

DESCRIPTION

Title of Invention: SHOULDER-MASSAGING SYSTEM

Technical Field

[0001] The present invention relates to a shoulder-massaging system comprising paired left-hand and right-hand massaging members capable of holding for example user's shoulders (including upper arms) in between to apply lateral massaging force to the shoulders.

Background Art

[0002] There is a heretofore known chair massager capable of massaging part of the body, e.g. the shoulder of a user sitting in a seat of the massager. For example, Patent Literature 1 discloses a chair massager incorporating a shoulder-massaging mechanism comprising paired left-hand and right-hand massaging members (air bags) disposed one at each side of a backrest of the massager in correspondence with user's shoulders, etc. (refer to FIG. 1 of Patent Literature 1). The air bag is inflated and deflated repeatedly to apply external pressing force to user's shoulders, etc. to effect massage treatment.

Prior Art Reference

Citation List

[0003]: Patent Literature 1: Japanese Unexamined Patent

Publication JP-A 2017-000416

Summary of Invention

Technical Problem

[0004] For example, according to the disclosure of Patent Literature 1, the massaging members (air bags) for applying external pressing force to user's shoulders (including upper arms) are fixedly mounted one at each side of the backrest.

Unfortunately, human body shapes vary from user to user. For example, some are physically small users with narrow shoulders, others are physically large users with broad shoulders. In the massager having the paired left-hand and right-hand massaging members fixedly mounted one at each side of the backrest, in some cases, the massaging members cannot be positioned in correspondence with user's shoulders.

[0005] For example, when a narrow-shouldered person of small build uses the massager, the paired left-hand and right-hand massaging members may not be brought into contact with the shoulders of the user. In this case, the air bags fail to apply external pressing force for massage to user's shoulders even during inflation. On the other hand, when a broad-shouldered person of large build uses the massager, the user may feel cramped when his or her body is held in tight space between the paired left-hand

and right-hand massaging members.

The present invention has been devised in view of the problems as discussed supra, and accordingly its object is to provide a shoulder-massaging system having means for enabling the system to adjust to user's body shape by adjusting a spacing between paired left-hand and right-hand massaging members in conformance with user's body shape.

Solution to Problem

[0006] In order to achieve the described object, the following technical means is adopted in the present invention.

A shoulder-massaging system pursuant to the present invention comprises: a pair of left-hand and right-hand massaging members positioned in correspondence with user's shoulders; and width adjustment means for adjusting a spacing between the paired left-hand and right-hand massaging members in a horizontal direction. The width adjustment means effects adjustment of the horizontal spacing between the massaging members by moving the massaging members in the horizontal direction in conformance with a horizontal shoulder-width dimension of the shoulders, and then locking the massaging members in place. To reduce the horizontal spacing between the paired left-hand and right-hand massaging members, the massaging members are moved diagonally downward in the horizontal

direction by the width adjustment means.

[0007] In the present invention, it is preferable that the width adjustment means is disposed at a base end of each of the massaging member, and that the width adjustment means effects adjustment of the horizontal spacing between the paired left-hand and right-hand massaging members by rocking the massaging member diagonally downward.

In the present invention, it is preferable that the width adjustment means is constructed of a ratchet mechanism.

In the present invention, it is preferable that the width adjustment means comprises: a rocking section, attached to the massaging member, for rocking the massaging member diagonally downward; a support section, attached to a mounted frame, for rockably supporting the rocking section; and an engagement portion for bringing the rocking section into engagement with the support section, and that the engagement portion includes an engagement projection provided in the support section, and an engagement recess provided in the rocking section for engagement with the engagement projection.

[0008] In the present invention, it is preferable that there are provided a plurality of the engagement projections formed in the support section, and that adjustment of the horizontal spacing between the paired

left-hand and right-hand massaging members is effected by bringing the engagement recess into engagement with any one of the engagement projections.

In the present invention, it is preferable that the engagement recess is provided with a spring that exerts reaction force on the engagement projection during engagement with the engagement projection, and that the rocking section is provided with a spring that yields reaction force tending to open the massaging member outward.

[0009] In the present invention, it is preferable that the width adjustment means is arranged inclined with respect to the mounted frame.

Advantageous Effects of the Invention

[0010] The shoulder-massaging system pursuant to the present invention adjusts to the body shape of a user (for example, the body shape of a narrow-shouldered user) through the adjustment of a spacing between the paired left-hand and right-hand massaging members.

Brief Description of Drawings

[0011]

[FIG. 1] FIG. 1 is a view schematically showing the appearance of a chair massager incorporating a shoulder-massaging system pursuant to the present invention.

[FIG. 2] FIG. 2 is a view schematically showing the

general configuration of the chair massager incorporating the shoulder-massaging system pursuant to the present invention.

[FIG. 3] FIG. 3 is a view showing how a spacing between paired left-hand and right-hand massaging members is to be adjusted in a horizontal direction by width adjustment means.

[FIG. 4] FIG. 4 is a view showing the right-hand massaging member set in the position to which it has been shifted, while moving diagonally downward to the left, by the width adjustment means (for the case of the narrowly spaced left-hand and right-hand massaging members).

[FIG. 5] FIG. 5 is a view showing the right-hand massaging member set in the position to which it has been shifted, while moving diagonally upward to the right, by the width adjustment means (for the case of the widely spaced left-hand and right-hand massaging members).

[FIG. 6] FIG. 6 is a perspective view showing an operating condition of the width adjustment means.

[FIG. 7] FIG. 7 is a side view showing an operating condition of the width adjustment means.

Description of Embodiments

[0012] The following describes an embodiment of a shoulder-massaging system 13 pursuant to the present invention with reference to drawings.

A shoulder-massaging system 13 incorporated in a chair massager 1 will now be described by way of an embodiment of the present invention. The following embodiment is merely an example of implementation of the present invention, and is thus not intended to be limiting of the structural features of the present invention.

Moreover, the terms of orientation and disposition as to the chair massager 1 such as "front" and "rear", and "left" and "right" correspond to the terms shown in the drawings such as FIGs. 1 and 2 based on the sight of a user sitting in a seat 2 of the chair massager 1. Note that some constituent components of the chair massager are omitted from the drawings for the sake of clarity in illustration.

[0013] It is noted that there is provided width adjustment means 15 arranged inclined with respect to the chair massager 1. Thus, by way of exception, in FIGs. 6 and 7 showing right-hand width adjustment means 15a, for purposes of convenience, a direction from bottom to top in the drawing is defined as an upward and rightward diagonal direction, and a direction from top to bottom is defined as a downward and leftward diagonal direction.

As shown in the drawings such as FIGs. 1 and 2, the chair massager 1 comprises: a seat 2 for seating of a user; a backrest 3 against which the sitting user rests; an

armrest 4 on which user's elbow can be rested; and a footrest 5 capable of receiving user's leg in the thigh-to-foot range.

[0014] The backrest 3 is internally provided with a backrest frame 6 for supporting the backrest 3 in substantially upstanding condition. The backrest frame 6 is equipped with a back-massaging mechanism 7 for applying massaging force to user's back resting on the backrest 3. The back-massaging mechanism 7 is free to move in a vertical direction within the backrest 3. For example, the mechanism disclosed in Japanese Unexamined Patent Publication JP-A 2013-252348 or the mechanism disclosed in Japanese Unexamined Patent Publication JP-A 2018-134181 may be used for the back-massaging mechanism 7. Moreover, the backrest 3 is provided at each side with a barrier plate 8 for secluding the backrest 3 from laterally adjacent external space.

[0015] The seat 2 is internally provided with a support frame 9 for supporting the seat 2 from below. Within the support frame 9, there is provided a seat's built-in massaging mechanism 10 for applying massaging force to the buttocks or thigh of the sitting user. For example, the mechanism disclosed in Japanese Unexamined Patent Publication JP-A 2018-064807 may be used for the seat's built-in massaging mechanism 10.

The footrest 5, which lies below the seat 2, is housed within the support frame 9. The footrest 5 is free to move out of and retract into the support frame 9. Moreover, the footrest 5 is internally provided with a leg-massaging mechanism 11 for applying massaging force to the leg of the sitting user in the thigh-to-foot range. For example, the mechanism disclosed in Japanese Unexamined Patent Publication JP-A 2012-143390 may be used for the leg-massaging mechanism 11.

[0016] The armrest 4 is internally provided with an arm-massaging mechanism 12 for applying massaging force to the forearm of the sitting user in the elbow-to-wrist range. For example, the mechanism disclosed in Japanese Unexamined Patent Publication JP-A 2015-016158 may be used for the arm-massaging mechanism 12.

The chair massager 1 according to the present embodiment further includes a shoulder-massaging system 13, mounted at the side of the backrest 3, for applying massaging force to the shoulders (including the upper arms) of the user sitting in the seat 2.

[0017] As shown in the drawings such as FIGs. 3 to 7, the shoulder-massaging system 13 pursuant to the present invention comprises: paired left-hand and right-hand massaging members 14 positioned in correspondence with user's shoulders; and width adjustment means 15 for

adjusting a spacing between the paired left-hand and right-hand massaging members 14 in a horizontal direction.

The massaging members 14, each in the form of an elongated member, are mounted one at each side of the backrest in the horizontal direction. Each massaging member 14 is so mounted as to protrude forward from the backrest 3. The right-hand massaging member 14a and the left-hand massaging member 14b are arranged facing each other in the horizontal direction. That is, the paired left-hand and right-hand massaging members 14 are so arranged as to hold user's shoulders in between. In the present embodiment, the massaging member 14 is received in a recess of the barrier plate 8.

[0018] For example, the massaging member 14 is provided at its front end an air bag 16 capable of inflation and deflation. The air bag 16 is inflated and deflated repeatedly to apply external pressing force to the shoulders (user's body area subjected to massage treatment).

The massaging member 14 is provided at its base end with a case body 17 which is internally provided with the width adjustment means 15 for imparting horizontal movement to the massaging member 14.

[0019] In most cases, a user having narrow shoulders (narrow shoulder width in the horizontal direction) is

relatively small in height. That is, the sitting height of such a user sitting in the seat 2 is relatively short. In this case, the paired left-hand and right-hand massaging members 14 need to be lowered until they come to a position corresponding to user's shoulders, with the spacing between the massaging members in the horizontal direction adjusted in conformance with the body shape of the user.

In this regard, the width adjustment means 15 pursuant to the present invention moves the paired left-hand and right-hand massaging members 14 diagonally downward while diminishing the spacing between the massaging members in conformance with the body shape of the user of small build.

[0020] The width adjustment means 15 is disposed at each of the base end of the right-hand massaging member 14a and the base end of the left-hand massaging member 14b.

In reducing the spacing between the paired left-hand and right-hand massaging members 14, the width adjustment means 15 moves the massaging members 14 in the horizontal direction (inwardly of the backrest 3) while rocking them diagonally downward.

In the present embodiment, a state of maximizing the spacing between the paired left-hand and right-hand massaging members 14 corresponds to the normal state of the massaging members 14 (the width adjustment means 15). That

is, the paired left-hand and right-hand massaging members 14 are normally arranged at the maximum permissible spacing during standby.

[0021] More specifically, the right-hand width adjustment means 15a moves the right-hand massaging member 14a leftward while rocking it diagonally downward to the left. On the other hand, the left-hand width adjustment means 15b moves the left-hand massaging member 14b rightward while rocking it diagonally downward to the right.

Meanwhile, in increasing the spacing between the paired left-hand and right-hand massaging members 14 (in returning the massaging member pair to the normal state), the width adjustment means 15 moves the massaging members 14 in the horizontal direction (outwardly of the backrest 3) while rocking them diagonally upward.

[0022] More specifically, the right-hand width adjustment means 15a moves the right-hand massaging member 14a rightward while rocking it diagonally upward to the right. On the other hand, the left-hand width adjustment means 15b moves the left-hand massaging member 14b leftward while rocking it diagonally upward to the left.

That is, the width adjustment means 15 effects adjustment of the horizontal spacing between the massaging members 14 by moving the massaging members 14 in the

horizontal direction in conformance with the shoulder-width dimension of a user while rocking the massaging members 14 diagonally downward, as well as diagonally upward, and then locking the massaging members 14 in place.

[0023] In the present embodiment, the width adjustment means 15 is constructed of a ratchet mechanism capable of stepwise adjustment of the spacing between the paired left-hand and right-hand massaging members 14.

Now, the system structure and features will be described with respect to the right-hand width adjustment means 15a. The left-hand width adjustment means 15b is mounted in mirror image fashion to the right-hand width adjustment means 15a, and its structural features are substantially the same as those of the right-hand width adjustment means 15a accordingly. That is, the right-hand width adjustment means 15a and the left-hand width adjustment means 15b are arranged in bilaterally symmetric relation. This accounts for why the description of the left-hand width adjustment means 15b will be omitted.

[0024] FIGs. 4 to 7 are enlarged views showing the right-hand width adjustment means 15a. Referring first to FIGs. 4 and 5, the backrest frame 6 is provided with a rest plate 18 for the placement of the width adjustment means 15a. The rest plate 18 is attached at a rightward incline to the backrest frame 6. Moreover, the massaging member

14a is provided at its base end with a support member 19 for supporting the massaging member 14a. The support member 19, which is made as a tubular member in triangular prism form, is mounted with its oblique side lying in downstanding condition.

[0025] The right-hand width adjustment means 15a is attached to the rest plate 18 lying on the right side of the backrest frame 6. That is, the right-hand width adjustment means 15a is disposed inclined outwardly to the right and on the right side of the backrest frame 6.

As shown in FIGs. 6 and 7, the width adjustment means 15a comprises: a rocking section 20, disposed at the base end of the massaging member 14a, for rocking the massaging member 14a diagonally downward, as well as diagonally upward; a support section 21, attached to the backrest frame 6, for rockably supporting the rocking section 20; and an engagement portion 22 for bringing the rocking section 20 into engagement with the support section 21.

[0026] The support section 21 is constructed of a rectangular member elongated in a front-rear direction. The support section 21 is provided at its upper rear part with a through hole 23 whose axis points in substantially the horizontal direction relative to the front-rear direction. The through hole 23 receives therein a support shaft 24 for rockably supporting the rocking section 20.

In the support section 21, now attached to the rest plate 18, the support shaft 24 (the through hole 23) is mounted with its axis set in parallel with the rest plate 18 whose axis is inclined outwardly to the right.

Moreover, around the through hole 23, there is provided a spring 29 (e.g. coil spring) that exerts reaction force on the rocking section 20.

[0027] Moreover, the support section 21 is constituted by a combination of two separate members arranged in substantially the horizontal direction, with a platy member 25 interposed in between. The platy member 25 is formed with a through hole, not shown, which engageably receives therein the support shaft 24. The platy member 25 allows the coil spring 29 disposed around the through hole 23 (the support shaft 24) to undergo torsion for production of reaction force. That is, the platy member 25 is a counter member which is rotated in the opposite direction to the rocking section 20 by the action (reaction force) of the coil spring 29.

[0028] The support section 21 is provided at its upper front part with a stepped engagement projection 31 constituting the engagement portion 22, which will hereafter be described in detail.

The rocking section 20 is disposed at the base end of the massaging member 14a via the support member 19.

Although not shown in the drawings, the rocking section 20 is covered with a cover body, via which the rocking section 20 is attached to the support member 19.

[0029] The rocking section 20 is a tunnel-like member elongated in the front-rear direction, which is opened at its front end, rear end, and bottom. That is, the rocking section 20 is a substantially U-shaped member mounted so as to cover the support section 21. On the right side of the backrest frame 6, the rocking section 20 is disposed with its bottom opening pointing in the downward and leftward diagonal direction.

The rocking section 2 is provided at its upper rear part with a through hole 26 whose axis points in substantially the horizontal direction relative to the front-rear direction. The axis of the through hole 26 coincides with the axis of the through hole 23 of the support section 21. That is, the support shaft 24 can be rotatably inserted into the through hole 26 of the rocking section 20 and the through hole 23 of the support section 21 arranged in axial alignment with each other. The rocking section 2 is engaged at its lower rear part with the tip of the coil spring 29 disposed around the through hole 23 of the support section 21.

[0030] The rocking section 20 is provided with the spring 29 (e.g. coil spring) that yields reaction force

tending to open the massaging member 14a outward.

Upon rocking the rocking section 20 about the support shaft 24 to the outside of the seat 2, the rocking section 20 rotates with respect to the platy member 25 of the support section 21, and the coil spring 29 engaging the rocking section 20 undergoes torsion accordingly, causing repulsion to urge the massaging member 14a to return to its normal state.

[0031] On the other hand, upon rocking the rocking section 20 about the support shaft 24 to the inside of the seat 2, the rocking section 20 rotates with respect to the platy member 25 of the support section 21, and the coil spring 29 engaging the rocking section 20 undergoes torsion in the reverse direction for contraction. This allows the right-hand massaging member 14a to move diagonally downward to the left.

That is, as the rocking section 20 is moved in an opening direction (the direction to open the massaging member 14a), the platy member 25 is moved in the opposite direction to the rocking section 20 (the direction away from the rocking section 20) under the reaction force exerted by the coil spring 29 installed around the support shaft 24.

[0032] The rocking section 20 is provided at its upper front part with a through hole 27 whose axis points in

substantially the horizontal direction relative to the front-rear direction. The through hole 27 engageably receives therein a rotation shaft 28 for rotatably supporting an engagement piece 35, which will hereafter be described in detail.

On the right side of the backrest frame 6, the rotation shaft 28 (the through hole 27) is disposed with its axis set in parallel with the rest plate 18 whose axis is inclined outwardly to the right. Moreover, the rotation shaft 28 is provided with a coil spring 30 that yields reaction force.

[0033] The engagement portion 22 comprises the engagement projection 31 of the support section 21, and an engagement recess 32 provided in the rocking section 20 for engagement with the engagement projection 31.

A plurality of engagement projections 31 are formed in an upper part of the front side of the support section 21. Adjustment of the horizontal spacing between the paired left-hand and right-hand massaging members 14 is effected by bringing the engagement recess 32 into engagement with any one of the engagement projections 31.

[0034] As shown in FIG. 7, the engagement projection 31 is a substantially L-shaped member protruding arcuately forward. Moreover, the engagement projection 31 has a first engagement face 33 and a second engagement face 34.

The first engagement face 33 is a face pointing in the downward and leftward diagonal direction while facing rearward. The first engagement face 33 has face-to-face contact with a first engagement face 37 provided in the engagement recess 32.

[0035] The second engagement face 34 is a face pointing in a direction substantially perpendicular to the direction in which the first engagement face 33 points, that is; a face pointing in the upward and rightward diagonal direction while facing rearward. The second engagement face 34 has face-to-face contact with a second engagement face 38 provided in the engagement recess 32.

In the present embodiment, the engagement projection 31 is defined by a stepped groove comprising a series of three angular portions. In other words, the engagement projection 31 is a member having three brim-like projections as seen in side view.

[0036] The engagement piece 35 is a flap-shaped member attached to the front side of the rocking section 20. The engagement piece 35 is provided at its rear part with the engagement recess 32 which engages the engagement projection 31.

As shown in FIG. 7, the engagement recess 32 is a substantially L-shaped recessed area formed like a valley at the rear of the engagement piece 35. Moreover, the

engagement recess 32 has the first engagement face 37 and the second engagement face 38.

[0037] The first engagement face 37 is a face pointing in the downward and leftward diagonal direction while facing rearward. The first engagement face 37 has face-to-face contact with the first engagement face 33 of the engagement projection 31.

The second engagement face 38 is a face pointing in a direction substantially perpendicular to the direction in which the first engagement face 37 points, that is; a face pointing in the upward and rightward diagonal direction while facing rearward. The second engagement face 38 has face-to-face contact with the second engagement face 34 of the engagement projection 31.

[0038] That is, the valley-like engagement recess 32 has tight face-to-face contact with the angular engagement projection 31 formed in the support section 21 for firm mutual engagement. The valley-like engagement recess 32 and the angular engagement projection 31 have substantially the same area.

The engagement piece 35 is provided at its front part with a through hole 36 whose axis points in substantially the horizontal direction relative to the front-rear direction. The axis of the through hole 36 coincides with the axis of the through hole 27 formed in the front part of

the rocking section 20. That is, the rotation shaft 28 can be rotatably inserted into the through hole 36 of the engagement piece 35 and the through hole 27 of the rocking section 20 arranged in axial alignment with each other. The engagement piece 35 is rotatable about the rotation shaft 28.

[0039] Moreover, the engagement piece 35 is provided at its part around the rotation shaft 28 with a spring 30 (e.g. coil spring) that exerts reaction force on the engagement projection 31 during the engagement between the engagement projection 31 and the engagement recess 32.

That is, on engagement between the engagement projection 31 and the engagement recess 32, the coil spring 29 located toward the rear of the rocking section 20 exerts reaction force on the first engagement face 33 and the first engagement face 37 making face-to-face contact with each other, and the first engagement faces 33 and 37 are subjected to force in the vertical direction (the direction to open the massaging member 14a) accordingly, causing the engagement piece 35 to be pressed against the support section 21 and locked in place.

[0040] At the same time, the coil spring 30 located toward the front of the rocking section 20 exerts reaction force on the second engagement face 34 and the second engagement face 38 making face-to-face contact with each

other, and the second engagement faces 34 and 38 are subjected to force in the vertical direction (the direction toward the support section 21) accordingly, causing the engagement piece 35 to be pressed against the support section 21 and locked in place.

That is, two pressing forces, namely the force exerted on the first engagement faces 33 and 37 making face-to-face contact with each other and the force exerted on the second engagement faces 34 and 38 making face-to-face contact with each other, are applied between the mutually engaging engagement projection 31 and engagement recess 32. This allows the engagement piece 35 to be pressed against the support section 21 and locked in place without fail.

[0041] Thus, in the present embodiment, the width adjustment means 15a adjusts the horizontal spacing between the paired massaging members 14 in three levels by bringing the engagement recess 32 of the engagement piece 35 into engagement with any one of the engagement projections 31 of the support section 21 for locking the rocking section 20 in place.

That is, the width adjustment means 15 is constructed of a ratchet mechanism capable of stepwise adjustment of the spacing between the paired left-hand and right-hand massaging members 14 (spacing adjustment in three steps, in

this embodiment).

[0042] Thus, the shoulder-massaging system 13 pursuant to the present invention adjusts to various body shapes of different users via the width adjustment means 15 for effecting adjustment of the horizontal spacing between the paired left-hand and right-hand massaging members 14 by moving the paired massaging members 14 diagonally downward.

[Workings]

The workings of the shoulder-massaging system 13 pursuant to the present invention will now be described with reference to the drawings.

[0043] Referring to FIGs. 3 to 7 for example, the following describes how the spacing between the paired left-hand and right-hand massaging members 14 set in fully opened position (the maximum spacing) is to be reduced.

The paired left-hand and right-hand massaging members 14 are each held in outermost position (upward diagonal position). For example, the right-hand massaging member 14a is held in rightwardly outermost position (upward and rightward diagonal position).

In the right-hand width adjustment means 15a, the engagement recess 32 of the engagement piece 35 engages the rightwardly outermost engagement projection 31 of the support section 21 (refer to the upper drawing in FIG. 7). That is, the rocking section 20 is set in maximally

distanced position with respect to the support section 21 (raised to the upward and rightward diagonal position). The left-hand massaging member 14b is set in mirror image fashion to the right-hand the massaging member 14a.

[0044] The paired left-hand and right-hand massaging members 14 are each moved to innermost position (downward diagonal position). That is, the spacing between the paired left-hand and right-hand massaging members 14 is reduced to a minimum.

For example, as the right-hand massaging member 14a is moved to leftwardly innermost position (downward and leftward diagonal position), in the right-hand width adjustment means 15a, the engagement piece 35 is rotated forward, thereby releasing the engagement of the engagement recess 32 with the engagement projection 31.

[0045] Upon the disengagement, the right-hand width adjustment means 15a moves the right-hand massaging member 14a leftward while rocking it diagonally downward to the left. Moreover, as the engagement piece 35 is rotated backward, the engagement recess 32 is brought into engagement with the leftwardly innermost engagement projection 31 (downward and leftward diagonal position) of the support section 21 (refer to the lower drawing in FIG. 7).

Between the mutually engaging engagement projection

31 and engagement recess 32, the first engagement faces 33 and 37 making face-to-face contact with each other, as well as the second engagement faces 34 and 38 making face-to-face contact with each other, are subjected to pressing force. This allows the engagement piece 35 to be pressed against the support section 21, thereby locking the rocking section 20 in place without fail. In this case, for example, the right-hand massaging member 14a comes near the right shoulder of a user of small build.

[0046] On the other hand, the left-hand width adjustment means 15b moves the left-hand massaging member 14b rightward while rocking it diagonally downward to the right. That is, the left-hand width adjustment means 15b behaves in mirror image fashion to the right-hand width adjustment means 15a. In this case, for example, the left-hand massaging member 14b comes near the left shoulder of a user of small build.

Note that the spacing between the paired left-hand and right-hand massaging members 14 set in fully closed position (the minimum spacing) can be increased by reversing the above procedure.

[0047] That is, to increase the spacing between the paired left-hand and right-hand massaging members 14 (to return the massaging member pair to the normal state), for example, the right-hand width adjustment means 15a moves

the right-hand massaging member 14a rightward while rocking it diagonally upward to the right. Moreover, the engagement recess 32 of the engagement piece 35 is brought into engagement with the rightwardly outermost engagement projection 31 of the support section 21. In this case, for example, the right-hand massaging member 14a comes near the right shoulder of a user of large build. On the other hand, the left-hand width adjustment means 15b moves the left-hand massaging member 14b leftward while rocking it diagonally upward to the left, and locks the left-hand massaging member 14b in place. In this case, for example, the left-hand massaging member 14b comes near the left shoulder of a user of large build.

[0048] As described heretofore, the shoulder-massaging system 13 pursuant to the present invention adjusts to the body shape of a user (for example, user's shoulder width) via the width adjustment means 15 for effecting adjustment of the horizontal spacing between the paired left-hand and right-hand massaging members 14 by moving the massaging members 14 diagonally downward. That is, the shoulder-massaging system 13 is serviceable even to a narrow-shouldered user of small build.

It should be understood that the embodiments as disclosed herein are each considered in all respects as illustrative only and not restrictive.

[0049] In particular, for such matters as not explicitly specified in the disclosure of the embodiments, for example, for working and operating conditions and the dimensions, weights, etc. of constituent components, use has been made of credible values that do not depart from practical ranges adopted in the light of the common knowledge of those skilled in the art.

The structural features of the shoulder-massaging system 13 pursuant to the present invention are applicable to any massaging mechanism comprising paired left-hand and right-hand massaging members capable of holding a to-be-massaged user's body area in between. Examples of such a mechanism include the seat's built-in massaging mechanism 10 comprising massaging members that hold user's leg (user's thigh, waist, and buttocks) in between. In this case, the massaging mechanism adjusts to the shape (thickness) of user's thigh through the operation of the width adjustment means 15 to adjust the spacing between the paired left-hand and right-hand massaging members 14.

[0050] Moreover, in constructing other constituent mechanisms such as the back-massaging mechanism 7, the seat's built-in massaging mechanism 10, the leg-massaging mechanism 11, and the arm-massaging mechanism 12, use can be made of various suitable mechanisms without specific limitations.

Reference Signs List

[0051]	1	chair massager
	2	seat
	3	backrest
	4	armrest
	5	footrest
	6	backrest frame
	7	back-massaging mechanism
	8	barrier plate
	9	support frame
	10	seat's built-in massaging mechanism
	11	leg-massaging mechanism
	12	arm-massaging mechanism
	13	shoulder-massaging system
	14	massaging member
	14a	massaging member (right-hand massaging member)
	14b	massaging member (left-hand massaging member)
	15	width adjustment means
	15a	width adjustment means (right-hand width adjustment means)
	15b	width adjustment means (left-hand width adjustment means)
	16	air bag

- 17 case body
- 18 rest plate
- 19 support member
- 20 rocking section
- 21 support section
- 22 engagement portion
- 23 through hole (in support section)
- 24 support shaft
- 25 platy member
- 26 through hole (rear-side through hole in
rocking section)
- 27 through hole (front-side through hole in
rocking section)
- 28 rotation shaft
- 29 spring (rear-side spring in rocking
section)
- 30 spring (front-side spring in rocking
section)
- 31 engagement projection
- 32 engagement recess
- 33 first engagement face (in engagement
projection)
- 34 second engagement face (in engagement
projection)
- 35 engagement piece

- 36 through hole
- 37 first engagement face (in engagement
recess)
- 38 second engagement face(in engagement
recess)

CLAIMS

1. A shoulder-massaging system, comprising:
a pair of left-hand and right-hand massaging members positioned in correspondence with user's shoulders; and
width adjustment means for adjusting a spacing between the paired left-hand and right-hand massaging members in a horizontal direction,
the width adjustment means adjusting the horizontal spacing between the massaging members by moving the massaging members in the horizontal direction in conformance with a horizontal shoulder-width dimension of the shoulders, and then locking the massaging members in place,
the massaging members being moved diagonally downward in the horizontal direction by the width adjustment means to reduce the horizontal spacing between the paired left-hand and right-hand massaging members.
2. The shoulder-massaging system according to claim 1,
wherein the width adjustment means is disposed at a base end of the massaging member,
and wherein the width adjustment means effects adjustment of the horizontal spacing between the paired left-hand and right-hand massaging members by rocking the

massaging member diagonally downward.

3. The shoulder-massaging system according to claim 2,
wherein the width adjustment means is constructed of
a ratchet mechanism.

4. The shoulder-massaging system according to claim 1,
wherein the width adjustment means comprises:
a rocking section, attached to the massaging member,
for rocking the massaging member diagonally downward;
a support section, attached to a mounted frame, for
rockably supporting the rocking section; and
an engagement portion for bringing the rocking
section into engagement with the support section,
and wherein the engagement portion includes an
engagement projection provided in the support section, and
an engagement recess provided in the rocking section for
engagement with the engagement projection.

5. The shoulder-massaging system according to claim 4,
wherein there are provided a plurality of the
engagement projections disposed at the support section,
and wherein adjustment of the horizontal spacing
between the paired left-hand and right-hand massaging
members is effected by bringing the engagement recess into

engagement with any one of the engagement projections.

6. The shoulder-massaging system according to claim 5,
wherein the engagement recess is provided with a
spring that exerts reaction force on the engagement
projection during engagement with the engagement
projection,

and wherein the rocking section is provided with a
spring that yields reaction force tending to open the
massaging member outward.

7. The shoulder-massaging system according to any one of
claims 1 to 6,
wherein the width adjustment means is arranged
inclined with respect to the mounted frame.