

DESCRIPTION

Title of Invention: CHAIR MASSAGER

Technical Field

[0001] The present invention relates to a chair massager capable of keeping user's head in a stably supported condition even when a backrest's built-in massaging system is moved away from a position where it supports the head to a different position away from the head, for example, the position of user's waist.

Background Art

[0002] Patent Literature 1 discloses an example of heretofore known chair massagers of the type which performs massage on user's back by the operation of a mechanical massaging system.

The chair massager disclosed in Patent Literature 1 has the form of a bucket seat comprising integrally-formed backrest portion and seat portion. In this construction, a massaging system is guided in wide-range movement along a rack portion extending from the upper end of the backrest portion to the forward end of the seat portion, thus enabling massage treatment over a wide range of user's body, including the shoulder and the back, and also the buttocks as an additional plus.

Prior Art Reference

Citation List

[0003] Patent Literature 1: Japanese Unexamined Patent

Publication JP-A 2014-171

Summary of Invention

Technical Problem

[0004] The chair massager disclosed in Patent Literature 1 is based on a mechanical system that effects massage treatment by operating a massaging arm provided in its back massaging system in a manner to reach a massage target area of user's body and perform massage on the area. Thus, the chair massager is formed with an outward opening, i.e. a massage target area-facing opening, located centrally of the backrest portion to allow the massaging arm to protrude out of the chair massager.

Such an opening is usually formed having a width greater than the size of user's head. Thus, for example, when moving the back massaging system to a location away from user's head to effect waist massage, due to the consequent absence of the back massaging system behind user's head and shoulder, the head of the user sitting with his/her back resting on the backrest portion falls into the interior of the backrest portion through the opening. This may deprive the user of comfortable sitting position. This condition, i.e., the fall of user's head into the opening, tends to occur especially when the backrest portion is set in a reclined position.

[0005] The present invention has been devised in view of the problem as discussed supra, and accordingly its object is to provide a chair massager capable of keeping user's head in

a stably supported condition even when its backrest's built-in massaging system becomes unable to support the head after its vertical movement.

Solution to Problem

[0006] In order to solve the described problem, the following technical means is adopted for the implementation of a chair massager pursuant to the present invention.

The present invention provides a chair massager comprising: a backrest portion on which user's back is rested; a backrest's built-in massaging system mounted within the backrest portion; and a backrest guide rail that guides the backrest's built-in massaging system in vertical movement within the backrest portion. In this construction, a pillow member capable of supporting user's head juts out from within the backrest portion when the backrest's built-in massaging system is moved either in an upward direction or in a downward direction, along the backrest guide rail, to a location away from user's head.

[0007] In the present invention, it is preferable that the backrest guide rail is mounted at each of a right-hand inner side and a left-hand inner side of the backrest portion, and that the pillow member is allowed to jut out in a region between the left-hand and right-hand backrest guide rails, while being located toward a top of each backrest guide rail.

In the present invention, it is preferable that the backrest

portion is internally provided with advancing means for moving the pillow member to a location ahead of the backrest portion, and that the advancing means is designed to permit the advancing movement of the pillow member in sync with a downward movement of the backrest's built-in massaging system along the backrest guide rail.

[0008] In the present invention, it is preferable that a rocking arm is further provided in a location between the pillow member and the backrest portion to support the pillow member for free rocking motion in a front-rear direction relatively to the backrest portion, and that the pillow member is disposed at a front end of the rocking arm, and, a base end of the rocking arm is pivotally supported on the backrest portion for free rotational movement.

In the present invention, it is preferable that the backrest portion is internally provided with returning means for moving the pillow member, which remains in a position to which it has been moved forward of the backrest portion, back for return, and that the returning means is designed to permit the returning movement of the pillow member in sync with an upward movement of the backrest's built-in massaging system along the backrest guide rail.

[0009] In the present invention, it is preferable that the backrest's built-in massaging system has a flip-up member that abuts against the rocking arm, in response to an upward movement

of the backrest's built-in massaging system along the backrest guide rail, to rock the rocking arm rearward.

Advantageous Effects of Invention

[0010] The chair massager of the present invention keeps user's head in a stably supported condition even when the backrest's built-in massaging system is vertically moved to a different position away from the head, and thus allows the user to enjoy massage treatment with postural stability.

Brief Description of Drawings

[0011] [FIG. 1] is a perspective view showing a chair massager according to an embodiment of the present invention.

[FIG. 2] is a view showing a backrest's built-in massaging system mounted in a backrest portion of the chair massager according to the embodiment.

[FIG. 3] is a view showing the backrest's built-in massaging system, with its pillow member set in a forwardly advanced position.

[FIG. 4] is a view showing the backrest's built-in massaging system, with the pillow member set in a position midway along the range of its travel in a front-rear direction.

[FIG. 5] is a view showing the backrest's built-in massaging system, with the pillow member set in a backwardly retracted position within the backrest portion.

Description of Embodiments

[0012] The following describes the details of an embodiment

of a chair massager 1 pursuant to the present invention with reference to drawings.

As shown in FIG. 1, the chair massager 1 according to the embodiment comprises: a seat portion 2 having an area wide enough to support user's buttocks from below; a backrest portion 3 mounted at the rear of the seat portion 2; and a footrest portion 4 mounted at the front of the seat portion 2. The described seat portion 2 has a seat's built-in massaging system 5 for performing massage on user's body in the buttocks-to-thigh range (hereafter referred to simply as a massage target area). Moreover, the backrest portion 3 has a backrest's built-in massaging system 6 for performing massage on user's back resting on the backrest portion 3.

[0013] The described seat's built-in massaging system 5 and backrest's built-in massaging system 6 are each guided in movement both in the front-rear direction and in the vertical direction by a guide rail (seat guide rail and backrest guide rail 7). Moreover, the footrest portion 4 mounted at the front of the seat portion 2 is provided with a foot massaging system of such form as to receive user's legs for performing massage on the legs received in it by air-bag operation.

[0014] The following describes the seat portion 2, the backrest portion 3, the footrest portion 4, the seat's built-in massaging system 5, and the backrest's built-in massaging system 6 that constitute the chair massager 1 according to the

embodiment.

In the following description of the chair massager 1, referring to FIG. 1, given that a user is sitting in the chair massager 1, then a direction of height of the backrest portion 3 in an upstanding condition, which corresponds to a direction of height of the sitting user', is defined as a vertical direction, a direction from right to left of FIG. 1, which corresponds to a direction from left to right of the user, is defined as a horizontal direction or width direction, and a diagonal direction from lower left to upper right of FIG. 1, which corresponds to a direction from front to rear of the user, is defined as a front-rear direction.

[0015] As shown in FIGs. 1 and 2, the seat portion 2 comprises a support frame 8 constructed of an assembly of rectangular bar-shaped members. Inside the support frame 8, there is provided a seat guide rail for moving the seat's built-in massaging system 5 in the front-rear direction. Although not shown in the drawing, a cushion member for user seating is mounted above the described support frame 8, and, the seat's built-in massaging system 5 and the seat guide rail are covered with a casing or a sheet to block the entrance of incoming foreign matter.

[0016] The described seat's built-in massaging system 5 performs massage on the buttocks of the user sitting in the seat portion 2 as a massage target area. The seat's built-in massaging system 5 can be moved in the front-rear direction by the seat

guide rail attached to the support frame 8 of the seat portion 2. More specifically, in the seat's built-in massaging system 5, a rotatably driving force generated by a driving motor is converted by a cam assembly into a horizontal reciprocating motion of a massaging member 9 that allows kneading massage to be performed on the massage target area.

[0017] There is provided the footrest portion 4 in box-like form, mounted at the front of the seat portion 2, for performing massage on that part of user's leg located below his/her knee. More specifically, the footrest portion 4 is formed with a leg insertion section for receiving user's leg, and also has a foot massaging system disposed around the leg insertion section to perform massage on the leg received in the leg insertion section. Moreover, the footrest portion 4 is free to rotate about a horizontally-directed axis to change its position between a massaging position where the leg insertion section faces upward and a leg resting position where a bottom surface of the footrest portion opposite the leg insertion section faces upward for the resting of the toe of the leg. The footrest portion 4 shown in FIG. 1 takes on the leg resting position where the leg insertion section faces downward, i.e., faces toward a floor.

[0018] As shown in FIGs. 1 and 2, the backrest portion 3 mounted at the rear of the seat portion 2 is a flat-shaped member having a certain thickness for the resting of user's back. The backrest portion 3 is internally provided with the backrest's

built-in massaging system 6 for performing kneading massage, tapping massage, or grabbing massage on user's back over a wide shoulder-to-waist range, and the backrest guide rail 7 that guides the backrest's built-in massaging system 6 in movement in the direction of length of the backrest portion 3, i.e., the vertical direction.

[0019] More specifically, as shown in FIG. 2, the backrest portion 3 has an internal back-side frame 10 constructed of an assembly of bar members. One of the bar members constituting the back-side frame 10 is a longitudinal member 10a extending in the direction of inclination of the backrest portion 3. The longitudinal member 10a is provided on each of the right and left sides of the backrest portion 3. Another one of the bar members constituting the back-side frame 10 is a cross member 10b extending horizontally across the left-hand longitudinal member 10a and the right-hand longitudinal member 10a. There are provided a plurality of cross members 10b spaced apart in the vertical direction for providing horizontal connection between the left-hand and right-hand longitudinal members 10a. That is, the back-side frame 10 has a ladder-like form constructed of a matrix of the longitudinal members 10a and the cross members 10b as rungs.

[0020] The backrest guide rail 7 is an elongated member, located inwardly of the described longitudinal member 10a of the back-side frame 10 in the width direction (provided as a

pair of left-hand and right-hand rail members), for guiding the backrest's built-in massaging system 6 in movement in the direction of length of the backrest portion 3. The backrest guide rail 7 extends substantially in parallel with the longitudinal member 10a, while extending in a gentle curve in the direction of inclination of the backrest portion 3. The spacing between the paired left-hand and right-hand backrest guide rails 7 in the width direction is greater than the size of user's head.

[0021] The backrest guide rail 7 has formed at its front side a rack portion 12 which meshes with a travel gear 11 as will hereafter be described. With the travel gear 11 set in meshing engagement with the rack portion 12, the backrest's built-in massaging system 6 can be guided in vertical movement along the backrest guide rail 7.

In the backrest's built-in massaging system 6, a rotatably driving force is generated by a driving section for kneading massage (driving motor) provided in the backrest's built-in massaging system 6, and the rotatably driving force generated by this kneading-massage driving section is converted by a cam assembly into a horizontal reciprocatory rocking motion of a massaging arm 13. That is, the backrest's built-in massaging system 6 has the massaging arm 13 at each side in the horizontal direction, and, the front end of each of the left-hand and right-hand massaging arms 13 is provided with a massaging element

14 that performs massage on a massage target area of user's back. The backrest's built-in massaging system 6 is designed to perform massage such as kneading massage, grabbing massage, and tapping massage on the massage target area via the massaging element 14 by operating the left-hand and right-hand massaging arms 13 in a manner to rock in a predetermined direction at a predetermined rocking speed.

[0022] More specifically, in this embodiment, the backrest's built-in massaging system 6 incorporates a kneading-massage mechanism for performing kneading massage on the massage target area of user's back, a tapping-massage mechanism for performing tapping massage on that area, and a grabbing-massage mechanism for performing grabbing massage on that area. These mechanisms can be used either singly or in combination.

In the kneading-massage mechanism of this embodiment taken up as an example, at the outset, a kneading-massage rotation shaft is driven to rotate under a rotatably driving force exerted by a kneading-massage driving section. The kneading-massage rotation shaft is provided with a cylindrical eccentric boss member 15 having a cam face formed at its outer periphery. The cam face travels around an axis inclined with respect to the axis of the kneading-massage rotation shaft. The base end of the massaging arm 13 engages the cam face for free rotational movement. Moreover, the base end of the massaging arm 13 is

provided with a restraint member that, while permitting horizontal movement of the massaging arm 13, restrains the massaging arm 13 against rotational movement. As the kneading-massage rotation shaft is rotated by the kneading-massage driving section, the cylindrical eccentric boss member 15 is rotated about a horizontally-directed axis correspondingly. On the other hand, the massaging arm 13, being restrained against rotation by the restraint member, is restrained from rotating concurrently with the rotation of the eccentric boss member 15, while being allowed only to rock horizontally along the cam face. Thus, the described kneading-massage mechanism achieves kneading massage by rocking the massaging arm 13 horizontally to move the massaging element 14 so as to knead the massage target area.

[0023] The backrest's built-in massaging system 6 of this embodiment is provided with, in addition to the described kneading-massage mechanism, the tapping-massage mechanism that performs tapping massage on the massage target area by rocking the base end of the massaging arm 13 reciprocally at a small stroke to tap the massaging element 14 on the massage target area at a fast pace. The backrest's built-in massaging system 6 of this embodiment is further provided with the grabbing-massage mechanism that performs grabbing massage on the massage target area by moving an additionally provided grabbing-massaging element 16 close to and away from the massaging element 14 of

the massaging arm 13 to operate the massaging elements 14 and 16 in a manner to grab the massage target area in conjunction with each other. Note that the tapping-massage mechanism and the grabbing-massage mechanism are relatively insignificant in constituting the striking feature of the present invention (pillow member 17 and advancing-retracting mechanism for it), and will thus not hereafter be described in detail.

[0024] The backrest's built-in massaging system 6 has an up-and-down mechanism 18 that allows the backrest's built-in massaging system 6 in itself to move vertically along the backrest guide rail 7.

In the up-and-down mechanism 18, the travel gear 11 set in meshing engagement with the rack portion 12 of the backrest guide rail 7 is rotated under a rotatably driving force exerted by an up-and-down driving section, not shown, provided in the backrest's built-in massaging system 6 to lift and lower the backrest's built-in massaging system 6 in the rack portion 12-laying direction. More specifically, the up-and-down mechanism 18 comprises: the up-and-down driving section (up-and-down driving motor) mounted at the rear of the backrest's built-in massaging system 6; an up-and-down shaft 19 which rotates about a horizontally-directed axis under the transmitted rotatably driving force exerted by the up-and-down driving section; and the travel gear 11 disposed at each end of the up-and-down shaft 19. That is, when rotated in one direction

by the up-and-down driving section, the travel gear 11 meshes with the rack portion 12 of the backrest guide rail 7 and travels upwardly along the rack portion 12, and the backrest's built-in massaging system 6 moves toward the top of the backrest portion 3 (lifted) correspondingly. On the other hand, when rotated in the opposite direction of its rotation for upward movement (the other direction), the travel gear 11 meshes with the rack portion 12 of the backrest guide rail 7 and travels downwardly along the rack portion 12, and the backrest's built-in massaging system 6 moves toward the bottom of the backrest portion 3 (lowered) correspondingly.

[0025] The chair massager 1 of the present invention is characterized in that a pillow member 17 for supporting user's head juts out from within the backrest portion 3 when the backrest's built-in massaging system 6 is moved in one of upward and downward directions, along the backrest guide rail 7, to a location away from the head by the operation of the described up-and-down mechanism 18. That is, the pillow member 17 of the chair massager 1 of the present invention is able to come out in a position behind user's head so as to fill an opening which appears in the backrest portion 3 as an area incapable of supporting user's head after the movement of the backrest's built-in massaging system 6 away from the head.

[0026] Although the pillow member 17 is moved to an advanced position upon the backrest's built-in massaging system 6 being

lowered to a predetermined level in the chair massager 1 of the present invention, the function of advancing means 20 provided in the chair massager 1 of the present invention is not limited to moving the pillow member 17 to an advanced position in sync with the lowering of the backrest's built-in massaging system 6. For example, use can be made of a mechanism that moves the pillow member 17 to an advanced position upon the backrest's built-in massaging system 6 being raised to a predetermined level, or a mechanism that moves the pillow member 17 to an advanced position upon the backrest's built-in massaging system 6 being moved either in an upward direction or in a downward direction away from its original position by a predetermined distance.

[0027] More specifically, the chair massager 1 according to the embodiment comprises: the pillow member 17 capable of supporting user's head; the advancing means 20 for moving the pillow member 17 to a location ahead of the backrest portion 3; and returning means 21 for moving the pillow member 17 in the forwardly advanced position back for return (expressed differently, retracting means). The advancing means 20 goes into action in sync with the downward movement of the backrest's built-in massaging system 6, or equivalently, upon the backrest's built-in massaging system 6 being lowered to a predetermined level. On the other hand, the returning means 21 goes into action in sync with the upward movement of the backrest's built-in massaging system 6, or equivalently, upon the backrest's built-in

massaging system 6 being raised to a level exceeding a predetermined level.

[0028] The following describes the pillow member 17, the advancing means 20, and the returning means 21 that constitute the striking feature of the chair massager 1 of the present invention.

The pillow member 17 has the shape of a slightly narrow, horizontally-oriented rectangular prism or cylinder suited to providing support for user's head. To support the head tenderly, for example, the pillow member 17 is made of an elastic cushion material. The pillow member 17 of this embodiment shown in FIG. 3, which is semicircular in section perpendicular to the horizontal direction, juts out from the backrest portion 3, with the arcuately curved side of the semicircular sectional profile facing forward to avoid that the user will feel pain when resting his/her head on the pillow member 17.

[0029] The length of the pillow member 17 in the horizontal direction (horizontal width) is shorter than the spacing between the left-hand and right-hand backrest guide rails 7. Moreover, the left end of the pillow member 17 is located inwardly of the left-hand backrest guide rail 7, and the right end of the pillow member 17 is located inwardly of the right-hand backrest guide rail 7. That is, the pillow member 17 is so positioned as not to interfere with each of the left-hand and right-hand backrest guide rails 7. Thus constructed, the pillow member 17 is free

to move (rock) in the front-rear direction in the region between the left-hand and right-hand backrest guide rails 7.

[0030] The advancing means 20 serves to move the pillow member 17 to a location ahead of the backrest portion 3. For example, in this embodiment, the advancing means 20 comprises: a rocking arm 22 that supports the pillow member 17 for free rocking motion about a horizontally-directed axis relatively to the earlier described back-side frame 10; and an urging member 23 that urges the rocking arm 22 to move relatively to the back-side frame 10 to permit the advancing movement of the pillow member 17. Although the advancing means 20 of this embodiment moves the pillow member 17 to an advanced position by exploiting an urgency effected by the urging member 23, the pillow member 17 may be moved to an advanced position under, instead of the urgency of the urging member 23, the rocking motion of the rocking arm 22 produced by a linear actuator, etc.

[0031] More specifically, the rocking arm 22 provided in the advancing means 20 of this embodiment is a narrow elongate rodlike member, mounted on each side of the pillow member 17 in the horizontal direction, for supporting the pillow member 17 for free rocking motion in the front-rear direction relatively to the backrest portion 3. That is, the base end of the rocking arm 22 is pivotally supported on a pivot shaft 24 disposed in a location spaced upwardly a slight distance from an intermediate position on the back-side frame 10 in the vertical direction.

The pivot shaft 24 is attached to the cross member 10b of the support frame 8 via a mounting member 25. The rocking arm 22 is free to rock in the front-rear direction about the pivot shaft 24 having a horizontally-directed axis.

[0032] The front end of each rocking arm 22 is secured to corresponding one of the left-hand and right-hand side faces of the pillow member 17. Thus, the pillow member 17 is supported at each side in the horizontal direction by the rocking arm 22. The rocking arm 22 is bent in substantially S-shape at its lengthwise intermediate part located between the pivot shaft 24 and the pillow member 17. Moreover, each rocking arm 22 extends further rearwardly beyond the pivot shaft 24. That part of the left-hand rocking arm 22 located behind the pivot shaft 24 and that part of the right-hand rocking arm 22 located behind the pivot shaft 24 have different configurations.

[0033] More specifically, that part of the right-hand rocking arm 22 located behind the pivot shaft 24 (rear end) is bent outwardly (rightwardly) in the width direction while lying somewhat behind the backrest guide rail 7, extends further rightwardly from the bend, and terminates at a point beyond the right-hand backrest guide rail 7. On the other hand, that part of the left-hand rocking arm 22 located behind the pivot shaft 24 (rear end) is bent outwardly (leftwardly) in the width direction while lying somewhat behind the backrest guide rail 7, extends further leftwardly from the bend, is bent a plurality

of times in a location beyond the left-hand backrest guide rail 7, and terminates at a point located somewhat above the pivot shaft 24. The termination of the left-hand rocking arm 22 is provided with the described urging member 23.

[0034] The urging member 23 is attached to the described termination of the left-hand rocking arm 22 (the base end thereof located behind the pivot shaft 24) to urge the rocking arm 22 to rock frontward. More specifically, the urging member 23 provided in the chair massager 1 according to the embodiment is constructed of a spring disposed between the termination of the left-hand rocking arm 22 and the backrest portion 3 (the rear-side casing that covers the backrest portion 3). The spring (the urging member 23) effects an urgency to lift up the termination of the rocking arm 22 so as to urge the front end of the forwardly-extending rocking arm 22 provided intermediate its ends with the pivot shaft 24 to rock frontward.

[0035] That is, in the described advancing means 20, under the urgency of the urging member 23 to lift up the termination of the rocking arm 22, the rocking arm 22 is rocked frontward about the pivot shaft 24, and the pillow member 17 supported on the front end of the rocking arm 22 is forwardly moved to an advanced position correspondingly.

The chair massager 1 according to the embodiment is also provided with the returning means 21 (retracting means) by which the pillow member 17 that has been moved to a forwardly advanced

position by the advancing means 20 is moved back for return. More specifically, in response to the downward movement of the backrest's built-in massaging system 6, the returning means 21 brings a flip-up member 26 mounted at the back of the backrest's built-in massaging system 6 into contact with a flip-up piece 27 attached to the rocking arm 22 to press the rocking arm 22 back in the opposite direction of its forwardly advancing movement (in a backward direction, in other words, retracted into the backrest).

[0036] More specifically, the flip-up member 26 in the form of a prismatic rod extending in the direction of length of the backrest portion 3 is mounted to the right of the backrest's built-in massaging system 6. The flip-up member 26 is located somewhat close to the left end of the right-hand backrest guide rail 7, and, the rear end face of the flip-up member 26 abuts against the flip-up piece 27 of the rocking arm 22. Moreover, the flip-up piece 27 is attached to that part of the right-hand rocking arm 22 located somewhat forward of the pivot shaft 24 (toward the pillow member 17). The flip-up piece 27 protrudes leftwardly, or equivalently protrudes inwardly in the width direction, so as to abut against the rear end face of the flip-up member 26 of the backrest's built-in massaging system 6. That is, the rear end face of the flip-up member 26 is a vertically-extending perpendicular plane surface which is gradually bent forwardly in a bottom to top direction to define

a camber, as seen from the rear. In response to the upward movement of the backrest's built-in massaging system 6, the flip-up piece 27 slides down over the curved rear end face.

[0037] Thus, in the described returning means 21, the upward movement of the backrest's built-in massaging system 6 causes the flip-up member 26 mounted to the right of the backrest's built-in massaging system 6 to abut against the flip-up piece 27 of the right-hand rocking arm 22. Further upward movement of the backrest's built-in massaging system 6 causes the flip-up piece 27 of the rocking arm 22 to move upwardly along the curved rear end face, with the consequent rearward displacement of the position of contact between the flip-up piece 27 and the flip-up member 26. Then, the rocking arm 22 is pressed back in the opposite direction of its movement under the urgency (in a backward direction, in other words, retracted into the backrest). In this way, the described returning means 21 allows the pillow member 17 that has been forwardly moved to the advanced position by the advancing means 20 to move back for return.

[0038] Positioning means 28 for positioning the pillow member 17 in an advanced position may be provided to ensure that the forwardly advanced pillow member 17 is secured in the advanced position without undergoing further downward rocking movement. As the positioning means 28, as indicated by a chain double-dashed line in FIG. 2, for example, use can be made of a belt that ties the pillow member 17 and the back-side frame 10 together. The

placement of such a belt allows the pillow member 17 to be secured in the advanced position without fail.

[0039] Moreover, the mounting member 25 used to attach the pivot shaft 24 to the cross member 10b may be disposed in a position for abutting against the rocking arm 22 undergoing frontward rocking motion. In this case, the rocking arm 22 in a frontwardly-rocking condition abuts against the mounting member 25, thus permitting positioning of the pillow member 17 in the advanced position. That is, in this case, the mounting member 25 serves as the positioning means 28 for positioning the pillow member 17 in the advanced position.

[0040] The following describes a pillow member 17-advancing operation using the described advancing means 20 and a pillow member 17-retracting operation using the described returning means 21.

At the outset, as shown in FIG. 5, with the backrest's built-in massaging system 6 set in a position behind user's head (toward the top of the backrest portion 3), the pillow member 17 assumes a backwardly retracted position (stays within the backrest portion 3).

[0041] That is, in the backrest's built-in massaging system 6 shown in FIG. 5, the flip-up piece 27 of the right-hand rocking arm 22 is kept in contact with a lower part of the rear end face of the flip-up member 26, and, the rocking arm 22 remains in the position to which it has been moved back greatly with respect

to the pivot shaft 24. Moreover, the described rocking arm 22 is situated so as to extend upwardly from the pivot shaft 24 in the vertical direction, and the pillow member 17 is thus located substantially above the pivot shaft 24. That is, in the condition shown in FIG. 5, the pillow member 17 stays behind the backrest guide rail 7. The pillow member 17, being positioned behind the backrest guide rail 7, will not constitute an obstruction to the vertical movement of the backrest's built-in massaging system 6. This allows the backrest's built-in massaging system 6 to move up and down smoothly.

[0042] As the backrest's built-in massaging system 6 is moved downwardly from the position shown in FIG. 5 to a location away from user's head, the flip-up member 26 is lowered correspondingly, with its rear end face maintained in sliding engagement with the flip-up piece 27. Then, the flip-up piece 27 comes to the curved upper part of the rear end face (curved surface) of the flip-up member 26, with the consequent frontward displacement of the position of contact of the flip-up piece 27 with the rear end face of the flip-up member 26 as shown in FIG. 4. This allows the described rocking arm 22 to rock slightly frontward about the pivot shaft 24.

[0043] That is, in the backrest's built-in massaging system 6 shown in FIG. 5, the rocking arm 22 is rocked frontward in sync with the downward movement of the flip-up member 26. Consequently, the urging member 23 of the advancing means 20

urges the front end of the rocking arm 22 to rock frontward about the pivot shaft 24, causing the pillow member 17 to move forwardly from the position shown in FIG. 5.

Further downward movement of the backrest's built-in massaging system 6 along the backrest guide rail 7 causes the edge of the upper end of the flip-up member 26 to move downwardly below the flip-up piece 27, whereupon the flip-up piece 27 is clear of the rear end face of the flip-up member 26.

[0044] Then, as shown in FIG. 3, further frontward rocking motion of the rocking arm 22 about the pivot shaft 24 causes the pillow member 17 supported on the front end of the rocking arm 22 to move to a location in front of the pivot shaft 24.

The operation thus far described is the pillow member 17-advancing operation that is accomplished by following the step shown in FIG. 5, the step shown in FIG. 4, and the step shown in FIG. 3 in the order named. The pillow member 17-retracting operation for moving the forwardly-advanced pillow member 17 back for return is reversed in sequence (achieved by following the step shown in FIG. 3, the step shown in FIG. 4, and the step shown in FIG. 5 in the order named).

[0045] In the described chair massager 1 according to the embodiment, even when the backrest's built-in massaging system 6 is moved downwardly to a location away from user's head by the operation of the up-and-down mechanism 18, it is possible to move the pillow member 17 forwardly to the clear space left

after the movement of the backrest's built-in massaging system 6, and thereby support user's head by the pillow member 17. Thus, the chair massager 1 according to the embodiment is capable of keeping user's head in a stably supported condition even when the backrest's built-in massaging system 6 becomes unable to support the head.

[0046] It should be understood that the embodiment as disclosed herein is considered in all respects as illustrative only and not restrictive. In particular, for such matters as not explicitly specified in the disclosure of the embodiment, for example, for working and operating conditions, various parameters, and the dimensions, weights, and volumes of constituent components, use has been made of the values adopted in the light of the common knowledge of those skilled in the art without departing from the practical ranges.

Reference Signs List

- [0047]
- | | |
|---|--|
| 1 | Chair massager |
| 2 | Seat portion |
| 3 | Backrest portion |
| 4 | Footrest portion |
| 5 | Seat's built-in massaging system |
| 6 | Backrest's built-in massaging system |
| 7 | Backrest guide rail |
| 8 | Support frame |
| 9 | Massaging member of Seat's built-in massaging system |

- 10 Back-side frame
- 10a Longitudinal member of Back-side frame
- 10b Cross member of Back-side frame
- 11 Travel gear
- 12 Rack portion
- 13 Massaging arm of Backrest's built-in massaging system
- 14 Massaging element of Backrest's built-in massaging system
- 15 Eccentric boss member of Backrest's built-in massaging system
- 16 Grabbing-massaging element
- 17 Pillow member
- 18 Up-and-down mechanism
- 19 Up-and-down shaft
- 20 Pillow member-advancing means
- 21 Pillow member-returning means
- 22 Rocking arm
- 23 Urging member
- 24 Pivot shaft
- 25 Mounting member
- 26 Flip-up member
- 27 Flip-up piece
- 28 Positioning means

CLAIMS

1. A chair massager comprising:
 - a backrest portion on which user's back is rested;
 - a backrest's built-in massaging system mounted within the backrest portion; and
 - a backrest guide rail that guides the backrest's built-in massaging system in vertical movement within the backrest portion,

the chair massager being designed to allow a pillow member capable of supporting user's head to jut out from within the backrest portion when the backrest's built-in massaging system is moved either in an upward direction or in a downward direction, along the backrest guide rail, to a location away from user's head.
2. The chair massager according to claim 1,
 - wherein the backrest guide rail is mounted at each of a right-hand inner side and a left-hand inner side of the backrest portion,
 - and wherein the pillow member is allowed to jut out in a region between the left-hand and right-hand backrest guide rails, while being located toward a top of each backrest guide rail.

3. The chair massager according to claim 1 or claim 2,
wherein the backrest portion is internally provided with
advancing means for moving the pillow member to a location ahead
of the backrest portion,

and wherein the advancing means is designed to permit the
advancing movement of the pillow member in sync with a downward
movement of the backrest's built-in massaging system along the
backrest guide rail.

4. The chair massager according to claim 3, further
comprising:

a rocking arm, located between the pillow member and the
backrest portion, for supporting the pillow member for free
rocking motion in a front-rear direction relatively to the
backrest portion,

and wherein the pillow member is disposed at a front end
of the rocking arm, and, a base end of the rocking arm is pivotally
supported on the backrest portion for free rotational movement.

5. The chair massager according to claim 4,

wherein the backrest portion is internally provided with
returning means for moving the pillow member, which remains in
a position to which it has been moved forward of the backrest
portion, back for return,

and wherein the returning means is designed to permit the

returning movement of the pillow member in sync with an upward movement of the backrest's built-in massaging system along the backrest guide rail.

6. The chair massager according to claim 5,
wherein the backrest's built-in massaging system has a flip-up member that abuts against the rocking arm in response to an upward movement of the backrest's built-in massaging system along the backrest guide rail to rock the rocking arm rearward.