cooperative massage 2 will now be described. In the modification 2 in the cooperative massage 2, the first pressing means (the pressing massage mechanism) is implemented by using a mechanical massage system.

[0101] The pressing massage mechanism in the present

modification differs from the pressing massage mechanism in the preceding modification in that a mechanical massage system is employed as the first pressing means. For example, it is preferable that the mechanical massage system includes a pair of right and left massage members (a pair of right and left first arm members), each of which is provided at the tip thereof with a treatment element, that the mechanical massage system is movable in the front-rear direction within the seat 2, and that the massage members are capable of eccentric motion or rocking motion. Moreover, the right and left massage members may be configured to effect massage actions by turns.

[0102] The mechanical massage system may comprehend a massage system having treatment elements (massage members) capable of arcing motion in the front-rear direction (including an up-and-down motion component). In other words, the mechanical massage system may comprehend a massage system having treatment elements that move upward as seen in side view.

[0103] The above-described design conditions are applicable to both of the second pressing means (the air bags G and H) and the third pressing means (the air bags E and F).

[0104] The following describes briefly the basic process of cooperative operation of the left first, second treatment elements 15L, 17L with the left treatment element of the left massage member (the mechanical massage system). The cooperative operation is substantially the same as the described cooperative

operation of the left first, second treatment elements 15L, 17L with the left air bag B and/or the left air bag D.

[0105] The control unit causes the left first treatment element 15L and the left second treatment element 17L to move close to each other for grasping the left shoulder region of the user U. At the same time, the control unit keeps the right first treatment element 15R and the right second treatment element 17R separated away from each other. The control unit then causes the left treatment element of the left massage member (the first pressing means) located at the left side of the seat 2 to press the left buttocks region and/or the left thigh of the user upward. This process increases the strength of massage treatment applied to the left shoulder region grasped by the left first and second treatment elements 15L and 17L. The "cooperative massage 2" is achieved in this way.

[0106] For example, the mechanical massage system mounted within the seat 2 is moved in the front-rear direction into position for the left treatment element to make contact with the left buttocks region. As the left treatment element lifts the left buttocks region up, the upper body (the left upper-body region) of the user U is forced upward correspondingly, thus causing the first treatment element 15L and the second treatment element 17L to catch (nip) the left shoulder region (intended treatment area) in a targeted fashion. This allows effective pressing massage of greater strength to be applied to the left

shoulder region.

[0107]

[Cooperative massage 3]

FIG. 4 is a front view generally showing in schematic form an example of grasping-kneading massage operation (cooperative massage 3) which is controllable by the control unit mounted in the chair-type massager 1.

[0108] As shown in FIG. 4, the control unit causes the right first treatment element 15R and the right second treatment element 17R to move close to each other for grasping the right shoulder region of the user U. At the same time, the control unit keeps the left first treatment element 15L and the left second treatment element 17L separated away from each other. The control unit then inflates the air bag B located at the left portion of the upper face of the seat 2, and/or the air bag D located at the left side of the seat 2 (the first pressing means). This process allows stretching action to be exerted on the right shoulder region grasped by the right first and second treatment elements 15R and 17R (transverse stretching action). That is, the treatment elements 15R and 17R keeping hold of the right shoulder region (treatment area) are slidably moved transversely, thus adding a stretch to the right shoulder region. The "cooperative massage 3" is achieved in this way.

[0109] Specifically, the back massage mechanism 5 mounted within the backrest 3 is moved into position for the right first

treatment element 15R and the right second treatment element 17R to grasp the right shoulder region, and for the left first treatment element 15L and the left second treatment element 17L to grasp the left shoulder region. The back massage mechanism 5 is then driven to alternate the approaching-separating movement of the right first and second treatment elements 15R and 17R with the approaching-separating movement of the left first and second treatment elements 15L and 17L. This process allows grasping and kneading action for the right shoulder region and that for the left shoulder region to be effected alternately and repeatedly. During this "grasping-kneading massage", the user U manipulates the controller of the chair-type massager 1 to instruct the control unit to carry out the "cooperative massage 3" operation.

[0110] Under the instruction for the "cooperative massage 3", the control unit, while causing the right first treatment element 15R and the right second treatment element 17R to move close to each other to grasp the right shoulder region (to keep hold of the right shoulder region as indicated by thick lines in FIG. 4), keeps the left first treatment element 15L and the left second treatment element 17L separated away from each other (brings the treatment elements 15L and 17L into open position) to keep the left shoulder region free of restraint.

[0111] With the right first and second treatment elements 15R and 17R in a state of grasping the right shoulder region,

as indicated by thick lines in FIG. 4, the control unit inflates at least one of the air bag B (the seat's massage mechanism 10) and the air bag D (the thigh massage mechanism 12) located leftward of the seat 2.

[0112] Thus, the upper right first and second treatment elements 15R and 17R grasp the right shoulder region, followed by inflation of the lower left air bag B and/or the lower left air bag D. That is, two diagonally opposed mechanisms, namely the upper right mechanism and the lower left mechanism are successively operated in the order named.

[0113] The left upper-body region of the user U is then forced upward and tilts to the right. At this time, the right first and second treatment elements 15R and 17R, being in a state of grasping the right shoulder region, slidably move transversely while keeping hold of the right shoulder region. This movement gives a stretch to the right shoulder region (treatment area).

[0114] In addition, with the first treatment element 15R and the second treatment element 17R catching (nipping) the right shoulder region in a targeted fashion, effective pressing massage of greater strength can be applied to the right shoulder region.

[0115] That is, the air bag B and/or the air bag D lift/lifts the user's body up when inflated. This brings the right first and second treatment elements 15R and 17R to a state of applying localized pressing force to the right shoulder region (like an

acupressure point-pressing state).

[0116] Even if the right first and second treatment elements 15R and 17R are pressed against the right shoulder region of the user with excessive force, the air bag B, which is deformable into a downwardly concave shape, minimizes the feeling of pain caused by the acupressure point-pressing action of the treatment elements. This allows comfortable localized-area pressing massage to be achieved.

[0117]

[Modification in Cooperative massage 3]

A modification in the cooperative massage 3 will now be described. In the modification in the cooperative massage 3, the first pressing means (the pressing massage mechanism) is implemented by using a mechanical massage system.

[0118] The pressing massage mechanism in the present modification differs from the pressing massage mechanism in the preceding modification in that a mechanical massage system is employed as the first pressing means. For example, it is preferable that the mechanical massage system includes a pair of right and left massage members (a pair of right and left arm members), each of which is provided at the tip thereof with a treatment element, that the mechanical massage system is movable in the front-rear direction within the seat 2, and that the massage members are capable of eccentric motion or rocking motion. Moreover, the right and left massage members may be configured

to effect massage actions by turns.

[0119] The mechanical massage system may comprehend a massage system having treatment elements (massage members) capable of arcing motion in the front-rear direction (including an up-and-down motion component). In other words, the mechanical massage system may comprehend a massage system having treatment elements that move upward as seen in side view.

[0120] The above-described design conditions are applicable to both of the second pressing means (the air bags G and H) and the third pressing means (the air bags E and F).

[0121] The following describes briefly the basic process of cooperative operation of the right first, second treatment elements 15R, 17R with the left treatment element of the left massage member (the mechanical massage system). The cooperative operation is substantially the same as the described cooperative operation of the right first, second treatment elements 15R, 17R with the left air bag B and/or the left air bag D.

[0122] The control unit causes the right first treatment element 15R and the right second treatment element 17R to move close to each other for grasping the right shoulder region of the user U. At the same time, the control unit keeps the left first treatment element 15L and the left second treatment element 17L separated away from each other. The control unit then causes the left treatment element of the left massage member (the first pressing means) located at the left side of the seat 2 to press

the left buttocks region and/or the left thigh of the user upward. This process increases the strength of massage treatment applied to the right shoulder region grasped by the right first and second treatment elements 15R and 17R. The "cooperative massage 3" is achieved in this way.

[0123] For example, the mechanical massage system mounted within the seat 2 is moved in the front-rear direction into position for the left treatment element to make contact with the left buttocks region. As the left treatment element lifts the left buttocks region up, the left upper-body region of the user U is forced upward and tilts to the right. At this time, the right first and second treatment elements 15R and 17R, being in a state of grasping the right shoulder region, slidably move transversely while keeping hold of the right shoulder region. This movement gives a stretch to the right shoulder region (treatment area).

[0124] In addition, with the first treatment element 15R and the second treatment element 17R catching (nipping) the right shoulder region in a targeted fashion, effective pressing massage of greater strength can be applied to the right shoulder region.

[0125]

[Cooperative massage 4]

FIG. 5 is a front view generally showing in schematic form an example of grasping-kneading massage operation (cooperative massage 4) which is controllable by the control unit mounted

in the chair-type massager 1.

[0126] As shown in FIG. 5, the control unit causes the left first treatment element 15L and the left second treatment element 17L to move close to each other for grasping the left shoulder region of the user U. At the same time, the control unit keeps the right first treatment element 15R and the right second treatment element 17R separated away from each other. The control unit then inflates the air bag A located at the right portion of the upper face of the seat 2, and/or the air bag C located at the right side of the seat 2 (the first pressing means). This process allows stretching action to be exerted on the left shoulder region grasped by the left first and second treatment elements 15L and 17L (transverse stretching action). That is, the treatment elements 15L and 17L keeping hold of the left shoulder region (treatment area) are slidably moved transversely, thus adding a stretch to the left shoulder region. The "cooperative massage 4" is achieved in this way.

[0127] Specifically, the back massage mechanism 5 mounted within the backrest 3 is moved into position for the right first treatment element 15R and the right second treatment element 17R to grasp the right shoulder region, and for the left first treatment element 15L and the left second treatment element 17L to grasp the left shoulder region. The back massage mechanism 5 is then driven to alternate the approaching-separating movement of the left first and second treatment elements 15L and 17L with

the approaching-separating movement of the right first and second treatment elements 15R and 17R. This process allows grasping and kneading action for the left shoulder region and that for the right shoulder region to be effected alternately and repeatedly. During this "grasping-kneading massage", the user U manipulates the controller of the chair-type massager 1 to instruct the control unit to carry out the "cooperative massage 4" operation.

[0128] Under the instruction for the "cooperative massage 4", the control unit, while causing the left first treatment element 15L and the left second treatment element 17L to move close to each other to grasp the left shoulder region (to keep hold of the left shoulder region as indicated by thick lines in FIG. 5), keeps the right first treatment element 15R and the right second treatment element 17R separated away from each other (brings the treatment elements 15R and 17R into open position) to keep the right shoulder region free of restraint.

[0129] With the left first and second treatment elements 15L and 17L in a state of grasping the left shoulder region, as indicated by thick lines in FIG. 5, the control unit inflates at least one of the air bag A (the seat's massage mechanism 10) and the air bag C (the thigh massage mechanism 12) located rightward of the seat 2.

[0130] Thus, the upper left first and second treatment elements 15L and 17L grasp the left shoulder region, followed

by inflation of the lower right air bag A and/or the lower right air bag C. That is, two diagonally opposed mechanisms, namely the upper left mechanism and the lower right mechanism are successively operated in the order named.

[0131] The right upper-body region of the user U is then forced upward and tilts to the left. At this time, the left first and second treatment elements 15L and 17L, being in a state of grasping the left shoulder region, slidingly move transversely while keeping hold of the left shoulder region. This movement gives a stretch to the left shoulder region (treatment area).

[0132] In addition, with the first treatment element 15L and the second treatment element 17L catching (nipping) the left shoulder region in a targeted fashion, effective pressing massage of greater strength can be applied to the left shoulder region.

[0133] That is, the air bag A and/or the air bag C lift/lifts the user's body up when inflated. This brings the left first and second treatment elements 15L and 17L to a state of applying localized pressing force to the left shoulder region (like an acupuncture point-pressing state).

[0134] Even if the left first and second treatment elements 15L and 17L are pressed against the left shoulder region of the user with excessive force, the air bag A, which is deformable into a downwardly concave shape, minimizes the feeling of pain caused by the acupuncture point-pressing action of the treatment elements. This allows comfortable localized-area pressing

massage to be achieved.

[0135]

[Modification in Cooperative massage 4]

A modification in the cooperative massage 4 will now be described. In the modification in the cooperative massage 4, the first pressing means (the pressing massage mechanism) is implemented by using a mechanical massage system.

[0136] The pressing massage mechanism in the present modification differs from the pressing massage mechanism in the preceding modification in that a mechanical massage system is employed as the first pressing means. For example, it is preferable that the mechanical massage system includes a pair of right and left massage members (a pair of right and left arm members), each of which is provided at the tip thereof with a treatment element, that the mechanical massage system is movable in the front-rear direction within the seat 2, and that the massage members are capable of eccentric motion or rocking motion. Moreover, the right and left massage members may be configured to effect massage actions by turns.

[0137] The mechanical massage system may comprehend a massage system having treatment elements (massage members) capable of arcing motion in the front-rear direction (including an up-and-down motion component). In other words, the mechanical massage system may comprehend a massage system having treatment elements that move upward as seen in side view.

[0138] The above-described design conditions are applicable to both of the second pressing means (the air bags G and H) and the third pressing means (the air bags E and F).

[0139] The following describes briefly the basic process of cooperative operation of the left first, second treatment elements 15L, 17L with the right treatment element of the right massage member (the mechanical massage system). The cooperative operation is substantially the same as the described cooperative operation of the left first, second treatment elements 15L, 17L with the right air bag A and/or the right air bag C.

[0140] The control unit causes the left first treatment element 15L and the left second treatment element 17L to move close to each other for grasping the left shoulder region of the user U. At the same time, the control unit keeps the right first treatment element 15R and the right second treatment element 17R separated away from each other. The control unit then causes the right treatment element of the right massage member (the first pressing means) located at the right side of the seat 2 to press the right buttocks region and/or the right thigh of the user upward. This process increases the strength of massage treatment applied to the left shoulder region grasped by the left first and second treatment elements 15L and 17L. The "cooperative massage 4" is achieved in this way.

[0141] For example, the mechanical massage system mounted within the seat 2 is moved in the front-rear direction into

position for the right treatment element to make contact with the right buttocks region. As the right treatment element lifts the right buttocks region up, the right upper-body region of the user U is forced upward and tilts to the left. At this time, the left first and second treatment elements 15L and 17L, being in a state of grasping the left shoulder region, slidably move transversely while keeping hold of the left shoulder region. This movement gives a stretch to the left shoulder region (treatment area).

[0142] In addition, with the first treatment element 15L and the second treatment element 17L catching (nipping) the left shoulder region in a targeted fashion, effective pressing massage of greater strength can be applied to the left shoulder region.

[0143]

[Cooperative massage 5]

FIG. 6 is a front view generally showing in schematic form an example of grasping-kneading massage operation (cooperative massage 5) which is controllable by the control unit mounted in the chair-type massager 1. FIG. 9 is a left side view schematically showing an example of grasping-kneading massage operation which is controllable by the control unit mounted in the chair-type massager 1.

[0144] As shown in the drawings, e.g., FIGs. 6 and 9, the control unit causes the right first treatment element 15R and the right second treatment element 17R to move close to each

other for grasping the right shoulder region of the user U. At the same time, the control unit keeps the left first treatment element 15L and the left second treatment element 17L separated away from each other. The control unit then inflates the air bag H located at the left portion of the backrest 3 (the second pressing means), thus causing a twist of the left upper-body region of the user U. This increases the strength of massage treatment applied to the right shoulder region grasped by the right first and second treatment elements 15R and 17R. The "cooperative massage 5" is achieved in this way.

[0145] Specifically, the back massage mechanism 5 mounted within the backrest 3 is moved into position for the right first treatment element 15R and the right second treatment element 17R to grasp the right shoulder region, and for the left first treatment element 15L and the left second treatment element 17L to grasp the left shoulder region. The back massage mechanism 5 is then driven to alternate the approaching-separating movement of the right first and second treatment elements 15R and 17R with the approaching-separating movement of the left first and second treatment elements 15L and 17L. This process allows grasping and kneading action for the right shoulder region and that for the left shoulder region to be effected alternately and repeatedly. During this "grasping-kneading massage", the user U manipulates the controller of the chair-type massager 1 to instruct the control unit to carry out the "cooperative

massage 5" operation.

[0146] Under the instruction for the "cooperative massage 5", the control unit, while causing the right first treatment element 15R and the right second treatment element 17R to move close to each other to grasp the right shoulder region (to keep hold of the right shoulder region as indicated by thick lines in FIG. 6), keeps the left first treatment element 15L and the left second treatment element 17L separated away from each other (brings the elements 15L and 17L into open position) to keep the left shoulder region free of restraint.

[0147] With the right first and second treatment elements 15R and 17R in a state of grasping the right shoulder region, as indicated by thick lines in FIG. 6, the control unit inflates the air bag H located at the left portion of the backrest 3 (the back kneading mechanism 20).

[0148] Thus, the upper right first and second treatment elements 15R and 17R grasp the right shoulder region, followed by inflation of the substantially centrally-located left air bag H. That is, two diagonally opposed mechanisms, namely the upper right mechanism and the middle left mechanism are successively operated in the order named.

[0149] Then, the left back region of the user U is forced frontward, thus causing a twist of the left upper-body region. At this time, the left side of the body is subjected to a stretch. The right first and second treatment elements 15R and 17R

slidingly move transversely while keeping hold of the right shoulder region. This movement gives a stretch to the right shoulder region (treatment area).

[0150] In addition, with the first treatment element 15R and the second treatment element 17R catching (nipping) the right shoulder region in a targeted fashion, effective pressing massage of greater strength can be applied to the right shoulder region.

[0151] That is, inflating the air bag H forces the left upper-body region of the user frontward, thus causing a twist of the upper body. This brings the right first and second treatment elements 15R and 17R to a state of applying localized pressing force to the right shoulder region (like an acupuncture point-pressing state).

[0152] Even if the right first and second treatment elements 15R and 17R are pressed against the right shoulder region of the user with excessive force, the air bag H, which is deformable into a rearwardly concave shape, minimizes the feeling of pain caused by the acupuncture point-pressing action of the treatment elements. This allows comfortable localized-area pressing massage to be achieved.

[0153]

[Cooperative massage 6]

FIG. 7 is front view generally showing in schematic form an example of grasping-kneading massage operation (cooperative massage 6) which is controllable by the control unit mounted

in the chair-type massager 1.

[0154] As shown in the drawings, e.g., FIGs. 7 and 9, the control unit causes the left first treatment element 15L and the left second treatment element 17L to move close to each other for grasping the left shoulder region of the user U. At the same time, the control unit keeps the right first treatment element 15R and the right second treatment element 17R separated away from each other. The control unit then inflates the air bag G located at the right portion of the backrest 3 (the second pressing means), thus causing a twist of the right upper-body region of the user U. This increases the strength of massage treatment applied to the left shoulder region grasped by the left first and second treatment elements 15L and 17L. The "cooperative massage 6" is achieved in this way.

[0155] Specifically, the back massage mechanism 5 mounted within the backrest 3 is moved into position for the right first treatment element 15R and the right second treatment element 17R to grasp the right shoulder region, and for the left first treatment element 15L and the left second treatment element 17L to grasp the left shoulder region. The back massage mechanism 5 is then driven to alternate the approaching-separating movement of the left first and second treatment elements 15L and 17L with the approaching-separating movement of the right first and second treatment elements 15R and 17R. This process allows grasping and kneading action for the left shoulder region and that for

the right shoulder region to be effected alternately and repeatedly. During this "grasping-kneading massage", the user U manipulates the controller of the chair-type massager 1 to instruct the control unit to carry out the "cooperative massage 6" operation.

[0156] Under the instruction for the "cooperative massage 6", the control unit, while causing the left first treatment element 15L and the left second treatment element 17L to move close to each other to grasp the left shoulder region (to keep hold of the left shoulder region as indicated by thick lines in FIG. 7), keeps the right first treatment element 15R and the right second treatment element 17R separated away from each other (brings the treatment elements 15R and 17R into open position) to keep the right shoulder region free of restraint.

[0157] With the left first and second treatment elements 15L and 17L in a state of grasping the left shoulder region, as indicated by thick lines in FIG. 7, the control unit inflates the air bag G located at the right portion of the backrest 3 (the back kneading mechanism 20).

[0158] Thus, the upper left first and second treatment elements 15L and 17L grasp the right shoulder region, followed by inflation of the substantially centrally-located right air bag G. That is, two diagonally opposed mechanisms, namely the upper left mechanism and the middle right mechanism are successively operated in the order named.

[0159] Then, the right back region of the user U is forced frontward, thus causing a twist of the right upper-body region. At this time, the right side of the body is subjected to a stretch. The left first and second treatment elements 15L and 17L slidingly move transversely while keeping hold of the left shoulder region. This movement gives a stretch to the left shoulder region (treatment area).

[0160] In addition, with the first treatment element 15L and the second treatment element 17L catching (nipping) the left shoulder region in a targeted fashion, effective pressing massage of greater strength can be applied to the left shoulder region.

[0161] That is, inflating the air bag G forces the right upper-body region of the user frontward, thus causing a twist of the upper body. This brings the left first and second treatment elements 15L and 17L to a state of applying localized pressing force to the left shoulder region (like an acupuncture point-pressing state).

[0162] Even if the left first and second treatment elements 15L and 17L are pressed against the left shoulder region of the user with excessive force, the air bag G, which is deformable into a rearwardly concave shape, minimizes the feeling of pain caused by the acupuncture point-pressing action of the treatment elements. This allows comfortable localized-area pressing massage to be achieved.

[0163]

[Cooperative massage 7]

FIG. 8 is front view generally showing in schematic form an example of grasping-kneading massage operation (cooperative massage 7) which is controllable by the control unit mounted in the chair-type massager 1.

[0164] As shown in FIG. 8, the control unit, when allowing grasping-kneading massage for the left shoulder region of the user U by the left first and second treatment elements 15L and 17L and grasping-kneading massage for the right shoulder region of the user U by the right first and second treatment elements 15R and 17R to be alternately performed, inflates the air bags E and F (the third pressing means) located at the right side and the left side of the backrest 3, respectively, so as to hold the upper body of the user U. The "cooperative massage 7" is achieved in this way.

[0165] That is, the "cooperative massage 7" operation reduces side-to-side swaying, or rocking motion of the upper body, which may arise during alternating grasping-kneading massages for the left and right shoulder regions by the first, second treatment elements 15L, 17L and the first, second treatment elements 15R, 17R.

[0166] Specifically, the back massage mechanism 5 is moved into position for the right first treatment element 15R and the right second treatment element 17R to grasp the right shoulder region, and for the left first treatment element 15L and the

left second treatment element 17L to grasp the left shoulder region. The back massage mechanism 5 then alternates the approaching-separating movement of the left first and second treatment elements 15L and 17L with the approaching-separating movement of the right first and second treatment elements 15R and 17R. This process allows grasping and kneading action for the left shoulder region and that for the right shoulder region to be effected alternately and repeatedly. During this "grasping-kneading massage", the upper body of the user U leaning against the backrest 3 may sway from side to side due to the rocking motions of the left first and second arm members 14L and 16L and the right first and second arm members 14R and 16R.

[0167] To avoid the above occurrence, the user U manipulates the controller of the chair-type massager 1 to instruct the control unit to carry out the "cooperative massage 7" operation. Under the instruction for the "cooperative massage 7", as indicated by thick lines in FIG. 8, the control unit inflates the air bags E and F (the side kneading mechanism 19) located at the right side and the left side of the backrest 3, respectively, so as to hold the upper body of the user U.

[0168] The back massage mechanism 5 is then driven to alternate the approaching-separating movement of the left first and second treatment elements 15L and 17L with the approaching-separating movement of the right first and second treatment elements 15R and 17R. This process allows grasping

and kneading action for the left shoulder region and that for the right shoulder region to be effected alternately and repeatedly as "grasping-kneading massage".

[0169] As thus far described, in the chair-type massager 1 embodying the principles of the invention, the control unit exercises control so that the right-left alternate grasping-kneading massage operation by the back massage mechanism 5 and the pressing operation by the plurality of air bags A to H can be carried out in a cooperative manner. In the grasping-kneading massage operation, the back massage mechanism 5 effects alternating grasping-kneading massages for the right and left shoulder regions (treatment areas). In the pressing operation, the plurality of air bags A to H (e.g., the seat's massage mechanism 10 [the first pressing means], the thigh massage mechanism 12 [the first pressing means], the side kneading mechanism 19 [the third pressing means], and the back kneading mechanism 20 [the second pressing means]) press the body regions including the buttocks, the thighs, the upper arms, and the back. With the cooperative-operation control, as exemplified by the "cooperative massage 1" to "cooperative massage 7", the chair-type massager 1 can press treatment areas, including the shoulder, with increased pressing force, and can also stretch the shoulder while keeping hold of it. This allows the relief of stiffness in the treatment areas, including the shoulder, to be achieved without causing user discomfort.

[0170] The structure of the back massage mechanism 5 in the present embodiment will now be described. Various massage mechanisms may be adopted to achieve the cooperative massage embodying the principles of the invention. A preferred embodiment of the back massage mechanism 5 will be described below. Note that the following embodiment of the back massage mechanism 5 is given by way of example, and hence is not intended to be limiting of the structural features of the invention.

[0171] FIG. 10 is a perspective view showing the configuration of the back massage mechanism 5, in which a switch 26 is illustrated as being in disassembled condition. FIG. 11 is a bottom view showing how grasping-kneading massage operation is to be performed by the back massage mechanism 5 (the left part of FIG. 11 depicts a first squeezing (sandwiching and holding) operation [right-left alternate grasping-kneading operation], and the right part of FIG. 11 depicts a second squeezing operation [right-left concurrent grasping-kneading operation]). FIG. 12 is a front view showing how grasping-kneading massage operation is to be performed by the back massage mechanism 5 (the left part of FIG. 12 depicts the first squeezing operation [right-left alternate grasping-kneading operation], and the right part of FIG. 12 depicts the second squeezing operation [right-left concurrent grasping-kneading operation]).

[0172] As shown in the drawings such as FIGs. 10 to 12,

the back massage mechanism 5 in the present embodiment is capable of performing the "first squeezing operation" and the "second squeezing operation". In the first squeezing operation, grasping-kneading massage for the left shoulder region (treatment area) by the left first and second treatment elements 15 and 17 and that for the right shoulder region (treatment area) by the right first and second treatment elements 15 and 17 are effected alternately. In the second squeezing operation, grasping-kneading massages for the left and right shoulder regions by the left first, second treatment elements 15, 17 and the right first, second treatment elements 15, 17 are effected at the same time.

[0173] Moreover, the back massage mechanism 5 in the present embodiment may be configured to allow either of the left first, second treatment elements 15, 17 and the right first, second treatment elements 15, 17 to pause for a while in a state of keeping hold of the corresponding one of the left and right shoulder regions of the user U.

[0174] The back massage mechanism 5 in the present embodiment includes a driver 22, a rotary drive shaft 23, a pair of right and left massage units 24, a converter 25, and a switch 26. The driver 22, which is mounted to a base mount 21, produces rotational driving force. The rotary drive shaft 23, which is mounted to the base mount 21 with its axis directed in the lateral direction, is rotated by the rotational driving force. The

paired massage units 24, which are arranged on the base mount 21, are each provided at the tip side portion thereof with the treatment elements 15 and 17. The converter 25, which is mounted to the rotary drive shaft 23, converts the rotational driving force into squeezing (sandwiching and holding) action (rocking motion), and transmits the resulting motion to the massage unit 24. The switch 26 changes the phase of squeezing action of the massage unit 24 by switching the rotation of the rotary drive shaft 23 between normal rotation and reverse rotation.

[0175] In the present embodiment, the switch 26 is located on the right massage unit 24R side. That is, the phase of squeezing action of the right massage unit 24R is changeable with respect to the phase (fixed phase) of squeezing action of the left massage unit 24L.

[0176] As shown in FIG. 10, the driver 22 includes a drive motor 27 and a gear case 28. The drive motor 27 outputs rotational driving force. The gear case 28 subjects the outputted rotational driving force to deceleration to a predetermined rate of speed. The drive motor 27 is built as a reversible motor capable of both normal rotation and reverse rotation. The drive motor 27 is controlled in the direction of rotation, speed, etc. by the control unit. Thus, in the driver 22, rotational driving force produced by the drive motor 27 is subjected to deceleration in the gear case 28, and the rotational driving force is then transmitted to the rotary drive shaft 23.

[0177] The rotary drive shaft 23 is mounted so as to pass through the base mount 21 (the gear case 28), with its axis directed in the lateral direction (horizontal direction). The rotary drive shaft 23, constructed of an elongated shaft member in round bar form, is supported so as to be free to change its direction of rotation via a bearing or similar component. The rotary drive shaft 23 is mounted perpendicularly with respect to the output shaft of the drive motor 27.

[0178] That is, the rotary drive shaft 23 is provided on the longitudinally intermediate portion thereof with the driver 22, provided at the left end thereof with the massage unit 24L, and provided at the right end thereof with the massage unit 24R. The rotary drive shaft 23 transmits the rotational driving force outputted from the drive motor 27 to each of the paired left and right massage units 24L and 24R in a distributive manner.

[0179] As shown in FIG. 10, for the rotation of the rotary drive shaft 23, in the present embodiment, "normal rotation" corresponds to a rotation in a direction from the rear to the front through the top, and "reverse rotation" corresponds to a rotation in a direction from the front to the rear through the top. Note that the meaning of the normal rotation of the rotary drive shaft 23 and the meaning of the reverse rotation thereof are interchangeable.

[0180] As shown in FIG. 10, the massage units 24 include the right massage unit 24R and the left massage unit 24L. The

right massage unit 24R massages a treatment area located to the right. The left massage unit 24L massages a treatment area located to the left. The massage units 24 each have a pair of upper and lower arm members 14 and 16.

[0181] The right massage unit 24R will now be described. The structure of the left massage unit 24L is the mirror image of that of the right massage unit 24R and will therefore not be described in detail.

[0182] The right massage unit 24R includes the first arm member 14R (kneading arm member 14R) for performing kneading massage on the upper-right shoulder region, and the second arm member 16R (grasping arm member 16R) for performing grasping massage on the lower-right shoulder region.

[0183] As shown in FIG. 10, the right first arm member 14R (kneading arm member 14R) has a tip protruding frontward, and is provided at the base end thereof with a first right annular fitting part 33R. The first right annular fitting part 33R, which constitutes a right converter 25R as described later, is fitted externally to a first right rotary boss part 32R.

[0184] At the base end of the first arm member 14R (the first right annular fitting part 33R), there is provided the rotary drive shaft 23 in a penetrating state. Moreover, the first arm member 14R is provided at the tip thereof with the first treatment element 15R (upper treatment element 15R) that allows kneading massage to be applied to the shoulder.

[0185] In addition, a ball joint part 29 is located at the base end of the first arm member 14R. The ball joint part 29 is coupled to the tip of a coupling shaft 30 for free rotational movement. The coupling shaft 30 has a base end coupled to a rotating shaft 31 for free rotational movement. The rotating shaft 31 is connected to a second drive motor 52 mounted within the base mount 21.

[0186] Thus, upon rotation of the rotating shaft 31 caused by the rotational driving force outputted from the second drive motor 52, the first arm member 14R is rocked in the front-rear direction via the ball joint part 39 and the coupling shaft 30. This allows the first treatment element 15R to perform additional tapping massage. That is, the back massage mechanism 5 in the present embodiment includes a tapping massage mechanism in which the first arm member 14R operates to perform tapping massage.

[0187] The first treatment element 15R is mounted to the frontwardly protruding tip of the first arm member 14R. The first treatment element 15R, constructed of a spherically-shaped member, is mounted for free rotational movement about an axis pointing in the protruding direction of the tip, and also for free rotational movement about an axis pointing in the direction intersecting the protruding direction.

[0188] The first treatment element 15R is positioned opposite the second treatment element 17R, which will be described later, in a top-bottom, or vertical direction. The first

treatment element 15R rocks in the lateral direction, and, the second treatment element 17R moves close to and away from the first treatment element 15R in the top-bottom direction. That is, in response to the rocking motion of the first arm member 14R caused by the rotational driving force acting on the rotary drive shaft 23, the first treatment element 15R applies kneading massage to the upper right-shoulder region.

[0189] Moreover, as shown in FIG. 10, the first arm member 14 is provided at the base-end side portion thereof with a first converter 25 that converts rotational driving force into rocking motion, and transmits the resulting motion to the first arm member 14. The first converter 25 comprises a first right converter 25R and a first left converter 25L. The first right converter 25R converts rotational driving force into rocking motion of the right first arm member 14R. The first left converter 25L converts rotational driving force into rocking motion of the left first arm member 14L.

[0190] The first right converter 25R includes a first right rotary boss part 32R, a first right annular fitting part 33R, and a first right restraint part 34R. The first right rotary boss part 32R, which is mounted to the rotary drive shaft 23, rotates in unitary relation with the rotary drive shaft 23. The first right annular fitting part 33R, which is mounted to the base end of the first arm member 14R, is fitted externally to the first right rotary boss part 32R. The first right restraint

part 34R restrains the first arm member 14R from rotating in accompanying relation with the rotary drive shaft 23.

[0191] The structure of the first left converter 25L is the mirror image of that of the first right converter 25R and will therefore not be explained.

[0192] The first right rotary boss part 32R is a structural component located at the right end of the rotary drive shaft 23, and also located at the base end of the first arm member 14R. The first right rotary boss part 32R includes an outwardly located (outer) cylindrical member of smaller diameter, and a disk-shaped cylindrical member located inwardly of the outer cylindrical member. The outer cylindrical member is mounted in eccentric and inclined relation with respect to the rotary drive shaft 23. The outer cylindrical member is provided at the outer periphery thereof with a circumferentially extending outer cam surface 35.

[0193] That is, the outer cam surface 35 moves around the axis of the rotary drive shaft 23 in eccentric and inclined relation to the axial direction of the rotary drive shaft 23. The first right annular fitting part 33R is slidably fitted externally to the outer cam surface 35. This allows the first arm member 14R to be free to rock (rotationally move) relative to the rotary drive shaft 23. Rotating the rotary drive shaft 23 causes the outer cam surface 35 to follow a path around the axis of the rotary drive shaft 23 while moving eccentrically

and rolling from side to side with respect to the axis.

[0194] In addition, in the present embodiment, a cylindrical member of smaller diameter is located inwardly of the disk-shaped cylindrical member constituting the first right rotary boss part 32R. The inwardly located cylindrical member is provided at the outer periphery thereof with a circumferentially extending inner cam surface 36.

[0195] That is, the inner cam surface 36 moves around the axis of the rotary drive shaft 23 eccentrically with respect to the axial direction of the rotary drive shaft 23. A slider 42R, which will be described later, is slidably fitted externally to the inner cam surface 36. This allows the second arm member 14R to be free to move back and forth in the front-rear direction with respect to the rotary drive shaft 23. Rotating the rotary drive shaft 23 causes the inner cam surface 36 to follow a path around the axis of the rotary drive shaft 23 while moving eccentrically with respect to the axis.

[0196] The first arm member 14R is provided at the base-end side portion thereof with the first right annular fitting part 33R. The first right annular fitting part 33R is formed so that it can fit externally to the outer cam surface 35 of the first right rotary boss part 32R. With the first right annular fitting part 33R fitted externally to the first right rotary boss part 32R (the outer cam surface 35), the first arm member 14R moves rotationally about the axis of the first right rotary boss part

32R.

[0197] The first right restraint part 34R includes the ball joint part 27, the coupling shaft 28, and the rotating shaft 29 that constitute the tapping massage mechanism. The coupling shaft 28 has a tip coupled to the ball joint part 27 for free rotational movement, and has a base end tied to the rotating shaft 29. This arrangement constitutes the first right restraint part 34R that restrains the first arm member 14R from rotating in accompanying relation with the rotary drive shaft 23.

[0198] As shown in FIG. 10, the second arm member 16R (grasping arm member 16R) is situated inwardly of the right first arm member 14R. The second arm member 16R exerts grasping massage action on the shoulder. The second arm member 16R is mounted so as to extend frontward (toward the shoulder) with respect to the location of the back massage mechanism 5.

[0199] The second arm member 16R, constructed of a flat-shaped structural component, has a base end formed with a through hole 37 having an axis directed in the lateral direction. The through hole 37 receives a restraint pin 44 therethrough. The restraint pin 44 constitutes a second right restraint part 41R as described later.

[0200] The second arm member 16R is provided at the tip thereof with the second treatment element 17R (upper treatment element 17R) that allows grasping massage to be applied to the

shoulder. The second treatment element 17R is a member in the form of a transversely mounted circular column.

[0201] The second treatment element 17R is positioned opposite the first treatment element 15R in the top-bottom direction. The second treatment element 17R moves close to and away from the first treatment element 15R, which is rockable in the lateral direction, in the top-bottom direction and also in the front-rear direction. That is, in response to the up-and-down movement, as well as the back-and-forth movement in the front-rear direction, of the second arm member 16R caused by the rotational driving force acting on the rotary drive shaft 23, the second treatment element 17R applies grasping massage to the middle right-shoulder region.

[0202] As shown in FIG. 10, the second arm member 16R is provided at a longitudinally intermediate portion thereof with a guide slot 38R for guiding the slider 42R as described later. The guide slot 38R is shaped as a substantially rectangular hole having an opening directed in the lateral direction, as seen in side view.

[0203] The guide slot 38R allows the second arm member 16R to move up and down, and to move back and forth in the front-rear direction. The guide slot 38R in the present embodiment is defined by a rectangular space. The guide slot 38R receives the slider 42R with a fit. The slider 42R is free to slidingly reciprocate within the guide slot 38R. That is, at the base

end of the second arm member 16R (the guide slot 38R), the rotary drive shaft 23 is mounted in a penetrating state via the slider 42R.

[0204] Moreover, the second arm member 16 is provided at the base-end side portion thereof with a second converter 39 that converts rotational driving force into up-and-down movement and back-and-forth movement in the front-rear direction, and transmits the resulting movement to the second arm member 16. The second converter 39 comprises a second right converter 39R and a second left converter 39L. The second right converter 39R converts rotational driving force into up-and-down movement, as well as back-and-forth movement in the front-rear direction, of the right second arm member 16R. The second left converter 39L converts rotational driving force into up-and-down movement, as well as back-and-forth movement in the front-rear direction, of the left second arm member 16L.

[0205] The second right converter 39R includes the first right rotary boss part 32R (the inner cam surface 36), a second right annular fitting part 40R, and the second right restraint part 41R. The first right rotary boss part 32R is mounted to the rotary drive shaft 23, and rotates in unitary relation with the rotary drive shaft 23. The second right annular fitting part 40R is mounted to the base end of the second arm member 16R, and fitted externally to the inner cam surface 36 of the first right rotary boss part 32R. The second right restraint

part 41R restrains the second arm member 16R from rotating in accompanying relation with the rotary drive shaft 23.

[0206] The structure of the second left converter 39L is the mirror image of that of the second right converter 39R and will therefore not be described.

[0207] As shown in FIG. 10, the slider 42R comprises a pair of right and left slider members, each in the form of a thin platelike piece, arranged so as to sandwich the guide slot 38R of the second arm member 16R. The slider 42R piece located outwardly of the second arm member 16R has an end in flanged form. Moreover, the slider 42R has a side wall surface 43 which abuts on a long edge (long side) provided in the guide slot 38R.

[0208] The slider 38R is formed with a centrally located ring-shaped through hole 40R. The through hole 40R has an opening directed in the lateral direction. The through hole 40R defines the second right annular fitting part 40R which fits the inner cam surface 36 provided in the first right rotary boss part 32R.

[0209] That is, the slider 42R is inserted in the guide slot 38R, with the side wall surface 43 slidably contacted with the long edge of the guide slot 38R. The flanged portion makes contact with the second arm member 16R. The second right annular fitting part 40R receives with a fit the inner cam surface 36 of the first right rotary boss part 32R for free sliding motion. As the side wall surface 43 slides along the long side of the guide slot 38R, the slider 42R travels in the guide slot 38R

correspondingly. This allows the second arm member 16R to move up and down, and to move back and forth in the front-rear direction.

[0210] The second right restraint part 41R includes the restraint pin 44 to regulate the rocking direction of the second arm member 16R, the through hole 37 that receives the restraint pin 44 therethrough, and a restraint hole in which the restraint pin 44 is inserted.

[0211] The restraint pin 44 passes through the through hole 37 formed in the base end of the second arm member 16R, and is inserted in the restraint hole formed in the gear case 28. This allows the second arm member 16R to be coupled to the main-body side of the back massage mechanism 5. The thus coupled second arm member 16R is restrained from rotating in accompanying relation with the rotary drive shaft 23 while being allowed free rotational movement about the axis of the restraint pin 44.

[0212] The following describes briefly the left massage unit 24L. The left massage unit 24L includes the first arm member 14L (kneading arm member 14L) for performing kneading massage on the upper-left shoulder region, and the second arm member 16L (grasping arm member 16L) for performing grasping massage on the lower-left shoulder region. The first arm member 14L is provided at the tip thereof with the first treatment element 15L. The second arm member 16L is provided at the tip thereof with the second treatment element 17L.

[0213] As shown in FIG. 10, the back massage mechanism 5

in the present embodiment includes the switch 26 capable of changing the phase relation between the squeezing operations of the right and left massage units 24, or specifically enabling switching between two squeezing (grasping-kneading) operation modes.

[0214] As shown in the drawings, e.g., FIGs. 11 and 12, the switch 26 enables switching between "first squeezing operation" mode and "second squeezing operation" mode. In the first squeezing operation mode, the right first treatment element 15R and the right second treatment element 17R effect squeezing action in a phase delayed with respect to the phase of squeezing action of the left first treatment element 15L and the left second treatment element 17L. In the second squeezing operation mode, the left first, second treatment elements 15L and 17L and the right first, second treatment elements 15R and 17R effect squeezing actions in the same phase.

[0215] In the present embodiment, the switch 26 is mounted to the right converter (the converters 25R and 39R). The switch 26 may alternatively be mounted to the left converter (the converters 25L and 39L) of the left massage unit 24L.

[0216] As shown in FIG. 10, the switch 26 in the present embodiment includes a switching shaft 45 mounted to the rotary drive shaft 23, a hook part 46 located on the outer-periphery side of the switching shaft 45, and a hook groove part 47 in which the hook part 46 is slidably fitted. In the present

embodiment, a "half-turn clutch mechanism" is adopted for use as the switch 26. The half-turn clutch mechanism changes the phase of the squeezing (grasping-kneading) operation of the right massage unit 24R by, subsequent to causing the switching shaft 45 mounted to the rotary drive shaft 23 to rotate a half-turn in the direction of normal rotation or in the direction of reverse rotation, delaying the operation of the right massage unit 24R. Note that the "half-turn clutch mechanism 26" may comprehend other clutch mechanisms than a half-turn (180 degrees-turn) clutch mechanism.

[0217] The switching shaft 45, constructed of a member in circular cylinder form, is mounted so as to overlay the rotary drive shaft 23. The switching shaft 45 is rotated together with the rotary drive shaft 23. Moreover, the switching shaft 45 is rotated, together with the rotary drive shaft 23, a half-turn in the direction of normal rotation or in the direction of reverse rotation, and subsequently causes the first right rotary boss part 32R to rotate. The switching shaft 45 is provided at the outer periphery thereof with the hook part 46 protruding radially outwardly.

[0218] The hook part 46 in the present embodiment, which is formed along the outer periphery of the switching shaft 45, is a platelike member elongated in the axial direction of the switching shaft 45 (the rotary drive shaft 23). In other words, the hook part 46 is formed as a curved protuberant piece shaped

in conformance with the shape of the hook groove part 47 which will be described later.

[0219] As shown in FIG. 10, the hook part 46 is a curved member which has a side wall of arcuate shape coincident with the arc subscribed by the curved outer periphery of the switching shaft 45, and also has two terminal end walls 48 and 49. The first terminal end wall 48 serves as a first engaging face 48 which engages a first rotation switching portion 50 of the hook groove part 47 in response to normal rotation of the rotary drive shaft 23. The second terminal end wall 49 serves as a second engaging face 49 which engages a second rotation switching portion 51 of the hook groove part 47 in response to reverse rotation of the rotary drive shaft 23.

[0220] That is, the hook part 46 is shaped so that it can fit in the hook groove part 47, and is made substantially equal in length in the front-rear direction (i.e. height) to the hook groove part 47. The hook part 46 slidably moves about the axis of the switching shaft 45 (the rotary drive shaft 23) within the hook groove part 47.

[0221] The hook groove part 47 in the present embodiment is formed as a groove having a crescent-shaped (C-shaped) trackway running around the outer periphery of the switching shaft 45 (the rotary drive shaft 23) when laterally viewed in section. The hook groove part 52 is formed along the outer periphery of the switching shaft 53, and defined by a groove which is elongate

(deep) in the axial direction of the switching shaft 45 (the rotary drive shaft 23).

[0222] Thus, the hook groove part 47 is formed as a curved groove of arcuate shape coincident with the arc subscribed by the curved outer periphery of the hook part 46. Moreover, the hook groove part 47 is formed as a curved groove shaped in conformance with the shape of the hook part 46. That is, the hook groove part 47 is shaped so that it can receive the hook part with a fit, and has a length in the front-rear direction (i.e. depth) substantially equal to the height of the hook part 46.

[0223] The hook groove part 47 is formed as an arcuately-shaped groove which runs along the outer periphery of the switching shaft 45, and defines a trackway having two terminal end walls. The two terminal end walls, namely a side wall portion 50 and a side wall portion 51 serve as the rotation switching portion 50 and the rotation switching portion 51, respectively, for changing the direction of rotation of the rotary drive shaft 23.

[0224] The rotation switching portion 50, 51 has engagement with the hook part 46 which has been rotated a half-turn upon normal rotation or reverse rotation of the rotary drive shaft 23. This delays the operation of the right converters 25R and 39R to effect switching of the squeezing operation of the right massage unit 24R.

[0225] In the present embodiment, one of the terminal ends provided in the semicircular hook groove part 47 serves as the first rotation switching portion 50. The first rotation switching portion 50 acts as a part to delay the operation of the first right converter 25R and the second right converter 39R with respect to the operation of the first left converter 25L and the second left converter 39L at the time of normal rotation of the rotary drive shaft 23.

[0226] That is, in response to normal rotation of the rotary drive shaft 23, the hook part 46 of the switching shaft 45 is rotated a half-turn about the axis of the rotary drive shaft 23 in the direction of normal rotation. Subsequently, the first engaging face 48 of the hook part 46 engages the first rotation switching portion 50. The engagement causes the first right rotary boss part 32R to start rotation with a delay by a half turn-equivalent time interval with respect to the rotation of the first left rotary boss part. With a consequent delay in the operation of the first right converter 25R and the second right converter 39R with respect to the operation of the first left converter 25L and the second left converter 39L, the right massage unit 24R is switched to an operating condition for the "first squeezing operation".

[0227] As shown in the drawings, e.g., FIGs. 11 and 12, upon normal rotation (rotation in the direction from the rear to the front through the top) of the rotary drive shaft 23, the

"first squeezing operation" (right-left alternate grasping-kneading operation) is carried out. In the "first squeezing operation" mode, grasping-kneading massage for the left shoulder region (treatment area) by the left first and second treatment elements 15L and 17L and that for the right shoulder region (treatment area) by the right first and second treatment elements 15R and 17R are performed alternately.

[0228] Specifically, the switch 26 enables switching to the first squeezing operation mode in response to normal rotation of the rotary drive shaft 23. During the time the switching shaft 45 is rotating a half-turn about the axis of the rotary drive shaft 23 in the direction of normal rotation, the right massage unit 24R is at a standstill. Following the completion of the half-turn of the switching shaft 45, the first engaging face 48 of the hook part 46 engages the first rotation switching portion 50 within the hook groove part 47. Upon the engagement, the right massage unit 24R at rest is started in operation (delayed operation). Thus, the switch 26 enables phase switching so that the right massage unit 24R performs squeezing operation in a phase delayed with respect to the phase of the squeezing operation of the left massage unit 24L. This process permits the "first squeezing operation" (right-left alternate grasping-kneading massage).

[0229] The other one of the terminal ends provided in the semicircular hook groove part 47 serves as the second rotation

switching portion 51. The second rotation switching portion 51 acts as a part to synchronize operations between the first, second right converters 25R, 39R and the first, second left converters 25L, 39L in response to reverse rotation of the rotary drive shaft 23.

[0230] That is, in response to reverse rotation of the rotary drive shaft 23, the hook part 46 of the switching shaft 45 is rotated a half-turn about the axis of the rotary drive shaft 23 in the direction of reverse rotation. Subsequently, the second engaging face 49 of the hook part 46 engages the second rotation switching portion 51. The engagement causes the first right rotary boss part 32R to rotate together with the first left rotary boss part. With consequent synchronization in operations between the first, second right converters 25R, 39R and the first, second left converters 25L, 39L, the right massage unit 24R is switched to an operating condition for the "second squeezing operation".

[0231] As shown in the drawings, e.g., FIGs. 11 and 12, upon reverse rotation (rotation in the direction from the front to the rear through the top) of the rotary drive shaft 23, the "second squeezing operation" (right-left concurrent grasping-kneading operation" is carried out. In the "second squeezing operation" mode, the left first, second treatment elements 15L, 17L and the right first, second treatment elements 15R, 17R apply grasping-kneading massage to the left shoulder

region and the right shoulder region (treatment areas), respectively, of the user U at the same time.

[0232] Specifically, the switch 26 enables switching to the second squeezing operation mode in response to reverse rotation of the rotary drive shaft 23. During the time the switching shaft 45 is rotating a half-turn about the axis of the rotary drive shaft 23 in the direction of reverse rotation, the right massage unit 24R is at a standstill. Following the completion of the half-turn of the switching shaft 45, the second engaging face 49 of the hook part 46 engages the second rotation switching portion 51 within the hook groove part 47. Upon the engagement, the right massage unit 24R at rest is started in operation (delayed operation). Thus, the switch 26 enables phase switching so that the right massage unit 24R and the left massage unit 24L perform squeezing operations in the same phase. This process permits the "second squeezing operation" (right-left concurrent grasping-kneading massage).

[0233] In other words, the switch 26 serves also as a delay mechanism that causes the timing of squeezing action of the right first treatment element 15R and the right second treatment element 17R (the right massage unit 24R) to differ from the timing of squeezing action of the left first treatment element 15L and the left second treatment element 17L (the left massage unit 24L). The timewise staggered squeezing actions of the right and left massage units allow the right-left alternate

grasping-kneading massage to be achieved.

[0234] Thus, the back massage mechanism 5 in the present embodiment is capable of switching between the "first squeezing operation" (right-left alternate grasping-kneading operation for the shoulder) and the "second squeezing operation" (right-left concurrent grasping-kneading operation for the shoulder) by using the switch 26. This arrangement allows effective grasping-kneading massage to be achieved for the relief of stiffness in treatment areas, including the shoulder.

[0235] Moreover, in the present embodiment, the control unit exercises control so that grasping-kneading massage operation by the back massage mechanism 5 and pressing operation by the air bags A to H are carried out in a cooperative manner. In the grasping-kneading massage operation, the back massage mechanism 5 effects alternating grasping-kneading massages for the right and left shoulder regions. In the pressing operation, the air bags A to H press the body regions, including the buttocks, the thighs, the upper arms, and the back. With the cooperative-operation control, as exemplified by the "cooperative massage 1" to "cooperative massage 7", the chair-type massager 1 can press treatment areas, including the shoulder, with increased pressing force, and can also stretch the shoulder while keeping hold of it. This allows the relief of stiffness in the treatment areas, including the shoulder, to be achieved.

[0236]

[Modifications]

The above description of the chair-type massager 1 embodying the principles of the invention deals with details and specifics concerning the embodiment in which the pressing message mechanism comprises one or more air bags. That is, the cooperative operation of the back message mechanism 5 with the air bags A to H (message operation involving the "cooperative messages 1 to 7") has been detailed. The modifications in the "cooperative messages 1 to 4" have also been detailed. The following is a summary of the modifications.

[0237] By way of the present modifications, the pressing message mechanism, or particularly the pressing message mechanism located at the upper face of the seat 2, may be built as a mechanical message system including a pair of right and left message members capable of rocking motion, and treatment elements mounted to the tips, respectively, of the paired message members. The message members are preferably capable of eccentric motion or rocking motion. Moreover, the right and left message members may be configured to effect message actions by turns.

[0238] For example, for the message operation of the back message mechanism 5 in the present embodiment, the first treatment element 15R located at the tip of the right first arm member 14R and the second treatment element 17R located at the tip of

the right second arm member 16R are preferably movable close to and away from each other in the top-bottom direction so as to apply grasping massage to the right shoulder region. In addition, the first treatment element 15R and the second treatment element 17R may be configured to rock while moving in a loop-like path.

[0239] Moreover, the first treatment element 15L located at the tip of the left first arm member 14L and the second treatment element 17L located at the tip of the left second arm member 16L may be configured to move close to and away from each other in the top-bottom direction so as to apply grasping and kneading massage to the left shoulder region. In addition, the first treatment element 15L and the second treatment element 17L may be configured to rock while moving in a loop-like path.

[0240] Thus, in the back massage mechanism 5, the right first, second arm members 14R, 16R and the left first, second arm members 14L, 16L rock while moving up and down and from side to side in a loop-like path. This allows the approaching-separating movement of the right first and second treatment elements 15R and 17R arranged in the top-bottom direction and the approaching-separating movement of the left first and second treatment elements 15L and 17L arranged in the top-bottom direction to be effected alternately or concurrently.

[0241] Moreover, for example, the right and left first treatment elements 15R and 15L, and the right and left second

treatment elements 17R and 17L may be configured to perform tapping massage.

[0242] The mechanical massage system includes a driving source constructed of an electric motor or similar device, and a rotation shaft which is rotationally moved by the driving source. On the rotation shaft, a pair of right and left massage members are mounted eccentrically, or mounted via an inclined cam assembly. Moreover, the mechanical massage system is preferably movable in the front-rear direction within the seat 2.

[0243] Where the paired right and left massage members are eccentrically mounted, the massage members (in other words, arm members) move back and forth in the top-bottom direction relative to the upper face of the seat 2. This movement causes the treatment elements attached to the tips of the corresponding massage members to force the buttocks of the user upward. For this buttocks-lifting action, the right treatment element and the left treatment element may force the right buttocks region and the left buttocks region, respectively, by turns. The aforestated arrangement provides the same actions and effects as achieved when the air bags A to H force the buttocks of the user upward in the massage operation involving "cooperative massages 1 to 4".

[0244] Where the paired right and left massage members are mounted via the inclined cam assembly, the massage members rock with rolling motion, and the treatment elements move, for example,

in a loop-like path during the approaching-separating movement. That is, the treatment elements attached to the tips of the corresponding massage members each have an upward-movement component, and thus force the buttocks of the user upward. The aforesaid arrangement provides the same actions and effects as achieved when the air bags A to H force the buttocks of the user upward in the massage operation involving "cooperative massages 1 to 4".

[0245] Moreover, in the chair-type massager 1 embodying the principles of the invention, the mechanical massage system may be located in each of the locations where the air bags G and H are to be placed, respectively. In other words, two mechanical massage systems may be mounted in the backrest 3. With this so-called dual mechanical system, while the back massage mechanism 5 is grasping the shoulder, the massage members of the massage mechanisms of the dual mechanical system positioned below are driven to move frontward so as to press the back of the user frontward. This allows "cooperative massage 5" and "cooperative massage 6" to be achieved.

[0246] Thus, in the chair-type massager 1 embodying the principles of the invention, the control unit exercises control so that "grasping-kneading massage operation" and "pressing massage operation" are carried out in a cooperative manner. In the grasping-kneading massage operation, the back massage mechanism 5 effects alternating grasping-kneading massages for

the right and left shoulder regions (treatment areas). In the pressing massage operation, the mechanical massage system (the first pressing means), the side kneading mechanism 19 (the third pressing means), and the back kneading mechanism 20 (the second pressing means) each perform pressing massage. With the cooperative-operation control, the chair-type massager 1 achieves cooperative massage to press treatment areas, including the shoulder, with increased pressing force, as well as to stretch the shoulder while keeping hold of it. This allows body stretching treatment, such as the relief of stiffness in the treatment areas including the shoulder, to be achieved without causing user discomfort.

[0247] It should be understood that the embodiments as disclosed herein are considered in all respects as illustrative only and not restrictive. In particular, for such matters as not explicitly specified in the disclosure of the embodiment, for example, working conditions, operating conditions, and the dimensions, weights, etc. of the constituent components, those that do not depart from the practical range to be normally complied with by persons skilled in the art and that conform to matters of common knowledge among the skilled persons are adopted herein.

[0248] For example, as detailed above, the control unit exercises control so that the operation of the back massage mechanism 5 to effect alternating grasping-kneading massages for the right and left shoulder regions (treatment areas), and

the inflating and deflating operation of the plurality of air bags A to H to apply pressing force to the body regions, including the buttocks, the thighs, the upper arms, and the back can be carried out in a cooperative manner. Such a control operation, or equivalently the operation involving "cooperative massage 1" to "cooperative massage 7", is given by way of example and is not intended to be limiting of the principles of the invention, and therefore suitable design changes may be made in accordance with the range of treatment areas.

[0249] Moreover, for example, the lengths of the first arm member 14 and the second arm member 16 provided in the back massage mechanism 5, the angle of inclination of the kneading arm member 14 with respect to the rotary drive shaft 23, the spaced interval between the right and left first arm members 14, and the spaced interval between the right and left second arm members 16 may be subjected to suitable changes in accordance with the range of treatment areas.

Reference Signs List

[0250]

- 1 Chair-type massager
- 2 Seat
- 3 Backrest
- 5 Back massage mechanism
- 10 Seat's massage mechanism
- 12 Thigh massage mechanism

14R	First arm member
14L	First arm member
15R	First treatment element
15L	First treatment element
16R	Second arm member
16L	Second arm member
17R	Second treatment element
17L	Second treatment element
19	Side kneading mechanism
20	Back kneading mechanism
23	Rotary drive shaft
24R	Right massage unit
25R	First right converter
26	Switch
32R	First right rotary boss part
33R	First right annular fitting part
34R	First right restraint part
35	Outer cam surface
36	Inner cam surface
38R	Guide slot
39R	Second right converter
40R	Second right annular fitting part
41R	Second right restraint part
42R	Slider
45	Switching shaft

46	Hook part
47	Hook groove part
48	First engaging face (First terminal end wall)
49	Second engaging face (Second terminal end wall)
50	First rotation switching portion
51	Second rotation switching portion
A	Air bag (on the right portion of the seat)
B	Air bag (on the left portion of the seat)
C	Air bag (at the right side of the seat)
D	Air bag (at the left side of the seat)
E	Air bag (at the right side of the backrest)
F	Air bag (at the left side of the backrest)
G	Air bag (on the right portion of the backrest)
H	Air bag (on the left portion of the backrest)
U	User

CLAIMS

1. A chair-type massager, comprising:
 - a seat on which a user sits;
 - a backrest located at a rear portion of the seat;
 - a back massage mechanism, mounted to the backrest, for performing grasping and kneading massage on a treatment area of the user;
 - a pressing message mechanism to give pressing message to the user; and
 - a control unit to cause the back massage mechanism and the pressing message mechanism to perform a grasping-kneading massage operation and a pressing operation in a cooperative manner,
 - the grasping-kneading massage operation being performed by the back massage mechanism, and
 - the pressing operation being performed by the pressing message mechanism.
2. The chair-type massager according to claim 1, wherein the pressing message mechanism includes one or more air bags.
3. The chair-type massager according to claim 2, wherein the back massage mechanism includes

a pair of right and left first arm members, each of the first arm members having a first treatment element provided at a tip thereof, and

a pair of right and left second arm members, each of the second arm members having a second treatment element provided at a tip thereof,

the back massage mechanism is configured to perform grasping-kneading massage, which includes alternating grasping-kneading action for a right part of the treatment area and grasping-kneading action for a left part of the treatment area, by alternating approaching-separating movement of the right first and second treatment elements with approaching-separating movement of the left first and second treatment elements, and

the one or more air bags include at least one air bag located at at least one of an upper face of the seat, right and left sides of the seat, right and left sides of the backrest, and a front face of the backrest.

4. The chair-type massager according to claim 3, wherein the control unit, while causing the right first treatment element and the right second treatment element to move close to each other for grasping the right part of the treatment area of the user, keeps the left first treatment element and the left second treatment element separated away from each other, and

inflates the air bag located at a right portion of the upper face of the seat, and/or the air bag located at the right side of the seat,

thereby increasing a strength of massage treatment applied to the right part of the treatment area in a grasped state.

5. The chair-type massager according to claim 3, wherein the control unit, while causing the right first treatment element and the right second treatment element to move close to each other for grasping the right part of the treatment area of the user, keeps the left first treatment element and the left second treatment element separated away from each other, and

inflates one of the air bag located at the left side of the backrest and the air bag located at the right side of the backrest,

thereby increasing a strength of massage treatment applied to the right part of the treatment area in a grasped state.

6. The chair-type massager according to claim 3, wherein the control unit, while causing the left first treatment element and the left second treatment element to move close to each other for grasping the left part of the treatment area of the user, keeps the right first treatment element and the right second treatment element separated away from each other, and

inflates the air bag located at a left portion of the upper

face of the seat, and/or the air bag located at the left side of the seat,

thereby increasing a strength of massage treatment applied to the left part of the treatment area in a grasped state.

7. The chair-type massager according to claim 3, wherein the control unit, while causing the left first treatment element and the left second treatment element to move close to each other for grasping the left part of the treatment area of the user, keeps the right first treatment element and the right second treatment element separated away from each other, and inflates one of the air bag located at the left side of the backrest and the air bag located at the right side of the backrest,

thereby increasing a strength of massage treatment applied to the left part of the treatment area in a grasped state.

8. The chair-type massager according to claim 3, wherein the control unit, while causing the right first treatment element and the right second treatment element to move close to each other for grasping the right part of the treatment area of the user, keeps the left first treatment element and the left second treatment element separated away from each other, and inflates the air bag located at a left portion of the upper face of the seat, and/or the air bag located at the left side

of the seat,

thereby providing an action to give a stretch to the right part of the treatment area in a grasped state.

9. The chair-type massager according to claim 3, wherein the control unit, while causing the left first treatment element and the left second treatment element to move close to each other for grasping the left part of the treatment area of the user, keeps the right first treatment element and the right second treatment element separated away from each other, and inflates the air bag located at a right portion of the upper face of the seat, and/or the air bag located at the right side of the seat,

thereby providing an action to give a stretch to the left part of the treatment area in a grasped state.

10. The chair-type massager according to claim 3, wherein the control unit, while causing the right first treatment element and the right second treatment element to move close to each other for grasping the right part of the treatment area of the user, keeps the left first treatment element and the left second treatment element separated away from each other, and inflates the air bag located at a left portion of the front face of the backrest,

thereby causing a twist of a left part of an upper body

of the user.

11. The chair-type massager according to claim 3, wherein the control unit, while causing the left first treatment element and the left second treatment element to move close to each other for grasping the left part of the treatment area of the user, keeps the right first treatment element and the right second treatment element separated away from each other, and inflates the air bag located at a right portion of the front face of the backrest, thereby causing a twist of a right part of the upper body of the user.

12. The chair-type massager according to claim 3, wherein the control unit, when allowing the grasping-kneading massage for the left part of the treatment area of the user by the left first and second treatment elements and the grasping-kneading massage for the right part of the treatment area of the user by the right first and second treatment elements to be alternately performed, inflates the air bag located at the left side of the backrest and the air bag located at the right side of the backrest so as to hold the upper body of the user.

13. The chair-type massager according to claim 3, wherein

the back massage mechanism includes a switch to enable switching between

a first squeezing operation to cause the right first treatment element and the right second treatment element to effect squeezing action in a phase delayed with respect to a phase of squeezing action of the left first treatment element and the left second treatment element, and

a second squeezing operation to cause the right first and second treatment elements, and the left first and second treatment elements to effect squeezing actions in phase with each other.

14. The chair-type massager according to claim 13, wherein in the first squeezing operation, the left first and second treatment elements, and the right first and second treatment elements perform the respective grasping-kneading massages on the left part and the right part of the treatment area of the user by turns, and

in the second squeezing operation, the left first and second treatment elements, and the right first and second treatment elements perform the respective grasping-kneading massages on the left part and the right part of the treatment area of the user simultaneously.

15. The chair-type massager according to claim 1, wherein the pressing massage mechanism comprises a mechanical

massage system including

a pair of right and left massage members capable of
eccentric motion or rocking motion,

a treatment element mounted to a tip of the right massage
member, and

a treatment element mounted to a tip of the left massage
member.