

DESCRIPTION

Title of Invention: MASSAGING SYSTEM AND CHAIR MASSAGER EQUIPPED WITH THE MASSAGING SYSTEM

Technical Field

[0001] The present invention relates to a massaging system and a chair massager equipped with the massaging system.

Background Art

[0002] Massaging systems have customarily been designed to produce at least one or more massaging movements selected from a kneading movement, a tapping movement, a finger-pressure movement, and a vibrating movement for performing massage on a massage target area of user's body.

In Patent Literature 1, there is shown an example of such massaging systems (back-kneading device).

Prior Art Reference

Citation List

[0003] Patent Literature 1: Japanese Unexamined Patent Publication JP-A 2007-14466

Summary of Invention

Technical Problem

[0004] The conventional massaging system disclosed in Patent Literature 1 comprises: an up-and-down motor 63 for raising and lowering a system main body; a kneading motor 26 for producing kneading movement; a tapping motor 34 for producing tapping

movement; and an advancing-retracting motor for driving an arm having a massaging element at its front end to move forward and backward.

That is, in the massaging system disclosed in Patent Literature 1, the four motors separately effect their respective operations (raising and lowering operation, kneading operation, tapping operation, and advancing and retracting operation). Thus, the massaging system comprises a plurality of transmission means, such as a gear and a reducer, for transmitting a driving force exerted by each of the four motors to corresponding one of members including arms, and therefore has a very intricate structure (refer to FIGs. 3, 5, and 6, for example) of large size.

[0005] Moreover, in the case of incorporating such a large-sized massaging system in a chair massager, in the chair massager, as contrasted to its seat portion, its backrest portion increases in weight by an amount corresponding to the weight of the massaging system, thus causing an increase in weight and size of the chair massager as a whole.

The present invention has been devised in view of the circumstances as discussed supra, and accordingly its object is to provide a structurally simplified chair massager of compact design capable of freely changing the amount of projecting motion of a massaging element without fail to achieve a wider variety of appealing kneading massage movements to be given to various

areas of user's body (including user's shoulder, waist, and back).

Solution to Problem

[0006] In order to accomplish the described object, the following technical means is adopted for the implementation of the present invention.

A massaging system pursuant to the present invention comprises: paired right-hand and left-hand massaging members each having a massaging element at its front end, the massaging members being disposed on a mount; a horizontally-directed rotatably drive shaft, disposed on the mount, for transmitting a rotatably driving force to the paired massaging members; a driving section for actuating the paired massaging members to produce a massage movement by rotating the rotatably drive shaft; and a projecting amount-varying mechanism for changing an amount of projecting motion of the massaging element in a front-rear direction by rotating a base end of each of the paired massaging members about the rotatably drive shaft. In this construction, the projecting amount-varying mechanism has a coupling member which permits a change in the amount of projecting motion of the massaging element in the front-rear direction by rotating the base end of the massaging member about the rotatably drive shaft under transmission of a rotatably driving force exerted by the driving section-operated rotatably drive shaft.

[0007] It is preferable that the massaging member is provided at its base end with a restraint portion for restraining

the massaging member from rotating concurrently with a rotation of the rotatably drive shaft, and that the base end of the massaging member is allowed to rotate about the rotatably drive shaft by an action of the coupling member to move the restraint portion.

Another massaging system pursuant to the present invention comprises: paired right-hand and left-hand massaging members each having a massaging element at its front end, the massaging members being disposed on a mount; a horizontally-directed rotatably drive shaft, disposed on the mount, for transmitting a rotatably driving force to the paired massaging members; a first driving section for actuating the paired massaging members to produce a kneading massage movement by rotating the rotatably drive shaft; a second driving section, mounted for vertical movement over the mount, for actuating the paired massaging members to produce a tapping massage movement; a link member for providing a connection between the second driving section and a base end of each of the paired massaging members; and a projecting amount-varying mechanism for changing an amount of projecting motion of the massaging element in a front-rear direction by rotating the base end of each of the paired massaging members about the rotatably drive shaft. In this construction, the projecting amount-varying mechanism has a coupling member which permits a change in the amount of projecting motion of the massaging element in the front-rear direction by rotating the base end of the massaging member about the rotatably drive

shaft by imparting vertical movement to the second driving section under transmission of a rotatably driving force exerted by the first driving section-operated rotatably drive shaft.

[0008] It is preferable that the projecting amount-varying mechanism comprises: a moving member which lies between the base ends of the paired massaging members, engages an outer periphery of the rotatably drive shaft, and is movable along an axis of the rotatably drive shaft within a region between the base ends; and a coupling member, one end of which is pivotally supported for rotational movement in the front-rear direction relative to the moving member, and the other end of which is pivotally supported for rotational movement in the front-rear direction on the second driving section located above the moving member, and that the projecting amount-varying mechanism is designed so that, as the rotatably drive shaft is rotated, the moving member moves horizontally along the axis of the rotatably drive shaft between the base ends of the massaging members to effect up-and-down movement of the coupling member, thus imparting vertical movement to the second driving section.

[0009] It is preferable that the projecting amount-varying mechanism is provided with a screw thread formed at that part of an outer periphery of the rotatably drive shaft which lies between the base ends of the paired massaging members, and that, in the projecting amount-varying mechanism, the moving member comprises a ring member formed at its inner periphery with an

inner spirally-toothed portion which threadably engages the screw thread, and a support member which supports the ring member while slidably engaging an exterior of the ring member, and it is also preferable that the projecting amount-varying mechanism is designed so that, as the rotatably drive shaft is rotated, the ring member moves horizontally over the screw thread to impart vertical rocking motion to the coupling member, thus effecting vertical movement of the second driving section.

[0010] It is preferable that the ring member remains out of sliding engagement with the support member during the ring member's horizontal movement over the screw thread, and that the ring member is brought into sliding engagement with the support member upon completion of the ring member's movement.

It is preferable that the coupling member has two separate ends, with a spring member lying in between for providing a connection between one of the ends and the other, whereby the coupling member can be changed in its length.

[0011] A chair massager pursuant to the present invention comprises: the described massaging system; a floor-placeable seat portion for receiving user's buttocks; and a backrest portion incorporating the massaging system, mounted at a rear of the seat portion, for supporting user's back.

Advantageous Effects of Invention

[0012] The present invention provides a structurally simplified chair massager of compact design capable of freely

changing the amount of projecting motion of a massaging element without fail to achieve a wider variety of appealing kneading massage movements to be given to various areas of user's body (including user's shoulder, waist, and back).

Brief Description of Drawings

[0013] [FIG. 1] FIG. 1 is a front perspective view showing the first embodiment of a massaging system pursuant to the present invention, with its massaging element set in forwardly advanced position.

[FIG. 2] FIG. 2 is a front perspective view showing the first embodiment of the massaging system pursuant to the present invention, with the massaging element set in retracted position.

[FIG. 3] FIG. 3 is a rear perspective view showing the first embodiment of the massaging system pursuant to the present invention, with the massaging element set in forwardly advanced position.

[FIG. 4] FIG. 4 is an enlarged view, with parts omitted, showing part of first and second conversion sections.

[FIG. 5] FIG. 5 is a front view showing the first embodiment of the massaging system pursuant to the present invention, with the massaging element set in forwardly advanced position (corresponding to FIG. 1).

[FIG. 6] FIG. 6 is a front view showing the first embodiment of the massaging system pursuant to the present

invention, with the massaging element under movement toward its retracted position.

[FIG. 7] FIG. 7 is a front view showing the first embodiment of the massaging system pursuant to the present invention, with the massaging element set in retracted position (corresponding to FIG. 2).

[FIG. 8] FIG. 8(a) is a sectional right side view showing the first embodiment of the massaging system pursuant to the present invention, with the massaging element set in forwardly advanced position (the section taken along the line A-A of FIG. 5), and FIG. 8(b) is a sectional right side view showing the same massaging system, with the massaging element set in retracted position (the section taken along the line B-B of FIG. 7).

[FIG. 9] FIG. 9 is a front perspective view showing the second embodiment of the massaging system pursuant to the present invention, with its massaging element set in forwardly advanced position.

[FIG. 10] FIG. 10 is a front perspective view showing the second embodiment of the massaging system pursuant to the present invention, with the massaging element set in retracted position.

[FIG. 11] FIG. 11 is a front perspective view showing the second embodiment of the massaging system pursuant to the present invention, with the massaging element set in further

retracted position.

[FIG. 12] FIG. 12 is a front view showing the second embodiment of the massaging system pursuant to the present invention, with the massaging element set in forwardly advanced position (corresponding to FIG. 9).

[FIG. 13] FIG. 13 is a front view showing the second embodiment of the massaging system pursuant to the present invention, with the massaging element under movement toward its retracted position.

[FIG. 14] FIG. 14 is a front view showing the second embodiment of the massaging system pursuant to the present invention, with the massaging element set in retracted position (corresponding to FIG. 10).

[FIG. 15] FIG. 15 is a front view showing the second embodiment of the massaging system pursuant to the present invention, with the massaging element set in further retracted position (corresponding to FIG. 11)

[FIG. 16] FIG. 16(a) is a sectional right side view showing the first embodiment of the massaging system pursuant to the present invention, with the massaging element set in forwardly advanced position (the section taken along the line A-A of FIG. 12), FIG. 16(b) is a sectional right side view showing the same massaging system, with the massaging element set in retracted position (the section taken along the line B-B of FIG. 14), and FIG. 16(c) is a sectional right side view showing the

same massaging system, with the massaging element set in further retracted position (the section taken along the line C-C of FIG. 15).

[FIG. 17] FIG. 17 is a perspective view showing a chair massager pursuant to the present invention as a whole.

Description of Embodiments

[0014] The following describes embodiments of the present invention with reference to the drawings.

FIGS. 1 to 17 are drawings showing a massaging system 4 and a chair massager 1 equipped with the massaging system 4 in accordance with the embodiments of the present invention.

In what follows, for the purpose of convenience in explanation, that part of each of the massaging system 4 and the chair massager 1 according to the present embodiment located toward the left of FIG. 1 or 4 will be defined as the right-side part, and hence that part thereof located toward the right of the drawing will be defined as the left-side part.

[0015] Moreover, that part of each of the massaging system 4 and the chair massager 1 facing toward the front as viewed in FIG. 1 or 4 in a direction to pass obliquely rightwardly through the paper sheet bearing the drawing will be defined as the front-side part, and that part thereof facing toward the rear as viewed in the drawing in the same direction will be defined as the rear-side part.

In addition, that part of each of the massaging system

4 and the chair massager 1 according to the present embodiment located toward the top of FIG. 1 or 4 will be defined as the upper part, and hence that part thereof located toward the bottom of the drawings will be defined as the lower part.

[0016] The described definitions of directions conform to a direction of from front to rear, a direction of from right to left (horizontal direction), and a direction of from top to bottom (vertical direction) with respect to a user sitting in a seat 2 of the chair massager 1.

The following describes an overview of the chair massager 1 equipped with the massaging system 4 pursuant to the present invention.

As shown in FIG. 17, the chair massager 1 comprises: a seat portion 2, positioned at a predetermined height on the floor of, for example, a living room, for receiving the buttocks of a user sitting in it; a backrest portion 3, mounted at the rear of the seat portion 2, for supporting user's back; and a massaging system 4, incorporated in the backrest portion 3, for performing massage over the body range of the user sitting in the seat portion 2 extending from the shoulder to the waist, or equivalently the back of the user.

[0017] The massaging system 4 pursuant to the present invention is also applicable to a legless chair massager having a seat portion 2 which is placed directly on a floor.

As shown in FIG. 17, the seat portion 2, which is

substantially rectangular in plan configuration, is positioned at a predetermined height on a floor to receive user's buttocks at its seat surface. Inside the seat portion 2, there is provided a frame member capable of supporting user's buttocks from below. Moreover, a cushion member is disposed on the upper side (seat surface) of the seat portion 2. The seat portion 2 is set with its seat surface substantially horizontal in parallel relation to the floor, and provides a comfortable seating for the user.

[0018] The backrest portion 3 is a platy member, the horizontal dimension (width) of which is slightly greater than the width of user's shoulder, and the vertical length of which is greater than the length of the seat portion 2 in the front-rear direction, so as to hold the entire area of user's back.

Moreover, the backrest portion 3 is designed as a hollow casing which is mounted at the rear of the seat portion 2 for supporting user's back (waist-to-shoulder region). Inside the backrest portion 3, there is provided the massaging system 4 having a vertically moving mechanism 44 for moving a mount 5 up and down freely.

[0019] On the front side of the backrest portion 3, there is provided a cloth top cover which is large enough to cover the range of vertical movement of the massaging system 4. The cloth top cover prevents direct contact of the massaging system 4 (massaging element) with user's back (massage target area). Moreover, the backrest portion 3 is capable of assuming a reclined

position with respect to the seat portion 2.

It is noted that the chair configuration of the chair massager 2 thus far described is cited merely by way of example, and the chair massager 2 may be given any suitable shape and structure without special limitations.

[First Embodiment]

With reference to the drawings, the first embodiment of the massaging system 4 pursuant to the present invention will be described.

[0020] As shown in FIGs. 1 to 8, the massaging system 4 in this embodiment for producing two or more massaging movements comprises: massaging members, taken as a pair, spaced apart in the horizontal direction (width direction); a kneading massage mechanism 21 for giving a kneading massage movement to a massage target area of user's body (user's back) (more specifically, grabbing-kneading massage mechanism); and a tapping massage mechanism 34 for producing a tapping massage movement. The massaging system 4 in this embodiment further comprises a vertically moving mechanism 44 which serves as a guide for vertical movement within the backrest portion 3.

[0021] Moreover, the massaging system 4 in this embodiment has a projecting amount-varying mechanism 47 for changing the extent to which a first massaging element 10 disposed at the front end of a first massaging member 7 is projected in the front-rear direction, thus permitting advancing and retracting

motion of the first massaging element 10 in the front-rear direction.

The grabbing-kneading massage mechanism 21, the tapping massage mechanism 34, the vertically moving mechanism 44, and the projecting amount-varying mechanism 47 thus far described are housed in unitary relation in the mount 5.

[0022] The mount 5 is installed inside the backrest portion 3 so as to be located toward the front wall of the backrest portion 3. The mount 5 receives therein a grabbing-kneading movement driving section 23 (a rotatably drive shaft 22, a first motor, a first gear box 26, etc.), a tapping movement driving section 36 (a rotatably drive shaft 35, a second motor, a second gear box 39, etc.), and the vertically moving mechanism 44 (an up-and-down driving section 45, etc.) that will hereafter be described.

The mount 5 is a sturdy housing which is strong enough to withstand various operations, and, its interior is partitioned off for the separate accommodation of the described individual mechanisms. That is, each mechanism is accommodated in corresponding one of separate spaces obtained by partitioning the interior.

[0023] Although the massaging system 4 in this embodiment is illustrated as providing two massaging functions achieved by the grabbing-kneading massage mechanism 21 and the tapping massage mechanism 34, the massaging system 4 may be designed

to produce at least two or more massaging movements selected from a kneading movement, a tapping movement, a finger-pressure movement, and a vibrating movement for performing massage on user's back (massage target area).

There is provided a massaging body 6 for producing a grabbing-kneading massage movement and a tapping massage movement.

[0024] As shown in FIGs. 1 and 2, the massaging body 6 is constructed of a combination of a first massaging member 7 having a first massaging element 10 at its front end and a second massaging member 14 having a second massaging element 17 at its front end. The first massaging member 7 is disposed on the mount 5, and the second massaging member 14 is disposed on the mount 5 so as to be located toward the base end of the first massaging member 7. The massaging members are attached, at their base ends, to the rotatably drive shaft 22 of the grabbing-kneading massage mechanism 21 as will hereafter be described, and, the base ends are disposed in overlapping relation with each other in the horizontal direction.

[0025] There are provided paired right-hand and left-hand first massaging members 7 disposed on the mount 5. The first massaging member 7 is operated so that the first massaging element 10 disposed at its front end gives a massage movement to the massage target area of user's body from above.

As shown in FIGs. 8(a) and 8(b), the first massaging member

7 has the form of an elongated arm member which can be projected forwardly of the rotatably drive shaft 22 of the grabbing-kneading massage mechanism 21.

[0026] The base end of the first massaging member 7 is provided with a first annular fit portion 8 which is fitted, via a bearing 30, to an inclined boss portion 28 of a first conversion section 27 as will hereafter be described. A support portion 9 (arm portion) is extended forwardly from the first annular fit portion 8. The first annular fit portion 8 is a thin-walled ring-like member, the diameter of the inner periphery of which is substantially equal to the diameter of the outer periphery of the bearing 30 fitted at the outside of a cam face 29 of the inclined boss portion 28.

[0027] The first massaging element 10 is attached to the front end of the arm portion for projecting motion to move forwardly of the axis of rotation of the first annular fit portion 8 (the axis of rotation of the rotatably drive shaft 22), as well as to further move forwardly of the front side of the backrest portion 3. The first massaging element 10 is formed in any suitable shape, such as a spherical shape, from resin or hard rubber, for example.

Moreover, a first restraint piece 12 constituting a first restraint portion 11 is formed at the base end of the first massaging member 7 in substantially face-to-face relation to the arm portion. A first restraint pin 13 formed at the front

end of a link member 42 constituting the first restraint portion 11 slidably engages the first restraint piece 12.

[0028] That is, the first massaging member 7 is mounted, with its arm portion facing slightly upward in the forward direction, so that the first massaging element 10 disposed at the front end faces forward and lies ahead of the rotatably drive shaft 22.

There are provided paired right-hand and left-hand second messaging members 14 disposed on the mount 5. The paired second messaging members 14 are situated inwardly of the paired first messaging members 7 in overlapping relation with each other in the horizontal direction. The second messaging member 14 is operated so that the second massaging element 17 disposed at its front end moves close to and away from the first massaging element 10 to produce a massage movement.

[0029] The second messaging member 14 is a short member compared to the first messaging member 7. The base end of the second messaging member 14 is attached to the rotatably drive shaft 22 of the grabbing-kneading massage mechanism 21. The second messaging member 14 is located below the arm portion of the first messaging member 7.

The base end of the second massaging member 14 is provided with a second annular fit portion 15 which is fitted to an eccentric boss portion 32 of a second conversion section 31 as will hereafter be described. There is provided a short support portion 16

extending forwardly from the second annular fit portion 15. The second annular fit portion 15 is a ring-like member, the diameter of the inner periphery of which is substantially equal to the diameter of the outer periphery of a cam face 33 of the eccentric boss portion 32.

[0030] The second massaging element 17 is attached to the front end of the short support portion 16 for projecting motion to move forwardly of the axis of rotation of the first annular fit portion 8 (the axis of rotation of the rotatably drive shaft 22), as well as to move forwardly of the front side of the backrest portion 3.

Moreover, the base end of the second massaging member 14 is formed with a second restraint piece 19 constituting a second restraint portion 18 as will hereafter be described. The second restraint piece 19 is pivotally supported on a coupling piece 20 constituting the second restraint portion 18.

[0031] That is, the second massaging member 14 is mounted so that the forward-facing second massaging element 17 is located behind and below the first massaging element 10. The second massaging element 17 and the first massaging element 10 are spaced apart in face-to-face relation to leave a space in between in which the massage target area of user's body (user's shoulder) can be caught stably.

As shown in FIGs. 1 to 8, the grabbing-kneading massage mechanism 21 in this embodiment comprises: the

horizontally-directed rotatably drive shaft 22, disposed on the mount 5, for transmitting a rotatably driving force to the paired first and second massaging members 7 and 14; and the grabbing-kneading movement driving section 23, received in the left-hand part of the mount 5, for actuating the paired first and second massaging members 7 and 14 by rotating the rotatably drive shaft 22. The grabbing-kneading movement driving section 23 comprises a grabbing-kneading movement driving motor 24 (first driving motor) and a first gear box 26.

[0032] In a vertically lower part of the massaging system 4 (the mount 5), the rotatably drive shaft 22 is disposed forward of an output shaft 25 of the grabbing-kneading movement driving motor 24 (motor rotary shaft) so as to span the region between the right side and the left side of the massaging system. The rotatably drive shaft 22 is mounted so as to pass horizontally through the base end of the first massaging member 7 and the base end of the second massaging member 14.

The grabbing-kneading movement driving motor 24 is received in the left-hand part of the mount 5, with its output shaft 25 facing downward. The grabbing-kneading movement driving motor 24 and the rotatably drive shaft 22 are connected to each other via the first gear box 26.

[0033] In the described construction, the rotatably drive shaft 22 is provided with: the inclined boss portion 28, the outer periphery of which is formed with the cam face 29, attached

with inclination to the rotatably drive shaft 22; the first annular fit portion 8 disposed at the base end of the first massaging member 7 so as to be fitted, via the bearing 30, to the cam face 29 of the inclined boss portion 28; and the first restraint portion 11 for restraining the first massaging member 7 from rotating concurrently with the rotation of the rotatably drive shaft 22. Upon rotating the rotatably drive shaft 22 by the first driving motor 24 of the grabbing-kneading movement driving section 23, the inclined boss portion 28 is rotated, whereby the first annular fit portion 8 engaging the inclined boss portion 28 and the first restraint portion 11 effect kneading movement of the first massaging member 7.

[0034] At the same time, the eccentric boss portion 32 is rotated, and the rotation of the eccentric boss portion 32 is converted into vertical rocking motion of the second massaging member 14 by the second annular fit portion 15 slidably fitted at the outside of the eccentric boss portion 32.

Thus, the grabbing-kneading massage mechanism 21 rotates the rotatably drive shaft 22, under the rotatably driving force exerted by the output shaft 25 of the grabbing-kneading movement driving motor 24, to rock the first massaging element 10 provided in the first massaging member 7 and the second massaging element 17 provided in the second massaging member 14 so that they move close to and away from each other. In this way, grabbing and kneading movement can be produced. This mechanism is

substantially the same as that described in detail in, for example, Japanese Patent Application No. 2014-265078 filed by the applicants of the present application.

[0035] Moreover, the tapping massage mechanism 34 in this embodiment comprises: the horizontally-directed rotatably drive shaft 35, disposed on the mount 5 inside the backrest portion 3, for transmitting a rotatably driving force to the first massaging member 7; the tapping movement driving section 36, received in the central part of the mount 5, for effecting tapping movement of the first massaging member 7; and the link member 42 for transmitting power from the tapping movement driving section 36 to the first massaging member 7. The tapping movement driving section 36 comprises a tapping movement driving motor 37 (second driving motor) and a second gear box 39.

[0036] In a vertically upper part of the massaging system 4 (the mount 5), the rotatably drive shaft 35 is disposed forward of an output shaft 38 of the tapping movement driving motor 37 (motor rotary shaft) so as to span the region between the right side and the left side of the massaging system. The rotatably drive shaft 35 is mounted so as to pass horizontally through the base ends of the paired link members 42.

The tapping movement driving motor 37 is received in the central part of the mount 5, with its output shaft 38 facing upward. The tapping movement driving motor 37 and the rotatably drive shaft 35 are connected to each other via the second gear

box 39.

[0037] The second gear box 39 is disposed forward of the tapping movement driving motor 37, and lies between the base ends of the paired link members 42. The rotatably drive shaft 35 is disposed so as to pass through the second gear box 39.

The paired link members 42 are each shaped in a rodlike platy piece disposed so as to be hung in substantially downstanding condition, as seen in side view. The link member 42 has its front end slidably coupled via the first restraint portion 11, and has its base end pivotally supported on the rotatably drive shaft 35.

[0038] More specifically, there is provided a pair of eccentric cam members 40 in flange format each end of the rotatably drive shaft 35, and each eccentric cam member 40 has a substantially cylindrical endless track (cam face) at its outer periphery. Meanwhile, as shown in FIGs. 4 and 8, the paired link members 42, each in the form of a rodlike platy piece disposed so as to be hung in substantially downstanding condition as seen in side view, convert the rotation of the tapping movement driving section 36 into tapping movement (vertical movement), and transmit the movement to the first massaging member 7.

[0039] The base end of the link member 42 is provided with a third annular fit portion 43. The third annular fit portion 43 is a ring-like member fitted, via a bearing 41, at the outside of the eccentric cam member 40 attached to each end of the rotatably

drive shaft 35 (the shaft for tapping massage movement).

Meanwhile, the front end of the link member 42 is formed with the first restraint pin 13 which slidably engages the first restraint piece 12 formed at the base end of the first massaging member 7 (the first annular fit portion 8).

[0040] In such a mechanism, as the rotatably drive shaft 35 is rotated, the eccentric cam member 40 effects vertical reciprocating movement of the link member 42, and, in response to this movement (cranking movement), the base end of the first massaging member 7 is rotated in small increments about the axis of rotation, thus causing wiggling motion of the first massaging element 10 to achieve tapping massage. The theory of operation for this mechanism is substantially the same as the principle underlying the technology disclosed in Japanese Unexamined Patent Publication JP-A 2004-41689.

[0041] Moreover, the vertically moving mechanism 44 comprises: the up-and-down driving section 45, received in the right-hand part of the mount 5, for moving the massaging system 4 (the mount 5) in the vertical direction; and a rail member 46 for guiding the massaging system 4 in vertical movement.

The first massaging element 10 provided in each of the paired first massaging members 7 can be changed in the amount of its projecting motion in the front-rear direction by the projecting amount-varying mechanism 47.

[0042] The projecting amount-varying mechanism 47 changes

the amount of projecting motion of the first massaging element 10 in the front-rear direction by allowing the link member 42 which provides a connection between the tapping movement driving section 36 (second driving motor, etc.) and the base end of each of the paired first massaging members 7, as well as the base end of each of the paired first massaging members 7, to rotate about the rotatably drive shaft 22.

That is, in the projecting amount-varying mechanism 47, under the transmission of the rotatably driving force exerted by the grabbing-kneading movement driving motor 24-operated rotatably drive shaft 22, the tapping movement driving section 36 is moved in the vertical direction over the mount 5 for rotating the base end of the first massaging member 7 about the rotatably drive shaft 22, whereby the amount of projecting motion of the first massaging element 10 in the front-rear direction (the amount of advancing and retracting motion) can be changed.

[0043] As shown in FIGs. 1 to 8, the projecting amount-varying mechanism 47 comprises: a moving member 48 which lies between the base ends of the paired first massaging members 7 (lies at a location intermediate the ends of the rotatably drive shaft 22 in the direction of its axis), engages the outer periphery of the rotatably drive shaft 22, and is movable along the axis of the rotatably drive shaft 22 within the region between the base ends; and a coupling member 49, one end of which is pivotally supported for rotational movement in the front-rear

direction relative to the moving member 48, and the other end of which is pivotally supported for rotational movement in the front-rear direction on the tapping movement driving section 36 located above the moving member 48.

[0044] The projecting amount-varying mechanism 47 is designed so that, as the rotatably drive shaft 22 is rotated, the moving member 48 moves horizontally along the axis of the rotatably drive shaft 22 between the base ends of the first massaging members 7 to effect up-and-down movement of the coupling member 49, thus imparting vertical movement to the tapping movement driving section 36 with the coupling member 49 coupled to it.

Moreover, the projecting amount-varying mechanism 47 has a screw thread 50 for guiding the moving member 48 in horizontal movement. The screw thread 50 is formed at the outer periphery of the rotatably drive shaft 22 so as to lie between the base ends of the paired first massaging members 7, as well as the base ends of the paired second massaging members 14 (lie at a location intermediate the ends of the rotatably drive shaft in the direction of its axis). The screw thread 50 is an outer toothed portion formed so as to be spirally wound around the outer periphery of the rotatably drive shaft 22. The shape and dimensions such as a pitch of the screw thread 50 may be suitably determined without special limitations.

[0045] The moving member 48 comprises: a ring member 51

formed at its inner periphery with an inner spirally-toothed portion which threadably engages the screw thread 50; and a support member 52 which supports the ring member 51 while slidably engaging the outer periphery of the ring member 51.

The ring member 51 slidably moves around the screw thread 50 while traveling in the horizontal direction over the screw thread 50 (the rotatably drive shaft 22). That is, the ring member 51 is horizontally moved while rolling over the screw thread 50.

[0046] During its horizontal movement over the screw thread 50, the ring member 51 remains out of sliding engagement with the support member 52. On the other hand, following the completion of its movement, the ring member 51 is brought into sliding engagement with the support member 52.

The support member 52 has a hole formed therethrough as a through hole 53 having a horizontally-directed axis. The diameter of the inner periphery of the through hole 53 is substantially equal to the diameter of the outer periphery of the ring member 51. That is, the support member 52 is fitted, via the ring member 51 threadably engaging the screw thread 50, at the outside of the rotatably drive shaft 22.

[0047] The upper surface of the support member 52 is provided with a pivotal portion 54 for pivotally supporting the coupling member 49. The pivotal portion 54 has its axis defined by a hole (recess) pointing in the front-rear direction. The

coupling member 49 shaped in an elongated rod has one end bent forwardly in the form of an L-bend, as seen in side view. The one end in bend form helps avoid interference between the coupling member 49 and the rotatably drive shaft 22 situated therebelow. The formation of such a bend in the coupling member 49 is cited merely by way of example, and the coupling member 49 may be given any suitable configuration without special limitations in design.

[0048] The tip of the one end is formed with a hole 55 having an axis pointing in the front-rear direction. The axis of the hole 55 coincides with the axis of the pivotal portion 54 of the support member 52.

That is, one end of the coupling member 49 is pivotally supported for rotational movement in the front-rear direction relative to the support member 52 (moving member 48) via a pivotal pin 56 received in the hole 55 and the pivotal portion 54 arranged in axial alignment with each other.

[0049] On the other hand, the other end of the coupling member 49 is formed with a hole 57 having an axis pointing in the front-rear direction. The hole 57 receives therein the pivotal pin 56 having an axis pointing in the front-rear direction. The other end of the coupling member 49 is pivotally supported on the front wall of the second gear box 39 for rotational movement in the front-rear direction relative to the tapping movement driving section 36 via the pivotal pin 56 received in the hole

57.

That is, the coupling member 49 lies between the screw thread 50 (positioned intermediate the ends of the rotatably drive shaft 22 in the direction of its axis) situated therebelow and the tapping movement driving section 36 (the second gear box 39) situated thereabove, and is allowed to move in the vertical direction within the region between the screw thread 50 and the tapping movement driving section 36.

[0050] The mount 5 has paired right-hand and left-hand guide rails 58 for guiding the tapping movement driving section 36 in vertical movement. The paired guide rails 58 are disposed forward of the second gear box 39, and lie above the screw thread 50 (positioned intermediate the ends of the rotatably drive shaft 22 in the direction of its axis). The guide rails 58, each having a vertically-directed axis, are spaced apart in the horizontal direction.

That is, the paired guide rails 58 are disposed so as to pass vertically through the front side of the second gear box 39.

[Workings]

The following describes the workings of the projecting amount-varying mechanism 47 mounted in the massaging system 4 of the present invention with reference to the drawings.

[0051] In FIGs. 1, 5, and 8(a), the moving member 48 is set in a position at the left end of the screw thread 50 to which

it has been moved with the ring member 51 rolling over the screw thread 50 (the rotatably drive shaft 22) in rotating motion. At this time, the coupling member 49 stays in upstanding condition, with one end set in the left-end position to which it has been moved concurrently with the leftward movement of the ring member 51, and the other end set in an upper position to which it has been upwardly moved.

Following the completion of its movement, the ring member 51 is brought into sliding engagement with the support member 52.

[0052] For example, following the completion of its leftward movement upon abutting against an annular stopper 59 disposed at the left end of the screw thread 50, the ring member 51 is brought into sliding engagement with the support member 52.

This arrangement makes it possible to allow the paired first massaging members 7 to produce a grabbing-kneading massage movement and a tapping massage movement without the necessity of stopping the rotation of the rotatably drive shaft 22, as well as to protect the projecting amount-varying mechanism 47 from damage caused by a load in the horizontal direction on the ring member 51 in traveling motion.

[0053] At this time, the tapping movement driving section 36 is set in a position at the upper part of the mount 5 to which it has been moved by the operation of the projecting

amount-varying mechanism 47 (under the upward movement of the coupling member 49). Moreover, the link member 42 is also set in a position at the upper part of the mount 5 to which it has been moved concurrently with the upward movement of the tapping movement driving section 36.

In consequence of this operation, the first restraint portion 11 is lifted up, thus permitting forward rotation of each of the paired first massaging members 7 about the axis of the rotatably drive shaft 22, whereupon the first massaging element 10 is projected forwardly of the mount 5.

[0054] When rotating the rotatably drive shaft 22 against the current direction of rotation (for example, when operating the motor constituting the grabbing-kneading movement driving section 23 in reverse direction), then the ring member 51 constituting the moving member 48 slidably moves around the screw thread 50, while rotating in a direction reverse to the direction of rotation for leftward movement, so as to travel rightward over the screw thread 50.

In response to the rightward movement of the ring member 51 over the screw thread 50, one end of the coupling member 49 moves rightward correspondingly, whereupon the coupling member 49 moves downward. In response to the downward movement of the coupling member 49, the tapping movement driving section 36 is guided to move downward from the upper part of the mount 5 by the guide rails 58. Then, in response to the downward movement

of the tapping movement driving section 36, the link member 42 moves toward the lower part of the mount 5 (refer to FIG. 6).

[0055] In FIGs. 2, 7, and 8(b), the ring member 51 (the moving member 48) is set in a position at the right end of the screw thread 50 to which it has been moved while rotating clockwise over the screw thread 50 (the rotatably drive shaft 22) in rotating motion. At this time, due to one end of the coupling member 49 being set in the right-end position to which it has been moved concurrently with the rightward movement of the ring member 51, the coupling member 49 stays in a lower position. That is, the coupling member 49 assumes a reclined position. Following the completion of its rightward movement upon arriving at the right end of the screw thread 50, the ring member 51 is brought into sliding engagement with the support member 52.

[0056] At this time, the tapping movement driving section 36 is set in a position at the central part of the mount 5 to which it has been moved under the downward movement of the coupling member 49. Moreover, at this time, the link member 42 is set in a position at the lower part of the mount 5 to which it has been moved concurrently with the downward movement of the tapping movement driving section 36.

In consequence of this operation, the first restraint portion 11 is pressed down, thus permitting backward rotation of each of the paired first massaging members 7 about the axis of the rotatably drive shaft 22, whereupon the first massaging

element 10 is retracted toward the mount 5.

[0057] Thus, the amount of projecting motion of the first massaging element 10 can be changed by moving the ring member 51 reciprocally between the opposite ends of the screw thread 50 while changing the direction of rotation of the rotatably drive shaft 22 for selection of operation modes of the projecting amount-varying mechanism 47.

In the thereby structured projecting amount-varying mechanism 47 in this embodiment, as the rotatably drive shaft 22 is rotated, the ring member 51 (the moving member 48) moves in the horizontal direction over the screw thread 50 (positioned intermediate the ends of the rotatably drive shaft 22 in the direction of its axis) to impart vertical rocking motion to the coupling member 49, thus effecting vertical movement of the tapping movement driving section 36 along the guide rails 58 for changing the amount of projecting motion of the first massaging element 10.

[0058] That is, the massaging system 4 pursuant to the present invention is characterized in that two operations (the grabbing-kneading massage operation, and the operation of adjusting the amount of projecting motion of the first massaging element 10 by the projecting amount-varying mechanism 47) can be effected only with a single grabbing-kneading movement driving section 23 (first driving section).

The placement of the thereby structured projecting

amount-varying mechanism 47 is conducive to the production of the massaging mechanism 4 which is simple in configuration and compact in design, and yet can change the amount of projecting motion of the first massaging element 10 without fail. This makes it possible to achieve a wider variety of appealing kneading massage movements to be given to various areas of user's body (including user's shoulder, waist, and back).

[Second Embodiment]

With reference to the drawings, the second embodiment of the massaging system 4 pursuant to the present invention will be described.

[0059] This embodiment differs from the first embodiment in the configuration of the coupling member 49 provided in the projecting amount-varying mechanism 47. The projecting amount-varying mechanism 47 of this embodiment is otherwise similar to that of the first embodiment. Hence, the details of other constituent components than the coupling member of the projecting amount-varying mechanism 47 will not be given below. Moreover, the structure of the massaging system 4 (except for the projecting amount-varying mechanism 47) will hereafter be described.

[0060] As shown in FIGs. 9 to 16, the coupling member 49 constituting the projecting amount-varying mechanism 47 has two separate ends, with a spring member 60 lying in between so as to provide a connection between one of the ends and the other,

whereby the coupling member 49 can be changed in its length.

That is, the coupling member 49 is an elongated member having separate opposite ends, of which one end is bent forwardly in the form of an L-bend, as seen in side view, to avoid interference with the rotatably drive shaft 22 situated below the coupling member 49.

[0061] Moreover, the tip of the one end is formed with a hole 55 having an axis pointing in the front-rear direction. The axis of the hole 55 coincides with the axis of the pivotal portion 54 of the support member 52. That is, one end of the coupling member 49 is pivotally supported for rotational movement in the front-rear direction relative to the support member 52 (moving member 48) via a pivotal pin 56 received in the hole 55 and the pivotal portion 54 arranged in axial alignment with each other.

On the other hand, the base edge of the one end opposite the tip thereof is made as a flat surface oriented in the front-rear direction, on which is placed the spring member 60. The spring member 60 is composed of a spring 61 having a predetermined strength, and a telescoping rod 62 inserted inside the spring 61.

[0062] The other separate end is attached to the upper part of the spring member 60. In this embodiment, the other end is made as a cylindrical member 63 disposed so as to cover the upper part of the spring member 60.

The tip of the other end is formed with a hole 57 having an axis pointing in the front-rear direction. The hole 57 receives therein the pivotal pin 56 having an axis pointing in the front-rear direction. The other end of the coupling member 49 is pivotally supported on the front wall of the second gear box 39 for rotational movement in the front-rear direction relative to the tapping movement driving section 36 via the pivotal pin 56 received in the hole 57.

[0063] That is, in the coupling member 49 of this embodiment, in the region between the screw thread 50 situated therebelow and the tapping movement driving section 36 situated thereabove, the spring member 60 serves as a shock absorber which moves with telescopic motion in the vertical direction.

The placement of the spring member 60 in the coupling member 49 imparts longitudinal telescopic movement to the coupling member 49, from which it follows that the first massaging element 10 is free to move in the front-rear direction to an extent corresponding to the telescopic movement of the coupling member 49. Hence, the first massaging element 10 is allowed to move so as to conform to the irregularities of user's back, and is thus capable of performing effective massage while running smoothly over user's back.

[Workings]

The following describes the workings of the projecting amount-varying mechanism 47 in this embodiment with reference

to the drawings.

[0064] In FIGs. 9, 12, and 16(a), the moving member 48 is set in a position at the left end of the screw thread 50 to which it has been moved with the ring member 51 rolling over the screw thread 50 (the rotatably drive shaft 22) in rotating motion.

At this time, in the coupling member 49, the spring member 60 remains extended. The coupling member 49 stays in upstanding condition, with one end set in the left-end position to which it has been moved concurrently with the leftward movement of the ring member 51, and the other end set in an upper position to which it has been upwardly moved.

Following the completion of its leftward movement upon abutting against a stopper 59 disposed at the left end of the screw thread 50, the ring member 51 is brought into sliding engagement with the support member 52.

[0065] At this time, the tapping movement driving section 36 is set in a position at the upper part of the mount 5 to which it has been moved under the upward movement of the coupling member 49. Moreover, the link member 42 is also set in a position at the upper part of the mount 5 to which it has been moved concurrently with the upward movement of the tapping movement driving section 36.

In consequence of this operation, the first restraint portion 11 is lifted up, thus permitting forward rotation of each of the paired first massaging members 7 about the axis of

the rotatably drive shaft 22, whereupon the first massaging element 10 is projected forwardly of the mount 5.

[0066] When rotating the rotatably drive shaft 22 against the current direction of rotation, then the ring member 51 moves rightward over the screw thread 50. In response to the rightward movement of the ring member 51 over the screw thread 50, one end of the coupling member 49 moves rightward correspondingly, whereupon the coupling member 49 moves downward. Both the tapping movement driving section 36 and the link member 42 move downward (refer to FIG. 13).

[0067] In FIGs. 10, 14, and 16(b), the ring member 51 is set in a position at the right end of the screw thread 50 to which it has been moved while rotating clockwise over the screw thread 50 (the rotatably drive shaft 22) in rotating motion. At this time, in the coupling member 49, due to the tapping movement driving section 36 being set in a position at the central part of the mount 5 to which it has been downwardly moved, the spring member 60 is slightly contracted so as to assume a reclined position. Following the completion of its rightward movement upon arriving at the right end of the screw thread 50, the ring member 51 is brought into sliding engagement with the support member 52.

[0068] In consequence of this operation, the first restraint portion 11 is pressed down, thus permitting backward rotation of each of the paired first massaging members 7 about

the axis of the rotatably drive shaft 22, whereupon the first massaging element 10 is retracted toward the mount 5.

Thus, the amount of projecting motion of the first massaging element 10 can be changed by moving the ring member 51 reciprocally between the opposite ends of the screw thread 50 while changing the direction of rotation of the rotatably drive shaft 22 for selection of operation modes of the projecting amount-varying mechanism 47.

[0069] Moreover, in this embodiment, the first massaging element 10 can be further retracted toward the mount 5.

In FIGs. 11, 15, and 16(c), after its rightward movement, the ring member 51 is now in sliding engagement with the support member 52.

At this time, when each of the paired first massaging members 7 is subjected to a load such for example as a force produced by user's act of leaning against the backrest portion 3, the spring member 60 provided in the coupling member 49 accommodates the load for further contraction, thus permitting further backward rotation of the first massaging member 7 about the axis of the rotatably drive shaft 22. This allows the first massaging element 10 to retract further toward the mount 5.

[0070] Thus, in this embodiment, the coupling member 49, being provided with the spring member 60, serves as a shock absorber capable of accommodating a load such as a force produced by user's act of leaning against the backrest portion 3. This

permits further retracting motion of the first massaging element 10 toward the mount 5.

That is, as shown in FIGs. 16(a) to 16(c), the massaging system 4 in this embodiment is capable of changing the amount of projecting motion of the first massaging element 10 to a greater extent by exploiting expansion and contraction of the spring member 60 provided in the coupling member 49 constituting the projecting amount-varying mechanism 47.

[0071] It should be understood that the scope of the present invention is indicated by the appended claims rather than the foregoing description, and all changes that come within the meaning of and the range of equivalency of the claims are intended to be embraced therein.

Moreover, it should be understood that the embodiments as disclosed herein are considered in all respects as illustrative only and not restrictive. In particular, as the values of such matters as not explicitly specified in the disclosure of each embodiment, for example, working and operating conditions, various parameters, and the dimensions, weights, and volumes of constituent components, use has been made of values adopted in the light of the common knowledge of those skilled in the art without departing from the practical ranges.

[0072] Although the projecting amount-varying mechanism 47 employs the screw thread 50 as means for guiding the moving member 48 in horizontal movement over the rotatably drive shaft

22 in this embodiment, use can be made of other means, such as spline means, capable of guiding the moving member 48 in horizontal movement over the rotatably drive shaft 22.

Moreover, although each embodiment has been described with respect to the case where the massaging system is designed to perform kneading massage and tapping massage alternately or simultaneously, the projecting amount-varying mechanism for allowing the first massaging element to project in the front-rear direction may be mounted in other system designed to perform different massage.

[0073] For example, in a massaging system designed to perform kneading massage alone, there is provided a projecting amount-varying mechanism for changing the amount of projecting motion of a massaging element by rotating the base end of each of paired massaging members about a rotatably drive shaft. The projecting amount-varying mechanism may be provided with a coupling member which changes the amount of projecting motion of the massaging element by rotating the base end of the massaging member about the rotatably drive shaft under transmission of a rotatably driving force exerted by the driving section-operated rotatably drive shaft. In this case, at the base end of the massaging member, there is provided a restraint portion for restraining the massaging member from rotating concurrently with the rotation of a rotary shaft. In this construction, the base end of the massaging member is rotated about the rotatably drive

shaft by operating the coupling member to move the described restraint portion.

Explanation of reference symbols

[0074]

- 1 Chair massager
- 2 Seat portion
- 3 Backrest portion
- 4 Massaging system
- 5 Mount
- 6 Massaging body
- 7 First massaging member
- 8 First annular fit portion
- 9 Support portion (Arm portion)
- 10 First massaging element
- 11 First restraint portion
- 12 First restraint piece
- 13 First restraint pin
- 14 Second massaging member
- 15 Second annular fit portion
- 16 Support portion
- 17 Second massaging element
- 18 Second restraint portion
- 19 Second restraint piece
- 20 Coupling piece
- 21 Grabbing-kneading massage mechanism

- 22 Rotatably drive shaft
- 23 Grabbing-kneading movement driving section
- 24 First driving motor (Grabbing-kneading movement driving motor)
- 25 Output shaft
- 26 First gear box
- 27 First conversion section
- 28 Inclined boss portion
- 29 Cam face
- 30 Bearing
- 31 Second conversion section
- 32 Eccentric boss portion
- 33 Cam face
- 34 Tapping massage mechanism
- 35 Rotatably drive shaft
- 36 Tapping movement driving section
- 37 Second driving motor (Tapping movement driving motor)
- 38 Output shaft
- 39 Second gear box
- 40 Eccentric cam member
- 41 Bearing
- 42 Link member
- 43 Third annular fit portion
- 44 Vertically moving mechanism
- 45 Up-and-down driving section

46	Rail member
47	Projecting amount-varying mechanism
48	Moving member
49	Coupling member
50	Screw thread
51	Ring member
52	Support member
53	Through hole
54	Pivotal portion
55	Hole
56	Pivotal pin
57	Hole
58	Guide rail
59	Stopper
60	Spring member
61	Spring
62	Rod
63	Cylindrical member

CLAIMS

1. A massaging system comprising:
 - paired right-hand and left-hand massaging members each having a massaging element at its front end, the massaging members being disposed on a mount;
 - a horizontally-directed rotatably drive shaft, disposed on the mount, for transmitting a rotatably driving force to the paired massaging members;
 - a driving section for actuating the paired massaging members to produce a massage movement by rotating the rotatably drive shaft; and
 - a projecting amount-varying mechanism for changing an amount of projecting motion of the massaging element in a front-rear direction by rotating a base end of each of the paired massaging members about the rotatably drive shaft,
 - the projecting amount-varying mechanism having a coupling member which permits a change in the amount of projecting motion of the massaging element in the front-rear direction by rotating the base end of the massaging member about the rotatably drive shaft under transmission of a rotatably driving force exerted by the driving section-operated rotatably drive shaft.
2. The massaging system according to claim 1,
 - wherein the massaging member is provided at its base end

with a restraint portion for restraining the massaging member from rotating concurrently with a rotation of the rotatably drive shaft,

and wherein the base end of the massaging member is allowed to rotate about the rotatably drive shaft by an action of the coupling member to move the restraint portion.

3. A massaging system comprising:

paired right-hand and left-hand massaging members each having a massaging element at its front end, the massaging members being disposed on a mount;

a horizontally-directed rotatably drive shaft, disposed on the mount, for transmitting a rotatably driving force to the paired massaging members;

a first driving section for actuating the paired massaging members to produce a kneading massage movement by rotating the rotatably drive shaft;

a second driving section, mounted for vertical movement over the mount, for actuating the paired massaging members to produce a tapping massage movement;

a link member for providing a connection between the second driving section and a base end of each of the paired massaging members; and

a projecting amount-varying mechanism for changing an amount of projecting motion of the massaging element in a

front-rear direction by rotating the base end of each of the paired massaging members about the rotatably drive shaft,

the projecting amount-varying mechanism having a coupling member which permits a change in the amount of projecting motion of the massaging element in the front-rear direction by rotating the base end of the massaging member about the rotatably drive shaft by imparting vertical movement to the second driving section under transmission of a rotatably driving force exerted by the first driving section-operated rotatably drive shaft.

4. The massaging system according to claim 3,
wherein the projecting amount-varying mechanism
comprises:

a moving member which lies between the base ends of the paired massaging members, engages an outer periphery of the rotatably drive shaft, and is movable along an axis of the rotatably drive shaft within a region between the base ends;
and

a coupling member, one end of which is pivotally supported for rotational movement in the front-rear direction relative to the moving member, and the other end of which is pivotally supported for rotational movement in the front-rear direction on the second driving section located above the moving member,

and wherein the projecting amount-varying mechanism is designed so that, as the rotatably drive shaft is rotated, the

moving member moves horizontally along the axis of the rotatably drive shaft between the base ends of the massaging members to effect up-and-down movement of the coupling member, thus imparting vertical movement to the second driving section.

5. The massaging system according to claim 4,

wherein the projecting amount-varying mechanism is provided with a screw thread formed at that part of an outer periphery of the rotatably drive shaft which lies between the base ends of the paired massaging members,

wherein, in the projecting amount-varying mechanism, the moving member comprises a ring member formed at its inner periphery with an inner spirally-toothed portion which threadably engages the screw thread, and a support member which supports the ring member while slidably engaging an exterior of the ring member,

and wherein the projecting amount-varying mechanism is designed so that, as the rotatably drive shaft is rotated, the ring member moves horizontally over the screw thread to impart vertical rocking motion to the coupling member, thus effecting vertical movement of the second driving section.

6. The massaging system according to claim 5,

wherein the ring member remains out of sliding engagement with the support member during the ring member's horizontal

movement over the screw thread,

and wherein the ring member is brought into sliding engagement with the support member upon completion of the ring member's movement.

7. The massaging system according to any one of claims 1 to 6,

wherein the coupling member has two separate ends, with a spring member lying in between for providing a connection between one of the ends and the other, whereby the coupling member can be changed in its length.

8. A chair massager comprising:

a massaging system as set forth in claim 1 or claim 3;

a floor-placeable seat portion for receiving user's buttocks; and

a backrest portion incorporating the massaging system, mounted at a rear of the seat portion, for supporting user's back.