

DESCRIPTION

Title of Invention: CHAIR-FORM MASSAGING APPARATUS

Technical Field

[0001] The present invention relates to a chair-form massaging apparatus equipped with a seat's built-in massaging system that massages a massage target region from the buttocks to the thigh of a user sitting in the seat of the apparatus.

Background Art

[0002] Patent Literature 1 discloses a conventional massaging apparatus of the type which massages a massage target region of the buttocks of a user sitting in the seat of the apparatus with a mechanical massaging system.

The massaging apparatus disclosed in Patent Literature 1 is shaped like a bucket seat constructed of integrally-formed backrest and seat. In this construction, the massaging system is guided in wide-range movement along a rack extending from the upper end of the backrest to the forward end of the seat, thus enabling massage over a wide range from the shoulder to the thigh of a user. That is, the massaging apparatus disclosed in Patent Literature 1 becomes ready to mechanically massage the massage target region of user's buttocks upon the massaging system being moved to a position below the seat.

Prior Art Reference

Citation List

[0003] Patent Literature 1: Japanese Unexamined Patent
Publication JP-A 2014-171

Summary of Invention

Technical Problem

[0004] In the massaging apparatus disclosed in Patent Literature 1, the rack for guiding the massaging system is disposed immediately below the seat to perform massage on the buttocks-to-thigh region. In this case, due to the rack being located near the seat, the buttocks of the seated user sinking down on the seat may hit against the rack or the massaging system, causing user discomfort such as pain or a feeling of foreign matter.

[0005] Especially for a massaging apparatus in chair form, there may be cases where users use the apparatus merely as a chair to sit upon, for example, as a reclining chair. Thus, the chair-form massaging apparatus should preferably be designed so that users will suffer little discomfort during seating.

Furthermore, the rack of the massaging apparatus disclosed in Patent Literature 1 is intricately bent and curved to conform to the shapes of the backrest and the seat. Such a complicated configuration may lead to an increase in manufacturing cost.

[0006] The present invention has been devised in view of the problems as discussed supra, and accordingly its object is to provide a chair-form massaging apparatus that employs simply structured moving means for moving a seat's built-in massaging

system to a massage target region from the buttocks to the thigh of a user, and yet accommodates the massaging system in a place away from a seat without fail to avoid user discomfort such as pain or a feeling of foreign matter caused by the accommodated massaging system.

Solution to Problem

[0007] In order to solve the described problems, the following technical means is adopted for the implementation of a chair-form massaging apparatus pursuant to the present invention.

The present invention provides a chair-form massaging apparatus comprising: a seat section; a seat's built-in massaging system that massages the buttocks of a user sitting in the seat section; a seat's built-in guide rail, disposed within the seat section, for guiding the seat's built-in massaging system in back-and-forth movement; a backrest section; a backrest's built-in massaging system that massages the back of a user resting on the backrest section; and a backrest's built-in guide rail, disposed within the backrest section, for guiding the backrest's built-in massaging system in up-and-down movement. In this construction, the seat's built-in guide rail extends rearwardly and downwardly so as to go down further below the backrest's built-in massaging system positioned at a lower end of the backrest's built-in guide rail within the seat section.

[0008] In the present invention, it is preferable that the

seat's built-in massaging system includes a bottom-kneading massage member for kneading a massage target region of the buttocks from below, and a side-kneading massage member, disposed outward of the bottom-kneading massage member in a horizontal direction, for kneading the massage target region of the buttocks from its side.

In the present invention, it is preferable that the backrest's built-in massaging system includes a back massage member for massaging user's back, and that, when the seat's built-in massaging system is guidedly moved to a rear end of the seat's built-in guide rail and held in position and the backrest's built-in massaging system is guidedly moved to a lower end of the backrest's built-in guide rail and held in position, then the bottom-kneading massage member of the seat's built-in massaging system is located in an even lower position below the backrest's built-in massaging system positioned at the lower end of the backrest's built-in guide rail.

[0009] In the present invention, it is preferable that, when the seat's built-in massaging system is guidedly moved to the rear end of the seat's built-in guide rail and held in position and the backrest's built-in massaging system is guidedly moved to the lower end of the backrest's built-in guide rail and held in position, then the side-kneading massage member of the seat's built-in massaging system is positioned further outward of the backrest's built-in massaging system positioned at the lower

end of the backrest's built-in guide rail.

In the present invention, it is preferable that the side-kneading massage member of the seat's built-in massaging system includes a forward massage piece and a rearward massage piece that are spaced apart in a front-rear direction, and a forward arm member and a rearward arm member that support the forward massage piece and the rearward massage piece, respectively, and that the pressing massage member is movable along the backrest's built-in guide rail, with the forward massage piece and the rearward massage piece maintained at the same level.

[0010] In the present invention, it is preferable that the seat's built-in guide rail is mounted with its rear end positioned at about half the level of the lower end of the backrest's built-in guide rail.

In the present invention, it is preferable that the seat's built-in guide rail extends in substantially a rectilinear form rearwardly at a downward incline so as to go down further below the backrest's built-in massaging system.

In the present invention, it is preferable that the side-kneading massage member includes rocking means that allows an upper-end part of the side-kneading massage member to rock in a width direction relative to a lower-end part of the massage member.

[0011] In the present invention, it is preferable that the rocking means includes a lower massage portion coupled to a drive

side, an upper massage portion disposed at a top of the lower massage portion, a junction that couples the upper massage portion to the lower massage portion for free rocking motion about an axis oriented in the front-rear direction, and a resilient component that urges the upper massage portion in a widthwise inwards direction relative to the lower massage portion.

[0012] In the present invention, it is preferable to provide a body-shape measurement sensor that determines a body shape of a user sitting in the seat section by measuring variation in an angle of inclination of the upper massage portion with respect to the lower massage portion in the width direction.

Moreover, the present invention provides a chair-form massaging apparatus comprising a seat section and a seat's built-in massaging system that massages the buttocks of a user sitting in the seat section. In this construction, the seat's built-in massaging system includes a side-kneading massage member for kneading a massage target region of the buttocks from its side, and, the side-kneading massage member includes rocking means that allows an upper-end part of the side-kneading massage member to rock in a width direction relative to a lower-end part of the massage member.

[0013] In the present invention, it is preferable that the rocking means includes a lower massage portion coupled to a drive side, an upper massage portion disposed at a top of the lower massage portion, a junction that couples the upper massage portion

to the lower massage portion for free rocking motion about an axis oriented in the front-rear direction, and a resilient component that urges the upper massage portion in a widthwise inwards direction relative to the lower massage portion.

[0014] In the present invention, it is preferable to provide a body-shape measurement sensor that determines a body shape of a user sitting in the seat section by measuring variation in an angle of inclination of the upper massage portion with respect to the lower massage portion in the width direction.

Advantageous Effects of Invention

[0015] In the chair-form massaging apparatus of the present invention, while simply structured moving means is adopted for the seat's built-in massaging system-moving mechanism that moves the seat's built-in massaging system to a buttocks-to-thigh target region, the massaging system can be accommodated in a place away from the seat without fail, and thus the accommodated massaging system will not cause any user discomfort such as pain or a feeling of foreign matter.

Brief Description of Drawings

[0016] [FIG. 1] is a perspective view showing the chair-form massaging apparatus according to the first embodiment of the present invention.

[FIG. 2] is an enlarged view showing the seat's built-in massaging system and the seat's built-in guide rail as seen from the left front side of the apparatus.

[FIG. 3] is an enlarged view showing the seat's built-in massaging system as seen from the right front side of the apparatus.

[FIG. 4] is a sectional side view showing the chair-form massaging apparatus with the seat's built-in massaging system positioned at the front end of the seat's built-in guide rail.

[FIG. 5] is a sectional side view showing the chair-form massaging apparatus with the seat's built-in massaging system positioned at an intermediate point on the seat's built-in guide rail.

[FIG. 6] is a sectional side view showing the chair-form massaging apparatus with the seat's built-in massaging system positioned at the rear end of the seat's built-in guide rail.

[FIG. 7] is an enlarged view showing the side-kneading message member and the bottom-kneading message member included in the seat's built-in massaging system.

[FIG. 8] is a view showing the positional relationship among the side-kneading message member, the bottom-kneading message member, and the back message member within the chair-form massaging apparatus as seen from in front.

[FIG. 9] is a view showing the positional relationship among the side-kneading message member, the bottom-kneading message member, and the back message member within the chair-form massaging apparatus as seen obliquely from above the front side thereof.

[FIG. 10] is an enlarged view showing the side-kneading massage member and the bottom-kneading massage member included in the seat's built-in massaging system according to the second embodiment of the present invention.

Description of Embodiments

[0017] (First Embodiment)

The following describes the details of embodiments of a chair-form massaging apparatus 1 pursuant to the present invention with reference to drawings.

FIG. 1 is a view schematically showing the chair-form massaging apparatus 1 according to the first embodiment.

As shown in FIG. 1, the chair-form massaging apparatus 1 according to the first embodiment comprises a seat section 2 for a user to sit upon and a backrest section 3 for the resting of the back of the user sitting in the seat section 2. The seat section 2 includes a seat frame 4 constructed of an assembly of frame members in rectangular bar form. Like the seat section 2, the backrest section 3 includes a backrest frame 5 constructed of an assembly of frame members in rectangular bar form.

[0018] Moreover, the described seat frame 4 is equipped with a seat's built-in massaging system 6 that performs massage on the buttocks of the user sitting in the seat section 2, and a seat's built-in guide rail 7 that guides the seat's built-in massaging system 6 in back-and-forth movement. The backrest frame 5 is equipped with a backrest's built-in massaging system

8 that performs massage on the back of the user resting on the backrest section 3, and a backrest's built-in guide rail 9, disposed within the backrest section 3, for guiding the backrest's built-in massaging system 8 in up-and-down movement along the backrest section 3. That is, the seat's built-in massaging system 6 is allowed to move back and forth via the seat's built-in guide rail 7, and, the backrest's built-in massaging system 8 is allowed to move up and down via the backrest's built-in guide rail 9.

[0019] In the chair-form massaging apparatus 1 according to the first embodiment, the seat's built-in guide rail 7 extends in substantially a rectilinear form rearwardly at a downward incline so as to go down further below the backrest's built-in massaging system 8 positioned at the lower end of the backrest's built-in guide rail 9.

First of all, the seat section 2, the seat's built-in massaging system 6, the seat's built-in guide rail 7, the backrest section 3, the backrest's built-in massaging system 8, and the backrest's built-in guide rail 9 that constitute the chair-form massaging apparatus 1 according to the first embodiment will be described.

[0020] For the sake of explanation of the chair-form massaging apparatus 1, as shown in FIG. 1, the direction of height of the chair-form massaging apparatus 1 placed on a horizontal surface such as a floor surface, with its backrest section 3

set in upstanding condition, is defined as a vertical direction. Moreover, a direction of from right to left of the apparatus as shown in the drawings such as FIGs. 1, 4, and 9 is defined as a horizontal direction (width direction), and, a direction of from front to rear of the apparatus as shown in the drawings is defined as a front-rear direction. The vertical direction, the horizontal direction, and the front-rear direction correspond to a direction of from top to bottom of a user sitting in the chair-form massaging apparatus 1, a direction of from right to left of the user, and a direction of from front to rear of the user, respectively.

[0021] As shown in FIG. 1 for example, the seat section 2 includes the seat frame 4 constructed by assembling rectangular-bar frame members into a framed structure. For example, a cushion, not shown, may be placed on the upper side of the seat frame 4 for user seating. More specifically, the seat frame 4 includes an assembly of two framed structures, namely an outer frame 10 located outwards in the horizontal direction (width direction) and an inner frame 11 located inward of the outer frame 10 in the same direction.

[0022] The outer frame 10 is constructed by assembling the described elongated frame members (rodlike frame components) into a frame. A cover 12 of the chair-form massaging apparatus 1 is disposed externally of the outer frame 10 (in the width direction) to prevent the insertion of user's leg and hand into

machinery parts (moving parts) mounted within the outer frame 10. To prevent direct contact of the frame member with the floor surface, a leg component 13 (floor-mounting component) made of rubber or the like is disposed at each of the four corners, namely the right front corner, the right rear corner, the left front corner, and the left rear corner of the lower side of the outer frame 10 (the base end of the frame). The outer frame 10 is placed in upstanding condition on the floor surface, with the leg components 13 lying in between. Moreover, the inner frame 11 is located inward of the outer frame 10 in the width direction, expressed differently, located between the left-hand and right-hand outer frames 10.

[0023] The inner frame 11 is built as a framed structure which is rectangular in plan configuration. Being supported on the upper side of the outer frame 10, the inner frame 11 is retained in suspended fashion in a location spaced above the floor surface with which the outer frame 10 makes contact (on which the outer frame 10 is placed). Inside the inner frame 11, there is disposed a pair of seat's built-in guide rails 7 for moving the described seat's built-in massaging system 6 in the front-rear direction. The paired seat's built-in guide rails 7 are disposed at the inner left-hand side and the inner right-hand side, respectively, of the inner frame 11 to guide the seat's built-in massaging system 6 in back-and-forth movement.

[0024] As shown in FIGs. 2 and 3, the seat's built-in massaging system 6 is designed to massage a message target region of the body of a user sitting in the seat section 2 (buttocks-to-thigh region). The seat's built-in massaging system 6 is emplaced on a base 14. The base 14 is movably attached to the seat's built-in guide rail 7. Thus, the seat's built-in massaging system 6 is movable in the front-rear direction.

[0025] Moreover, the seat's built-in massaging system 6 includes a seat's built-in massager 15 that produces massaging motions such as a kneading motion, a tapping motion, and a grabbing motion for the message target region of the user. More specifically, in the first embodiment, the seat's built-in massager 15 of the seat's built-in massaging system 6 is composed of two members for different massages, namely a bottom-kneading message member 16 that performs kneading message on the buttocks-to-thigh region by kneading the region from below, and a side-kneading message member 17 that performs pressing message, in conjunction with the bottom-kneading message member 16, on the message target region held between these members by squeezing the region. The bottom-kneading message member 16 and the side-kneading message member 17 can be actuated simultaneously by a single seat's built-in kneading-message member drive 18 (driving motor) mounted in the described seat's built-in massaging system 6.

[0026] More specifically, the seat's built-in massaging

system 6 includes the seat's built-in kneading-massage member drive 18 (driving motor) that produces a rotatably driving force, and a rotation shaft 19 which is rotatably driven under the rotatably driving force exerted by the seat's built-in kneading-massage member drive 18. In the chair-form massaging apparatus 1 according to this embodiment, the seat's built-in kneading-massage member drive 18 is located substantially centrally of the base 14 (seat's built-in massaging system 6) in the horizontal direction. The rotatably driving force exerted by the seat's built-in kneading-massage member drive 18 is transmitted via a worm gear reducer 20 to a gear wheel 21 situated at an intermediate point on the rotation shaft 19 in the horizontal direction. Moreover, the bottom-kneading massage member 16 is located toward each of the left-hand and right-hand sides of the gear wheel 21, and, the side-kneading massage member 17 is located outward of the bottom-kneading massage member 16 in the width direction. The described bottom-kneading-massage member 16 and side-kneading massage member 17 are operated under the rotatably driving force exerted by a single seat's built-in kneading-massage member drive 18.

[0027] There is provided a pair of bottom-kneading massage members 16. The bottom-kneading massage members 16 are disposed in the left-hand area and the right-hand area, respectively, of the seat's built-in massaging system 6. The rotary motion of the rotation shaft 19 is converted into a horizontal

side-to-side rocking motion of each bottom-kneading massage member 16 by a cam assembly.

More specifically, the bottom-kneading massage member 16 includes: a bottom-kneading inclined boss 22 which rotates together with the described rotation shaft 19; a bottom-kneading massage arm 23 rotatably fitted at its base end to the outer periphery of the bottom-kneading inclined boss 22; a bottom-kneading restrainer 24 that restrains the bottom-kneading massage arm 23 from rotating unitarily with the bottom-kneading inclined boss 22; and a bottom-kneading massage piece 25 disposed at each end of the bottom-kneading massage arm 23 extending in a direction away from the rotation shaft 19 (the forwardly and upwardly-pointing end and the rearwardly and upwardly-pointing end).

[0028] The bottom-kneading inclined boss 22 is a substantially cylindrical structural part mounted in axial alignment with the rotation shaft 19. The outer periphery of the bottom-kneading inclined boss 22 is provided with a bottom-kneading inclined cam face capable of orbital motion about an axis inclined with respect to the axis of the rotation shaft 19. The base end of the bottom-kneading massage arm 23 is slidably fitted to the bottom-kneading inclined cam face.

An annular hole is formed at the base end of the bottom-kneading massage arm 23 to allow the bottom-kneading massage arm 23 to rotatably engage the bottom-kneading inclined

cam face. The bottom-kneading massage piece 25, which is brought into contact with the target region for massage treatment, is disposed at the end of the bottom-kneading massage arm 23 extending radially outwardly from the base end (extending in a direction away from the rotation shaft 19).

[0029] In the chair-form massaging apparatus 1 according to this embodiment, the bottom-kneading massage arm 23 is shaped in a fork with two prongs that extend forwardly and rearwardly, respectively, with respect to the rotation shaft 19. The bottom-kneading massage piece 25 is disposed at each prong tip. That is, the bottom-kneading massage arm 23 of this embodiment has its ends extended horizontally while being gently bent upwardly so as to conform to the shape of user's buttocks. Such a low-profile design eliminates the need to leave sufficient vertical space for the placement of the bottom-kneading massage member 16.

[0030] Moreover, the forked bottom-kneading massage arm 23 is mounted so that the tips of the forwardly-facing prong serving as a forward arm 23F and the rearwardly-facing prong serving as a rearward arm 23R can be positioned at substantially the same level. That is, the forward bottom-kneading massage piece 25 disposed at the tip of the forward arm 23F and the rearward bottom-kneading massage piece 25 disposed at the tip of the rearward arm 23R are positioned at substantially the same level.

At the base end of the described bottom-kneading massage

arm 23, there is disposed a bottom-kneading restraint component 26 that restrains the bottom-kneading massage arm 23 from rotating together with the bottom-kneading inclined boss 22. In this embodiment, the bottom-kneading restraint component 26 has the form of projections that protrude forwardly and rearwardly, respectively, from the base end of the bottom-kneading massage arm 23 (bottom-kneading restraint projections). In each of a location forward of the bottom-kneading inclined boss 22 and a location rearward of the boss 22 on the base 14, there is disposed a bottom-kneading restraint plate 27 which is brought into contact with the bottom-kneading restraint component 26 to restrain the rotational movement of the bottom-kneading massage arm 23. That is, with the bottom-kneading restrainer 24 including the bottom-kneading restraint component 26 of the bottom-kneading massage arm 23 and the bottom-kneading restraint plate 27 of the base 14, on the contact of the bottom-kneading restraint component 26 with the bottom-kneading restraint plate 27, the bottom-kneading massage arm 23 is restrained from rotating together with the bottom-kneading inclined boss 22. Meanwhile, the bottom-kneading restrainer 24 (the bottom-kneading restraint plate 27) provides no restraint on the bottom-kneading massage arm 23 in respect of its horizontal side-to-side rocking motion. Thus, the bottom-kneading restrainer 24 (the bottom-kneading restraint component 26 and the bottom-kneading restraint plate 27) serves to allow the bottom-kneading massage

arm 23 to rock from side to side while being restrained against rotation about its horizontally oriented axis.

[0031] That is, as the massaging mechanism of the described bottom-kneading massage member 16, the rotary motion of the rotation shaft 19 rotating about its horizontally oriented axis is converted into a horizontal translatory motion by conversion means including the bottom-kneading inclined boss 22, the bottom-kneading massage arm 23, the bottom-kneading restrainer 24, and the bottom-kneading restraint plate 27 to impart a horizontal side-to-side rocking motion to the bottom-kneading massage member 16.

[0032] The bottom-kneading inclined cam face formed in the bottom-kneading inclined boss 22 of the left-hand bottom-kneading massage member 16 and that formed in the bottom-kneading inclined boss 22 of the right-hand bottom-kneading massage member 16 are inclined oppositely in the horizontal direction, that is; the left-hand and right-hand cam faces are inclined in mirror image fashion to each other. More specifically, due to the bottom-kneading inclined cam face of the left-hand bottom-kneading massage member 16 and that of the right-hand bottom-kneading massage member 16 being inclined oppositely in the horizontal direction, when the bottom-kneading massage arm 23 of the left-hand bottom-kneading massage member 16 is rocked leftward, the bottom-kneading massage arm 23 of the right-hand bottom-kneading massage member 16 is rocked

rightward. That is, the paired left-hand and right-hand bottom-kneading massage members 16 are rocked in opposite directions. Thus, the paired left-hand and right-hand bottom-kneading massage members 16 are repeatedly moved close to and away from each other in the horizontal direction to perform kneading massage on the target region situated between the paired left-hand and right-hand bottom-kneading massage members 16.

[0033] On the rotation shaft 19, there is disposed the side-kneading massage member 17 located outward of each of the paired left-hand and right-hand bottom-kneading massage members 16 in the width direction. As with the bottom-kneading massage members 16, there is provided a pair of left-hand and right-hand side-kneading massage members 17, and, as the massaging mechanism of the side-kneading massage member 17, the rotatably driving force exerted by the rotation shaft 19 is converted into a horizontal side-to-side rocking motion of the side-kneading massage member 17 by conversion means similar to that for the bottom-kneading massage member 16. The side-kneading massage member 17 includes: a side-kneading inclined boss 28; a side-kneading massage arm 32; a side-kneading inclined cam face; a side-kneading restrainer 44 (a side-kneading restraint component 29 and a side-kneading restraint plate 30); and a side-kneading massage piece 31. As a point of difference between the side-kneading massage member 17 and the bottom-kneading massage member 16, the side-kneading inclined cam face and the

bottom-kneading inclined cam face are inclined oppositely (inclined in mirror image fashion to each other) in the horizontal direction.

[0034] For example, where the left-hand bottom-kneading massage member 16 is concerned, when the bottom-kneading inclined cam face is inclined in a direction to rock the bottom-kneading massage arm 23 rightward, then the side-kneading inclined cam face of the corresponding left-hand side-kneading massage member 17 is inclined in a direction to rock the side-kneading massage arm 32 leftward. On the other hand, when the bottom-kneading inclined cam face is inclined in a direction to rock the bottom-kneading massage arm 23 leftward, then the side-kneading inclined cam face of the corresponding left-hand side-kneading massage member 17 is inclined in a direction to rock the side-kneading massage arm 32 rightward.

[0035] Thus, the side-kneading massage member 17 and the bottom-kneading massage member 16 are repeatedly rocked oppositely in the horizontal direction, that is; the adjacent side-kneading massage member 17 and bottom-kneading massage member 16 are repeatedly moved close to and away from each other to perform squeezing massage on the target region situated between them.

Like the bottom-kneading massage arm 23, the side-kneading massage arm 32 is shaped in a fork with two prongs that extend forwardly and rearwardly, respectively. The forked

side-kneading massage arm 32 is mounted so that the tips of the forwardly-facing prong serving as a forward arm 32F and the rearwardly-facing prong serving as a rearward arm 32R can be positioned at substantially the same level. That is, in the first embodiment, the rearward arm 32R is longer than the forward arm 32F, so that the forward side-kneading massage piece 31 of the forward arm 32F and the rearward side-kneading massage piece 31 of the rearward arm 32R can be positioned at substantially the same level.

[0036] Thus, at times when the seat's built-in massaging system 6 is moved in the front-rear direction by a seat's built-in massaging system-moving mechanism 33 of the first embodiment, the forward bottom-kneading massage piece 23 and the rearward bottom-kneading massage piece 23 can be maintained at substantially the same level, and also the forward side-kneading massage piece 31 and the rearward side-kneading massage piece 31 can be maintained at substantially the same level. In other words, the forward and rearward massage pieces can be maintained at the same level.

[0037] Under the described seat's built-in massaging system 6, there is disposed the base 14 that bears the seat's built-in massaging system 6. The base 14 has the seat's built-in massaging system-moving mechanism 33 that moves the base 14 bearing the seat's built-in massaging system 6 in the front-rear direction.

As shown in FIGs. 2 and 3, the seat's built-in massaging

system-moving mechanism 33 includes: a travel motor 34 attached to the base 14; a travel shaft 35 which rotates under a rotatably driving force exerted by the travel motor 34; and a travel gear 36 disposed in meshing engagement with the seat's built-in guide rail 7 at each end of the travel shaft 35.

[0038] More specifically, in the first embodiment, the travel gear 36 is located at the rear of the base 14. At the front of the base 14, there is disposed a slider, fitted in a slide slot formed in the upper part of the seat's built-in guide rail 7 in parallel relation with the seat's built-in guide rail 7, for guiding the base 14 in sliding movement in the direction of the slide slot elongation. That is, the base 14 is supported at two points, or equivalently supported on the rear travel gear 36 and the front slider. This allows the base 14 to move in the front-rear direction while being held in a stable position.

[0039] While the travel gear 36 is located at the rear of the base 14 in the seat's built-in massaging system-moving mechanism 33 of the first embodiment, the mounting position of the travel gear 36 is not so limited. For example, the travel gear 36 may be disposed at the front of the base 14 instead.

In the first embodiment, the described travel motor 34 is attached to the base 14 so as to be located toward the left side of the seat's built-in kneading-massage member drive 18. The rotatably driving force exerted by the travel motor 34 is inputted via a speed reducer 45 to the travel shaft 35 lying

behind the travel motor 34. Moreover, the described travel shaft 35 is mounted behind the rotation shaft 19 in parallel relation therewith, that is; the travel shaft 35 is mounted with its axis horizontally oriented. The rotatably driving force exerted by the travel motor 34 is inputted to an intermediate point on the travel shaft 35 in the horizontal direction. The travel shaft 35 is free to rotate about its horizontally oriented axis under this rotatably driving force. Moreover, the travel gear 36 is disposed at each of the left-hand end and the right-hand end of the travel shaft 35. Each travel gear 36 (pinion gear), which protrudes outwardly from corresponding one of the left-hand and right-hand ends of the base 14 in the width direction, is mounted to mesh with a rack gear 37 on the seat's built-in guide rail 7 from above.

[0040] Key features of the chair-form massaging apparatus 1 pursuant to the present invention include the shape and orientation of the seat's built-in guide rail 7. The details of the seat's built-in guide rail 7 will be given later. The structure of the backrest section 3 will be described first.

As shown in FIG. 1, the described backrest section 3 mounted at the rear of the seat section 2 is shaped in a flat platy member having a certain thickness for the resting of the back of the user sitting in the seat section 2. Inside the backrest section 3, there is disposed the described backrest frame 5 provided with the backrest's built-in massaging system 8 that performs

massage, such as kneading massage, tapping massage, or grabbing massage, on user's back in the wide shoulder-to-waist range, and the backrest's built-in guide rail 9 capable of guiding the backrest's built-in massaging system 8 in movement in the direction of inclination of the backrest section 3.

[0041] Like the described seat's built-in massaging system 6, the backrest's built-in massaging system 8 includes a pair of forwardly-protruding left-hand and right-hand back massage members 38, and performs massage on a target region of user's back by operating a back-massage driving motor installed therein in a manner to impart a horizontal side-to-side rocking motion to the back massage members 38.

That is, the backrest's built-in massaging system 8 includes a back massage piece 40 which is brought into contact with the target region of user's back for massage treatment, and a back massage arm 41 having the back massage piece 40 at its end. The back massage arm 41 is rocked in the horizontal direction to perform massage on the target region of user's back.

[0042] More specifically, the front side of the backrest section 3 is formed with a forwardly-facing opening from which the back massage member 38 of the backrest's built-in massaging system 8 is allowed to protrude in a forward direction. The back massage piece 40 is disposed at the front end (forward end) of the forwardly-protruding back massage member 38.

While the back massage member 38 of the first embodiment

has two back massage pieces 40 disposed on the left-hand area and the right-hand area thereof, respectively, the number of the back massage pieces 40 is not so limited. For example, the back massage member 38 may be provided with two or more left-hand back massage pieces 40 and two or more right-hand back massage pieces 40. Moreover, the back massage member 38 may be designed to perform different massage than kneading massage.

[0043] The described backrest's built-in massaging system 8 is attached to an up-and-down base 42 capable of up-and-down movement along the backrest's built-in guide rail 9. More specifically, there are provided two backrest's built-in guide rails 9, namely the left-hand backrest's built-in guide rail 9 and the right-hand backrest's built-in guide rail 9. Each backrest's built-in guide rail 9 has a meshing engagement with an up-and-down gear 43 (pinion gear) located toward the bottom of the backrest's built-in massaging system 8. The two up-and-down gears 43 are mounted so as to extend from the left-hand end and the right-hand end, respectively, of the up-and-down base 42. Each up-and-down gear 43 is rotatably driven under a rotatably driving force exerted by an up-and-down motor installed in the up-and-down base 42 independently of the motor for driving the back massage member 38.

[0044] The described backrest's built-in guide rail 9 is mounted so as to pass through the interior of the backrest section 3 in the vertical direction. More specifically, the backrest's

built-in guide rail 9 is formed with a rack gear 37 having a meshing engagement with the described up-and-down gear 43. The rack gear 37 is mounted with its tooth tips facing forward. Moreover, given that the backrest's built-in guide rail 9 is divided by an intermediate point on it in the vertical direction into an upper part and a lower part, then the upper part has a rectilinear shape, whereas the lower part has a forward curve. This configuration enables the back massage piece 40 to press hard against a target region of user's waist, in particular.

[0045] The lower end of the described backrest's built-in guide rail 9 and the top of the inner frame 11 of the earlier described seat frame 4 are positioned at substantially the same level. More specifically, the inner frame 11 constituting the seat frame 4 is arranged inclined downwardly from front to rear, and thus its forward end in the front-rear direction is an uppermost part of the inner frame 11. The uppermost forward end of the frame member and the lower end of the described backrest's built-in guide rail 9 are positioned at the same level.

[0046] In the chair-form massaging apparatus 1 pursuant to the present invention, in the interior of the seat section 2 (inside the inner frame 11), the seat's built-in guide rail 7 extends in substantially a rectilinear form rearwardly at a downward incline toward a location below the backrest's built-in massaging system 8 positioned at the lower end of the backrest's built-in guide rail 9.

More specifically, when the described seat's built-in massaging system 6 is guidedly moved to the rear end of the seat's built-in guide rail 7 and held in position and the backrest's built-in massaging system 8 is guidedly moved to the lower end of the backrest's built-in guide rail 9 and held in position, then the bottom-kneading massage member 16 of the seat's built-in massaging system 6 is located in an even lower position below the backrest's built-in massaging system 8 positioned at the lower end of the backrest's built-in guide rail 9, expressed differently, below the back massage member 38. Moreover, with the seat's built-in massaging system 6 and the backrest's built-in massaging system 8 set in the same position, the side-kneading massage member 17 of the seat's built-in massaging system 6 is located outward of the backrest's built-in massaging system 8 positioned at the lower end of the backrest's built-in guide rail 9 in the width direction.

[0047] Thus, the seat's built-in massaging system 6 is offset below and outwards with respect to the backrest's built-in massaging system 8 in the width direction. In this case, even with use of the seat's built-in massaging system 6 having a certain vertical thickness, notably the side-kneading massage member 17 of large vertical thickness, the seat's built-in massaging system 6 can be placed below the backrest section 3 without taking up much space while being so positioned as not to interfere with the back massage piece 40 and the back massage member 38 of the

backrest's built-in massaging system 8. That is, in the chair-form massaging apparatus 1 pursuant to the present invention, the massaging system capable of mechanically massaging a massage target region, while being movable over the buttocks-to-thigh target region, can be accommodated without taking up much space in a place away from the seat. Moreover, the chair-form massaging apparatus 1 can be manufactured at low cost.

[0048] The following describes the shape and arrangement of the seat's built-in guide rail 7 that embody the key feature of the chair-form massaging apparatus 1 pursuant to the present invention.

As shown in FIG. 2, the rack gear 37-equipped seat's built-in guide rail 7 is located toward each of the left-hand side and the right-hand side of the seat frame 4. The travel gear 36 of the seat's built-in massaging system 6 is mounted to mesh with the rack gear 37 of each seat's built-in guide rail 7 from above. That is, in the described seat's built-in guide rail 7, with the rack gear 37 set in meshing engagement with the travel gear 36, the travel gear 36 is driven to rotate under a rotatably driving force exerted by the travel motor 34, thus imparting a back-and-forth motion to the seat's built-in massaging system 6.

[0049] Moreover, the seat's built-in guide rail 7 having a straight rodlike appearance is arranged inclined downwardly

from front to rear. In the chair-form massaging apparatus 1 according to this embodiment, the seat's built-in guide rail 7 is mounted with its forward end located slightly below the level of the forward end of the described upper frame member, and with its rear end located at a level corresponding to a point midway between the seat frame 4's ends in the vertical direction (at about half the height of the seat frame 4). The seat's built-in guide rail 7 is inclined at an angle of about 15 to 20 degrees to the upper frame member.

[0050] The placement of the seat's built-in massaging system 6 in its accommodated position using the described seat's built-in guide rail 7 proceeds in a few steps as shown sequentially in FIGs. 4 to 6.

That is, as shown in FIG. 4, when the travel gear 36 is positioned at the forward end of the seat's built-in guide rail 7, the rotation shaft 19 of the seat's built-in massaging system 6 is located ahead of the travel gear 36. Correspondingly, the bottom-kneading massage arm 23 and the side-kneading massage arm 32 mounted about the rotation shaft 19 stay so as to protrude upwardly beyond the upper frame member. Thus, when set in the position as shown in FIG. 4, the seat's built-in massaging system 6 is capable of massaging the target region of the user without fail by the operation of the bottom-kneading massage arm 23 and the side-kneading massage arm 32.

[0051] Moreover, as shown in FIG. 5, when the travel gear

36 is driven to rotate to move to an intermediate point on the seat's built-in guide rail 7 in the front-rear direction, the side-kneading massage arm 32 is still spaced above the level of the upper frame member, whereas the bottom-kneading massage arm 23 is positioned at the same level as or only slightly above the upper frame. In consequence, while the bottom-kneading massage piece 25 disposed at the tip of the bottom-kneading massage arm 23 is being pressed against a massage target region such as user's thigh from below, the side-kneading massage piece 31 disposed at the tip of the side-kneading massage arm 32 is pressed against the massage target region from externally of the apparatus in the width direction.

[0052] Then, as shown in FIG. 6, when the travel gear 36 is driven to rotate to move to the rear end of the seat's built-in guide rail 7, the bottom-kneading massage arm 23 is positioned below the level of the upper frame member. On the other hand, the side-kneading massage arm 32 is positioned below the level of the seat in consideration of the thickness of the cushion material, for example. In consequence, the bottom-kneading massage piece 25 disposed at the tip of the bottom-kneading massage arm 23 and the side-kneading massage piece 31 disposed at the tip of the side-kneading massage arm 32 are positioned under the seat, so that the massaging system can be accommodated in a place away from the seat to avoid user discomfort during seating.

[0053] As described above, with the seat's built-in guide rail 7 mounted so as to extend in substantially a rectilinear form rearwardly at a downward incline, the seat's built-in massaging system 6 is moved rearwardly along the seat's built-in guide rail 7 so as to be placed under the seat. Moreover, as compared with the curved guide rail of the chair-form massaging apparatus 1 of conventional design, the substantially rectilinearly shaped seat's built-in guide rail 7 is produced at lower cost of constituent part production. This helps reduce the price of the chair-form massaging apparatus 1.

[0054] As described above, in the chair-form massaging apparatus 1 according to this embodiment, the bottom-kneading massage arm 23 of the seat's built-in massaging system 6 has its ends extended horizontally in forward and rearward directions, respectively, with respect to the rotation shaft 19. Thus, the bottom-kneading massage arm 23 is made with a small vertical thickness. With such a bottom-kneading massage arm 23 of small vertical thickness, when the seat's built-in massaging system 6 is guidedly moved to the rear end of the seat's built-in guide rail 7 and held in position, and the backrest's built-in massaging system 8 is guidedly moved to the lower end of the backrest's built-in guide rail 9 and held in position, then the bottom-kneading massage member 16 of the seat's built-in massaging system 6 is located in an even lower position below the backrest's built-in massaging system 8 positioned at the

lower end of the backrest's built-in guide rail 9, expressed differently, below the back massage member 38. In consequence, the bottom-kneading massage member 16 can be snugly accommodated in a limited space left below the backrest's built-in massaging system 8.

[0055] Moreover, as shown in FIGs. 7 and 8, in the side-kneading massage member 17, the side-kneading massage arm 32 greatly differs in shape from the bottom-kneading massage arm 23 of the bottom-kneading massage member 16. That is, the side-kneading massage arm 32 provided in the side-kneading massage member 17 is curved outwardly so as to expand greatly beyond each of the left-hand and right-hand ends of the base 14 in the width direction, while rising upwardly to a height of about three times that of the bottom-kneading massage arm 23. With the side-kneading massage arm 32 in such an upwardly-rising form, the side-kneading massage piece 31 disposed at the tip of the side-kneading massage arm 32 is located above the level of the bottom-kneading massage piece 25. This makes it possible to perform pressing massage on the massage target region such as user's thigh by pressing the massage piece against the target region from above downward.

[0056] Moreover, with the side-kneading massage arm 32 in such an outwardly-curved widthwise-expanding form, when the seat's built-in massaging system 6 is guidedly moved to the rear end of the seat's built-in guide rail 7 and held in position,

and the backrest's built-in massaging system 8 is guidedly moved to the lower end of the backrest's built-in guide rail 9 and held in position, then the side-kneading massage member 17 of the seat's built-in massaging system 6 is positioned further outward of the backrest's built-in massaging system 8 positioned at the lower end of the backrest's built-in guide rail 9 in the width direction in overlapping relation to the backrest's built-in massaging system 8 as viewed from the side of the apparatus (refer to FIG. 6).

[0057] That is, as shown in FIG. 8, in the chair-form massaging apparatus 1 according to this embodiment, after the seat's built-in massaging system 6 has been moved to the rear end of the seat's built-in guide rail 7, when viewed from the back massage piece 40 of the backrest's built-in massaging system 8, the side-kneading massage piece 31 is located outward of the back massage piece 40 in the width direction, and the bottom-kneading massage piece 25 is located below the back massage piece 40. Thus, the side-kneading massage piece 31 and the back massage piece 40 are so positioned as not to interfere with each other, and so are the bottom-kneading massage piece 25 and the back massage piece 40.

[0058] Thus, the chair-form massaging apparatus 1, while being provided with the movable massaging system capable of mechanically massaging a massage target region, accommodates the bottom-kneading massage member 16 and the side-kneading

massage member 17, which may take up much space, in a limited storage area away from the seat.

Moreover, like the bottom-kneading massage arm 23, the described side-kneading massage arm 32 has its ends extended forwardly and rearwardly, respectively, with respect to the rotation shaft 19. The tip of each end (upper end) of the bottom-kneading massage arm 23 is provided with the side-kneading massage piece 31. These spaced apart forward side-kneading massage piece 31 and rearward side-kneading massage piece 31 are movable along the seat's built-in guide rail 7 while being maintained at the same level.

[0059] During the movement of the massaging system along the seat's built-in guide rail 7, in the side-kneading massage member 17 thereby configured, the levels of the side-kneading massage pieces 31 and the positional relationship between them remain the same. This makes it possible to bring the side-kneading massage pieces 31 into contact with the buttocks-to-thigh region without fail for massage treatment.

(Second Embodiment)

The following describes a chair-form massaging apparatus 1 according to the second embodiment.

[0060] As shown in FIG. 10, in the chair-form massaging apparatus 1 according to the second embodiment, the side-kneading massage member 17 is composed of two members, namely an upper member and a lower member. The upper member corresponding to

the upper end of the massage member is mounted for resilient displacement relative to the lower member corresponding to the lower end of the massage member in the horizontal direction. Thus constructed, the side-kneading massage member 17 is free to move outwardly and inwardly in the horizontal direction so as to conform to the shape of user's body. This makes it possible to give satisfactory massage treatment to all of users having different body shapes.

[0061] For example, when a user of large build sits in the seat section 2, a massage target region of the body of the user, for example, the thigh is located outwards in the horizontal direction. In this case, the side-kneading massage member 17 should preferably be shifted horizontally outwardly to massage such a target region. Unfortunately, when fixed in place in the horizontal direction, the side-kneading massage member 17 cannot be moved with ease. In this regard, as practiced in the second embodiment, by making the side-kneading massage member 17 resiliently deformable for outward extension in the width direction, it is possible to press the side-kneading massage piece 31 against the target region located outwards in the horizontal direction without fail, and thereby perform massage on the target region of the body of the user of large build having a relatively large horizontal dimension with reliability.

[0062] On the other hand, when a user of small build sits in the seat section 2, the side-kneading massage member 17 is

subjected to a resilient force exerted in a widthwise inwards direction to keep the spacing between the two side-kneading massage pieces 31 narrow. Thus, when a massage target region, for example, the thigh is located inwards in the horizontal direction, the side-kneading massage member 17 resiliently moves horizontally inwardly on its own. This makes it possible to press the side-kneading massage piece 31 against the massage target region such as the thigh without fail, and thereby perform massage on the target region of the body of the user of small build with reliability.

[0063] More specifically, the described side-kneading massage member 17 of the second embodiment includes: a lower massage portion 50 (mounted on the drive side); an upper massage portion 51 disposed at the top of the lower massage portion 50; a junction 53 that couples the upper massage portion 51 to the lower massage portion 50 for free rocking motion about an axis oriented in the front-rear direction (rock shaft 52); and a resilient component 54 that urges the upper massage portion 51 in the widthwise inwards direction relative to the lower massage portion 50. The following describes the lower massage portion 50, the upper massage portion 51, the junction 53, and the resilient component 54 that constitute the side-kneading massage member 17 of the second embodiment.

[0064] The lower massage portion 50 is located outward of each of the paired left-hand and right-hand bottom-kneading

massage members 16 mounted on the described rotation shaft 19 in the width direction. As in the case of the first embodiment, there is provided a pair of left-hand and right-hand lower massage portions 50, and, the rotatably driving force exerted by the rotation shaft 19 is converted into a side-to-side rocking motion of the lower massage portion 50 by conversion means similar to that used for the bottom-kneading massage member 16 (the side-kneading inclined boss 28, the side-kneading inclined cam face, and the side-kneading restrainer 44).

[0065] Moreover, the lower massage portion 50 is shaped so as to rise upwardly to the same height as that of the bottom-kneading massage arm 23. The upper end of the lower massage portion 50 has a raised area located centrally thereof in the front-rear direction. This upwardly-extending area of the lower massage portion 50 has a hole 55 formed therethrough in the front-rear direction, and, a rock shaft 52 is inserted through the through hole 55 in the front-rear direction.

[0066] The upper massage portion 51 is curved outwardly so as to expand greatly from the upper end of the lower massage portion 50 in the width direction, while rising upwardly to a height of about three times that of the bottom-kneading massage arm 23.

More specifically, the upper part of the upper massage portion 51 is shaped in a fork with two forwardly-extending and rearwardly-extending prongs, that is; the upper massage portion

51 is substantially V-shaped as viewed from the side of the apparatus. The lower part of the upper massage portion 51 has, at its intermediate point in the front-rear direction, a convex recessed area shaped like a rectangular gate. The gate-like recessed area of the upper massage portion 51 has a communication hole 56 formed therethrough in the front-rear direction. The described rock shaft 52 provides communication between the through hole 55 and the communication hole 56.

[0067] The junction 53 is defined by the through hole 55 of the lower massage portion 50, the communication hole 56 of the upper massage portion 51, and the rock shaft 52 providing communication between the through hole 55 and the communication hole 56. The rock shaft 52, which points substantially in the front-rear direction, couples the upper massage portion 51 to the lower massage portion 50 for free rocking motion about an axis oriented in the front-rear direction.

The resilient component 54 urges the upper massage portion 51 in the widthwise inwards direction relative to the lower massage portion 50. In this embodiment, a coil spring is used for the resilient component 54. The coil spring (resilient component 54) is disposed between the through hole 55 of the lower massage portion 50 and the communication hole 56 of the upper massage portion 51, is wound around the rock shaft 52, exerts urgency (resilient force) to press the upper massage portion 51 in the widthwise inwards direction relative to the

lower massage portion 50.

[0068] There is provided a body-shape measurement sensor. As the side-kneading massage member 17 is moved in the front-rear direction with the lower massage portion 50 held in position, the body-shape measurement sensor determines the body shape of a user sitting in the seat section 2 by measuring variation in the angle of inclination of the upper massage portion 51 with respect to the lower massage portion 50 (inclination angle in a widthwise inwards direction or widthwise outwards direction).

For example, with the lower massage portion 50 maintained free of transmission of rotatably driving force, in other words, with the rotation shaft 19 remaining unrotated, the side-kneading massage member 17 is moved from front to rear via the seat's built-in guide rail 7. At this time, under circumstances where, with the seat's built-in massaging system 6 positioned at the forward end of the seat's built-in guide rail 7, the spacing between the side-kneading massage piece 31 of the left-hand side-kneading massage member 17 and the side-kneading massage piece 31 of the right-hand side-kneading massage member 17 is greater than the horizontal dimension of user's body, then the upper massage portion 51 is clear of the massage target region while being biased in an innermost position in the horizontal direction under the resilient force exerted by the resilient component 54.

[0069] With this being the situation, as the seat's built-in

massaging system 6 is further moved toward the rear end of the seat's built-in guide rail 7, the spacing between the side-kneading massage piece 31 of the left-hand side-kneading massage member 17 and the side-kneading massage piece 31 of the right-hand side-kneading massage member 17 gradually changes and becomes equal to the horizontal dimension of user's body. Eventually, the upper massage portion 51 abuts on the target region, and starts to rock horizontally outwardly against the resilient force of the resilient component 54. User's body shape (horizontal dimension of user's body) can be determined by measuring the rocking motion of the upper massage portion 51 with the body-shape measurement sensor.

[0070] 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 structural 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.

[0071] For example, while rack-and-pinion means is adopted to implement the specific design of the seat's built-in guide rail 7 in this embodiment, different moving means may be used. Similarly, while the rack-and-pinion means may be adopted to

implement the specific design of the backrest's built-in guide rail 9, different moving means may also be used, such as a shaft mechanism having feed-screw formed at its outer periphery.

Moreover, where the bottom-kneading massage piece 25 and the side-kneading massage piece 31 are designed for horizontal side-to-side rocking motion in the same-phase relation, effective kneading massage can be given to the bottom and the side of user's buttocks. On the other hand, where the bottom-kneading massage piece 25 and the side-kneading massage piece 31 are designed for horizontal side-to-side rocking motion in the opposite-phase relation, squeezing massage can be given to the massage target region held between the bottom-kneading massage piece 25 and the side-kneading massage piece 31.

[0072] Moreover, while the embodiment employs a two-motor structure including the driving motor 18 serving as a seat's built-in kneading-massage member drive and the travel motor 34 that imparts back-and-forth movement to the seat's built-in massaging system 6, these two motors 18 and 34 may be combined into a common motor as a one-motor structure.

Reference Signs List

- [0073]
- | | |
|---|--------------------------------|
| 1 | Chair-form massaging apparatus |
| 2 | Seat section |
| 3 | Backrest section |
| 4 | Seat frame |
| 5 | Backrest frame |

- 6 Seat's built-in massaging system
- 7 Seat's built-in guide rail
- 8 Backrest's built-in massaging system
- 9 Backrest's built-in guide rail
- 10 Outer frame
- 11 Inner frame
- 12 Cover
- 13 Leg component
- 14 Base
- 15 Seat's built-in massager
- 16 Bottom-kneading massage member
- 17 Side-kneading massage member
- 18 Seat's built-in kneading-massage member drive
(driving motor)
- 19 Rotation shaft
- 20 Speed reducer
- 21 Gear wheel
- 22 Bottom-kneading inclined boss
- 23 Bottom-kneading massage arm
- 23F Forward arm (Bottom-kneading massage arm)
- 23R Rearward arm (Bottom-kneading massage arm)
- 24 Bottom-kneading restrainer
- 25 Bottom-kneading massage piece
- 26 Bottom-kneading restraint component
- 27 Bottom-kneading restraint plate

28	Side-kneading inclined boss
29	Side-kneading restraint component
30	Side-kneading restraint plate
31	Side-kneading massage piece
32	Side-kneading massage arm
32F	Forward arm (Side-kneading massage arm)
32R	Rearward arm (Side-kneading massage arm)
33	Seat's built-in massaging system-moving mechanism
34	Travel motor
35	Travel shaft
36	Travel gear
37	Rack gear
38	Back massage member
40	Back massage piece
41	Back massage arm
42	Up-and-down base
43	Up-and-down gear (pinion gear)
44	Side-kneading restrainer
45	Speed reducer
50	Lower massage portion
51	Upper massage portion
52	Rock shaft
53	Junction
54	Resilient component
55	Through hole

56 Communication hole

CLAIMS

1. A chair-form massaging apparatus comprising:

a seat section;

a seat's built-in massaging system that massages the buttocks of a user sitting in the seat section;

a seat's built-in guide rail, disposed within the seat section, for guiding the seat's built-in massaging system in back-and-forth movement;

a backrest section;

a backrest's built-in massaging system that massages the back of the user resting on the backrest section; and

a backrest's built-in guide rail, disposed within the backrest section, for guiding the backrest's built-in massaging system in up-and-down movement,

the seat's built-in guide rail extending rearwardly and downwardly so as to go down further below the backrest's built-in massaging system positioned at a lower end of the backrest's built-in guide rail within the seat section.

2. The chair-form massaging apparatus according to claim 1,

wherein the seat's built-in massaging system includes a bottom-kneading massage member for kneading a massage target region of the buttocks from below, and a side-kneading massage member, disposed outward of the bottom-kneading massage member in a horizontal direction, for kneading the massage target region of

the buttocks from its side.

3. The chair-form massaging apparatus according to claim 2,

wherein the backrest's built-in massaging system includes a back message member for massaging user's back, and

wherein, when the seat's built-in massaging system is guidedly moved to a rear end of the seat's built-in guide rail and held in position and the backrest's built-in massaging system is guidedly moved to a lower end of the backrest's built-in guide rail and held in position, then the bottom-kneading message member of the seat's built-in massaging system is located in an even lower position below the backrest's built-in massaging system positioned at the lower end of the backrest's built-in guide rail.

4. The chair-form massaging apparatus according to claim 3,

wherein, when the seat's built-in massaging system is guidedly moved to the rear end of the seat's built-in guide rail and held in position and the backrest's built-in massaging system is guidedly moved to the lower end of the backrest's built-in guide rail and held in position, then the side-kneading message member of the seat's built-in massaging system is positioned further outward of the backrest's built-in massaging system positioned at the lower end of the backrest's built-in guide rail.

5. The chair-form massaging apparatus according to claim 4,

wherein the side-kneading message member of the seat's built-in massaging system includes a forward message piece and a rearward message piece that are spaced apart in a front-rear direction, and a forward arm member and a rearward arm member that support

the forward massage piece and the rearward massage piece, respectively,

and wherein the side-kneading massage is movable along the seat's built-in guide rail, with the forward massage piece and the rearward massage piece maintained at the same level.

6. The chair-form massaging apparatus according to claim 4,

wherein the seat's built-in guide rail is mounted with its rear end positioned at about half the level of the lower end of the backrest's built-in guide rail.

7. The chair-form massaging apparatus according to claim 6,

wherein the seat's built-in guide rail extends in substantially a rectilinear form rearwardly at a downward incline so as to go down further below the backrest's built-in massaging system.

8. The chair-form massaging apparatus according to claim 2,

wherein the side-kneading massage member includes rocking means that allows an upper-end part of the side-kneading massage member to rock in a width direction relative to a lower-end part of the massage member.

9. The chair-form massaging apparatus according to claim 8,

wherein the rocking means includes a lower massage portion coupled to a drive side, an upper massage portion disposed at a top of the lower massage portion, a junction that couples the upper massage portion to the lower massage portion for free rocking motion about an axis oriented in the front-rear direction, and a resilient component that urges the upper

massage portion in a widthwise inwards direction relative to the lower massage portion.

10. The chair-form massaging apparatus according to claim 9, further comprising:

a body-shape measurement sensor that determines a body shape of a user sitting in the seat section by measuring variation in an angle of inclination of the upper massage portion with respect to the lower massage portion in the width direction.