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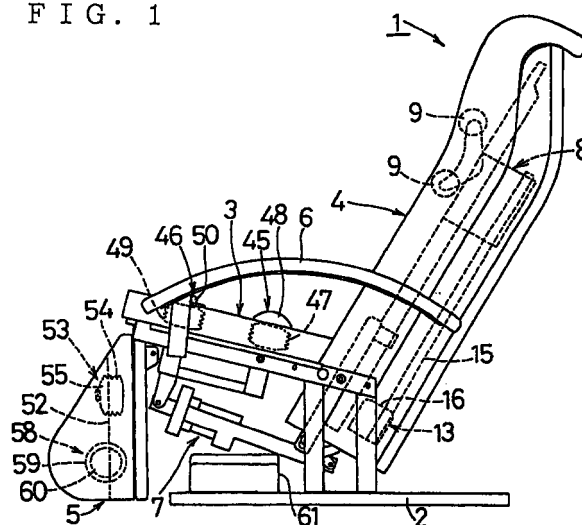
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(54) **Chair-type massaging apparatus**

(57) A novel chair-type massaging apparatus (1) is provided including a backrest (4) provided with a mechanical massaging device (8), and a seat (3) provided with a pneumatic massaging device (45), the mechanical massaging device (8) comprising a massaging head (9), a motor (10), and a transmission mechanism (11) for causing the massaging head (9) to perform massage by transmitting the rotary power of the motor (10) thereto, the pneumatic massaging device (45) comprising a pneumatically expandable and contractible air cell (47) configured to massage the body of a human when air is supplied thereto and discharged therefrom.

FIG. 1



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Description

[0001] The present invention relates to chair-type massaging apparatus.

[0002] One conventional chair-type massaging apparatus with a seat and a backrest includes a mechanical massaging device in each of the seat and the backrest. The massaging device in the backrest comprises massaging heads to be operated by the rotary power of a motor for kneading or tapping the shoulders, back, waist and like parts of a user, and similarly, the massaging device in the seat comprises massaging heads to be operated by the rotary power of a motor for pressing or kneading the buttocks, thighs and like parts of the user (refer to, for example, Japanese Unexamined Patent Publication No. HEI 9-262264).

[0003] The provision of the mechanical massaging device in the backrest is preferable because the massaging heads are required to operate harder so as to knead or tap the shoulders, back, waist and other parts of the user. The provision of the mechanical massaging device in the seat, however, degrades the cushioning of the seat, which requires higher cushioning than the backrest to receive substantially the whole weight of the user sitting thereon. Such a seat having degraded cushioning makes the user sitting thereon feel uncomfortable, and eventually gives pain to the user at his or her buttocks or thighs during a prolonged sitting.

[0004] Further, such a mechanical massaging device requires an intricate power transmission mechanism to cause the massaging heads to perform kneading or tapping by transmitting the rotary power of a motor thereto. Thus, it is difficult to incorporate the mechanical massaging device having such an intricate transmission mechanism into the seat with a limited space.

[0005] Another conventional chair-type massaging apparatus is provided with pneumatic massaging devices in the seat and backrest thereof, respectively. The pneumatic massaging devices each comprise pneumatically expansible/contractible air cells. In response to supply/exhaust of air by a compressor or the like, the air cells disposed in the backrest expand and contract to massage the shoulders, back, waist and other parts of the user, while the air cells disposed in the seat expand and contract to press or knead the buttocks, thighs and other parts of the user (refer to, for example, Japanese Unexamined Patent Publication No. HEI 8-52185).

[0006] In this case, the cushioning of the seat is not significantly degraded by the pneumatic massaging device and, hence, the seat keeps a satisfactory comfort for the user sitting thereon. However, since the pneumatic massaging device operates more slowly and softly than the mechanical massaging device, it is difficult for the pneumatic massaging device in the backrest to perform harder massaging operations such as tapping or rapidly kneading the shoulders, back and waist

of the user, resulting in unsatisfactory massage for such parts.

[0007] It is, therefore, an object of the present invention to provide a chair-type massaging apparatus which is capable of effectively massaging the shoulders, back, waist and other parts of the user at an appropriate strength while offering a comfortable seat with less degradation in the cushioning thereof, and which is not required to secure a large space in the seat thereof for the incorporation of a massaging device therein.

[0008] In accordance with the present invention, there is provided a chair-type massaging apparatus comprising a backrest provided with a mechanical massaging device, and a seat provided with a pneumatic massaging device.

[0009] With this construction, the pneumatic massaging device of the seat does not substantially degrade the cushioning of the seat, thus ensuring a comfortable seat. On the other hand, the mechanical massaging device of the backrest is capable of effectively massaging the shoulders, back, waist and like parts of the user at an appropriate strength by tapping or rapidly kneading these parts forcefully. Further, there is no need to provide an intricate transmission mechanism for transmission of the rotary power of a motor and, hence, a large space for the provision of such a transmission mechanism and the like in the seat is no longer necessary.

[0010] The mechanical massaging device may comprise a massaging head, a motor, and a transmission mechanism for causing the massaging head to perform massage by transmitting the rotary power of the motor thereto.

[0011] With this feature, the upper half of a user's body including the shoulders, back and waist can be effectively massaged at an appropriate strength with the massaging head actuated by the rotary power of the motor to tap or knead such parts forcefully.

[0012] The pneumatic massaging device may comprise a pneumatically expansible and contractible air cell incorporated into the seat. Since the air cell is expansible and contractible by pneumatic pressure and hence has a high cushioning property, the provision of the air cell does not substantially degrade the cushioning of the seat, thus ensuring a comfortable seat. Further, since an air cell, in general, can be simpler in structure and smaller in size than a mechanical transmission mechanism for transmitting the rotary power of a motor to a massaging head or a like massaging element, there is no need to secure a large space in the seat for incorporating the massaging device therein.

[0013] The mechanical massaging device of the backrest may be configured to shift up and down in the backrest.

[0014] The mechanical massaging device of such a configuration is capable of effectively massaging a larger region of the user's body from the neck to the waist at an appropriate strength.

[0015] The massaging apparatus of the present invention may further comprise a footrest under the seat, the footrest being provided with a pneumatic massaging device configured to massage the legs of the user.

[0016] The massaging apparatus having such a feature is capable of massaging the legs of the user softly by means of the pneumatic massaging device of the footrest as well as the upper half body including the shoulders, back and waist effectively by means of the mechanical massaging device of the backrest and the buttocks and thighs softly by means of the pneumatic massaging device of the seat. Additionally, the pneumatic massaging device of the footrest can be supplied with air from the air supply source of the pneumatic massaging device of the seat and, hence, a compressor or other power source can be used as a common air supply source for the pneumatic massaging devices of the seat and footrest.

[0017] The footrest may be removably attached under the seat. When the footrest is attached under the seat, the massaging device of the footrest can massage the legs, particularly the calves, of the user, while when the footrest is detached from the apparatus and laid on a floor surface or the like, the massaging device of the footrest can massage the soles, sides or other parts of the feet of the user effectively.

[0018] Alternatively, the footrest may be connected to the seat so as to assume selectively one of a dangling position in which the footrest dangles from a front edge of the seat and a resting position in which the footrest rests on a surface extending forwardly of the seat.

[0019] With this feature, when the footrest assumes the dangling position, the massaging device of the footrest can massage the calves of the user, while on the other hand when the footrest assumes the resting position, the massaging device thereof can massage the soles, sides or other parts of the feet of the user effectively.

[0020] It is possible that the footrest is configured to be movable toward and away from the seat so as to enable adjustment of the spacing therebetween. By moving the footrest toward and away from the seat to adjust the spacing therebetween, the user can position the massaging device of the footrest to properly massage desired parts of his or her legs depending on the length of the legs.

[0021] The footrest may be divided into a first footrest portion adapted to massage an upper portion of the legs of the user and a second footrest portion adapted to massage a lower portion of the legs, the first and second footrest portions being configured to be movable toward and away from each other so as to enable adjustment of the spacing therebetween. By moving the first and second footrest portions toward and away from each other to adjust the spacing therebetween, the user can position the massaging device of the footrest to properly massage desired parts of his or her legs

depending on the length of the legs.

[0022] The massaging apparatus of the present invention may further comprise a vibrator configured to vibrate the seat. With this feature, the user can enjoy vibration massage at the seat as well as the massage performed by the massaging device of the seat.

[0023] The massaging apparatus of the present invention may further comprise a vibrator configured to vibrate the footrest. With this feature, the user can enjoy vibration massage at the footrest as well as the massage performed by the massaging device of the footrest.

[0024] The massaging apparatus of the present invention may further comprise a vibrator incorporated into the massaging device of the seat or that of the footrest. With this feature, the massaging apparatus is capable of performing massage as well as vibration at the seat or the footrest.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025]

Fig. 1 is a side elevational view showing one embodiment of the present invention;
 Fig. 2 is a front elevational view of the embodiment;
 Fig. 3 is a perspective view of a mechanical massaging device used in the embodiment;
 Fig. 4 is a front elevational view showing a portion of the mechanical massaging device;
 Fig. 5 is a perspective view showing a transmission mechanism of the mechanical massaging device;
 Fig. 6 is a perspective view showing another embodiment of the present invention;
 Fig. 7 is a perspective view showing yet another embodiment of the present invention;
 Fig. 8 is a perspective view showing a footrest of the embodiment shown in Fig. 7;
 Fig. 9 is a perspective view showing yet another embodiment of the present invention;
 Fig. 10 is a perspective view showing yet another embodiment of the present invention;
 Fig. 11 is a perspective view showing yet another embodiment of the present invention;
 Fig. 12 is a perspective view showing a footrest in a position adjusted relative to a seat in the embodiment shown in Fig. 11;
 Fig. 13 is a perspective view showing a support frame of the footrest shown in Fig. 11;
 Fig. 14 is a side elevational view showing yet another embodiment of the present invention;
 Fig. 15 is a front elevational view of the embodiment shown in Fig. 14;
 Fig. 16 is an exploded front elevational view showing a massaging device used in yet another embodiment of the present invention;
 Fig. 17 is a perspective view showing an exemplary vibrator; and

Fig. 18 is a perspective view showing another exemplary vibrator.

[0026] The present invention will now be described by way of the preferred embodiments thereof illustrated in the attached drawings.

[0027] Referring first to Figs. 1 and 2 showing the overall structure of a chair-type massaging apparatus 1 as an embodiment of the present invention, the apparatus 1 includes a seat 3 supported by legs 2, a backrest 4 on a rear portion of the seat 3, a footrest 5 situated below and on the front side of the seat 3, and armrests 6 on opposite lateral sides of the seat 3. The backrest 4 is reclinable about a rear edge of the seat 3 by means of a reclining device 7.

[0028] The backrest 4 incorporates therein a mechanical massaging device 8 comprising a plurality of massaging heads (kneading balls or massaging rollers) 9, a motor 10 for causing massage, a transmission mechanism 11 for transmitting the rotary power of the motor 10 to cause each massaging head 9 to perform kneading or tapping, and a support frame 14, as best shown in Fig. 3. The massaging device 8 can shift up and down within the backrest 4 by elevating means 13.

[0029] The elevating means 13 in this embodiment is a mechanism that functions to raise and lower the massaging device 8 by rotating a feed screw 15 threadingly engaging the support frame 14 of the massaging device 8 by means of a motor 16.

[0030] Instead of this mechanism, it is possible to employ an elevating mechanism using a wrapping connector drive, a rack and pinion combination or a hydraulic cylinder, or a like mechanism.

[0031] Referring to Figs. 3 to 5, the transmission mechanism 11 of the massaging device 8 includes a drive unit 21 having a kneading shaft 19 and a tapping shaft 20 both projecting laterally on opposite sides, a pair of right and left drive arms 25 held by the shafts 19 and 20, and a support arm 26 secured to an end portion of each drive arm 25 and supporting each massaging head 9 at each of upper and lower ends thereof.

[0032] The drive unit 21 has two modes which can be switched to each other as desired, one being a kneading mode in which the rotary power of the motor 10 is turned into a transverse motion of the drive arm 25 through the kneading shaft 19 to cause a kneading motion, the other being a tapping mode in which the rotary power of the motor 10 is turned into a forward and backward pivotal motion of the drive arm 25 through the tapping shaft 20 to cause a tapping motion.

[0033] The kneading shaft 19 and the tapping shaft 20 are transversely extending parallel with each other and rotatably supported by the casing of the drive unit 21 through bearings. Either one of the shafts 19 and 20 is selected to receive the rotary power of the motor 10 through the transmission mechanism 11 for rotation in the direction indicated by arrow A or B in Fig. 5.

[0034] On opposite ends of the tapping shaft 20 are

respectively mounted eccentric shaft portions 20A, 20A which are eccentric in opposite directions, whereas on opposite ends of the kneading shaft 19 are respectively mounted slanting shaft portions 19A, 19A. Each eccentric shaft portion 20A of the tapping shaft 20 and each adjacent slanting shaft 19A of the kneading shaft 19 are connected to each other through a link mechanism 28. The link mechanism 28 comprises a plate-like drive arm 25, a ball joint connected to the drive arm 25, and a connection arm 31 coupled to the shaft portion of the ball joint 29 by means of a pin 30. The drive arm 25 is rotatably supported on each slanting shaft portion 19A, while the connection arm 31 is pivotally mounted on each eccentric shaft portion 20A.

[0035] When the tapping shaft 20 rotates in the direction A, each eccentric shaft portion 20A of the tapping shaft 20 causes the associated massaging head 9 to reciprocate in directions A1 via the connection arm 31, ball joint 29, drive arm 25 and support arm 26. Thus, the massaging head 9 performs tapping. Since the eccentric direction of one eccentric shaft portion 20A is opposite to that of the other, the massaging heads 9 on the right and left sides perform tapping alternately.

[0036] Alternatively, when the kneading shaft 19 receives the rotary power, each slanting shaft portion 19A rotates to draw a conical locus thereby causing the associated drive arm 25 to pivot reciprocatingly about the ball joint 29. This results in the massaging heads 9 performing kneading by reciprocatingly pivoting toward and away from each other in directions B1.

[0037] Fig. 5 shows an illustrative mechanism adapted to rotate one of the kneading shaft 19 and the tapping shaft 20 selectively. In this mechanism, a screw gear 33 is mounted on the tapping shaft 20, while a worm gear 34 is mounted on the kneading shaft 19. A longitudinally extending guide shaft 35 is disposed forwardly or rearwardly of the shafts 19 and 20. On this guide shaft 35 are mounted a screw gear 36 meshing with the aforementioned screw gear 33 and a worm 37 meshing with the aforementioned worm gear 34 for rotation relative to the guide shaft 35.

[0038] On the opposing faces of the screw gear 36 and worm 37 mounted on the guide shaft 35 are formed toothed engagement portions 36A and 37A, respectively, which function as a clutch. A trapezoidal thread 39 is formed on the guide shaft 35 between the screw gear 36 and the worm 37 and threadingly engages the internal thread of a movable helical gear 40 formed on opposite end faces thereof with toothed engagement portions 40A, 40A which are releasably engageable with the toothed engagement portions 36A and 37A, respectively. A rotary drive shaft 43 extending parallel with the guide shaft 43 is rotary-driven reversibly in the direction indicated by arrow P or Q by the motor 10 through pulleys, belts and the like.

[0039] A helical gear 44 is mounted on the rotary drive shaft 43 and meshes with the external helical thread of the movable helical gear 40. When the rotary

drive shaft 43 is rotated in the direction P, the movable helical gear 40 meshing with the helical gear 44 rotates while moving on the trapezoidal thread 39 in direction R until the toothed engagement portion 40A of the movable helical gear 40 engages the toothed engagement portion 36A of the screw gear 36 to rotary-drive the screw gear 36. This causes the screw gear 33 meshing with the screw gear 36 to rotate thereby rotating the tapping shaft 20 in the direction A. On the other hand, when the rotary drive shaft 43 is rotated in the direction Q, the movable helical gear 40 moves in direction S that is opposite to the direction R until the toothed engagement portion 40A of the movable helical gear 40 engages the toothed engagement portion 37A of the worm 37, to cause the kneading shaft 19 to rotate in the direction B.

[0040] In this way, by rotating the rotary drive shaft 43 forwardly or reversely to move the movable helical gear 40 in one of the directions R and S selectively, one of the tapping shaft 20 and the kneading shaft 19 is selected for rotation thereby causing the plurality of massaging heads 9 to perform tapping or kneading. The number of teeth of the screw gear 33 is substantially equal to that of the screw gear 36 and, hence, the tapping operation is performed at a relatively large number of strokes per unit time. On the other hand, the rotary power of the motor 10 is transmitted from the worm 37 to the worm gear 34 at a high reduction rate and, hence, the kneading operation is performed relatively slowly.

[0041] Referring back to Figs. 1 and 2, the seat 3 is provided therein with a pair of pneumatic massaging devices 45 on the rear side and a pair of pneumatic massaging devices 46 on the front side. The pair of pneumatic massaging devices 45 on the rear side each comprise an air cell 47 and a substantially hemispherical massaging head 48. The air cell 47 is configured to pneumatically expand and contract when air is supplied thereto and discharged therefrom, thereby pressing the buttocks of the user through the massaging head 48. The pair of pneumatic massaging devices 46 on the front side each comprise an air cell 49 and a massaging head 50. The air cell 49 is configured to pneumatically expand and contract when air is supplied thereto and discharged therefrom, thereby pressing a thigh of the user through the massaging head 50.

[0042] The air cells 47 and 49 each may be of a bellows configuration which is expansible and retractable by air supply/discharge or a pouch configuration which is expansible and contractible by air supply/discharge. The pneumatic massaging devices 47 and 49 each may not necessarily include the massaging head 48,50.

[0043] The aforementioned footrest 5 has leg holding portions 51,51 each substantially U-shaped to individually hold each leg of the user from the right and left. In the bottom wall of each leg holding portion 51 at a location proximal to the seat 5 is provided a pneumatic massaging device 53 comprising an air cell 54 and a massaging head 55. In opposite side walls of each leg holding portion 51 at a location away from the seat 5 are

respectively provided a pair of opposing pneumatic massaging devices 58 each comprising an air cell 59 and a massaging head 60.

[0044] The massaging devices 53 and 58 are configured to press the legs of the user by expansion/contraction of respective air cells 54 and 59. Particularly, the air cell 54 is adapted to press a calf from below through the massaging head 55, and the air cells 59 are adapted to press an ankle from the right and left.

[0045] The air cells 47, 49, 54 and 59 are expanded and contracted by a compressor 61 supplying air thereto and discharging air therefrom. The switching between air supply and air discharge by the compressor 61 for each air cell is individually achieved by a valve controlled by a control device not shown.

[0046] Fig. 6 shows a chair-type massaging apparatus 1 as another embodiment of the present invention, wherein a mounting plate 71 is provided extending downwardly from a front portion of seat 3 and having a front side with surface fasteners 72 on opposite lateral sides thereof; and surface fasteners 73 to be removably attached to respective surface fasteners 72 are secured to the rear side of footrest 5 to allow the footrest 5 to be removably attached to the seat 3. Although not shown, other features of this embodiment are similar to those of the first embodiment.

[0047] With this embodiment, it is possible to massage the calves and other parts of the user's legs by means of massaging devices 53 and 58 of the footrest 5 when the footrest 5 is attached to the seat 3, or alternatively it is possible to effectively massage the soles and side parts of the user's feet resting on the leg holding portions 51 when the footrest 5 is removed from the seat 3 and laid on a surface such as a floor surface.

[0048] Figs. 7 and 8 shows yet another embodiment of the present invention, wherein mounting plate 71 is provided extending downwardly from a front portion of seat 3 and having a front side with rails 75 on opposite lateral sides thereof; and rails 76 to be removably fitted into or over respective rails 75 from above are mounted on the rear side of footrest 5 to allow the footrest 5 to be removably attached to the seat 5. Although not shown, other features of this embodiment are similar to those of the first embodiment.

[0049] Like the embodiment shown in Fig. 6, this embodiment is capable of massaging the calves and other parts of the user's legs by means of massaging devices 53 and 58 of the footrest 5 when the footrest 5 is attached to the seat 3, or alternatively, capable of effectively massaging the soles and side parts of the user's feet resting on the leg holding portions 51 when the footrest 5 is removed from the seat 3 and laid on a surface such as a floor surface.

[0050] Fig. 9 shows yet another embodiment of the present invention, wherein seat 3 is attached with projecting stays 78 on right and left sides of a front portion thereof so as to allow footrest 5 to be removably attached to the seat 3 by using fastening members 79

such as bolts engaging respective stays 78. Although not shown, other features of this embodiment are similar to those of the first embodiment.

[0051] Like the embodiment shown in Fig. 6, this embodiment is capable of massaging the calves and other parts of the user's legs by means of massaging devices 53 and 58 of the footrest 5 when the footrest 5 is attached to the seat 3, or alternatively, capable of effectively massaging the soles and side parts of the user's feet resting on the leg holding portions 51 when the footrest 5 is removed from the seat 3 and laid on a surface such as a floor surface.

[0052] Fig. 10 shows yet another embodiment of the present invention, wherein a connecting plate 81 is attached at its upper edge to a front edge of seat 3 so as to extend downwardly therefrom and at its lower edge to a rear edge of footrest 5, the connecting plate 81 being rearwardly foldable in the middle of its length by means of a hinge 82 so as to allow the footrest 5 to vary the position thereof selectively into one of a dangling position in which the footrest 5 dangles from the front edge of the seat 3 when the connecting plate 81 is folded and a resting position in which the footrest 5 rests on a surface such as a floor surface extending before the seat 3 when the connecting plate 81 is unfolded. Although not shown, other features of this embodiment are similar to those of the first embodiment.

[0053] With this embodiment, when the connecting plate 81 is unfolded to expand downwardly, the footrest 5 can rest on an appropriate surface such as a floor surface situated before and below the seat 3. If the user puts his or her feet on the leg holding portions 51 of the footrest 5 thus resting on such a surface, the soles and side parts of the feet can be effectively massaged by the massaging devices 53 and 58 of the footrest 5. Alternatively, when the connecting plate 81 is rearwardly folded at the hinge 82 and the footrest 5 is directly connected to the front edge of the seat 3 using engaging members not shown so as to dangle therefrom, the calves of the user can be massaged by the massaging devices 53 and 58 of the footrest 5.

[0054] Figs. 11 to 13 show yet another embodiment of the present invention, wherein footrest 5 is divided into a first footrest portion 85 for massaging upper parts of the user's legs and a second footrest portion 86 for massaging lower parts of the legs, and supported on a support frame 87 extending from the front edge of the seat 3 so that the position of each of the first and second footrest portions 85 and 86 can individually be adjusted by sliding the first and/or second footrest portions 85 and 86 back and forth on the support frame 87.

[0055] As best shown in Fig. 13, the support frame 87 comprises a fixed frame 90, a first sliding frame 91 and a second sliding frame 92. The fixed frame 90 includes a pair of right and left longitudinal members 93, a plurality of transverse members 94, and a pair of right and left inner rails 95, and is pivotally connected to a front lower edge of the seat 3 by means of a pair of right

and left fitting pieces 96.

[0056] The first sliding frame 91 includes a pair of right and left outer rails 99 fitted over respective inner rails 95 of the fixed frame 90 for sliding back and forth, a pair of fore and rear interconnecting members 100 securely interconnecting the pair of outer rails 99, and a pair of right and left inner rails 101 secured to and bridging the fore and rear interconnecting members 100.

[0057] The second sliding frame 92 includes a pair of right and left outer rails 105 fitted over respective inner rails 101 of the first sliding frame 91 for sliding back and forth, and a pair of fore and rear interconnecting members 106 securely interconnecting the pair of right and left outer rails 105.

[0058] The first footrest portion 85 is secured to the pair of fore and rear interconnecting members 100 of the first sliding frame 91, while the second footrest portion 86 is secured to the pair of fore and rear interconnecting members 106 of the second sliding frame 92. Further, the pair of outer rails 95 of the first sliding frame 91 are configured to be locked at any slid position relative to the inner rails 95 of the fixed frame 90 by locking means not shown, while the pair of outer rails 108 of the second sliding frame 92 are configured to be locked at any slid position relative to the inner rails 101 of the first sliding frame 91 by locking means not shown.

[0059] Thus, the first sliding frame 91 and the second sliding frame 92 are adjustably slidable back and forth relative to the fixed frame 90 and the first sliding frame 91, respectively, thereby enabling two-stage adjustable sliding of the first and second footrest portions 85 and 86. Hence, by adjusting the sliding distance of the first sliding frame 91 on the fixed frame 90, the position of the entire footrest 5 can be adjusted toward and away from the seat 3. Further, by adjusting the sliding distance of the second sliding frame 92 on the first sliding frame 91, the position of the first footrest portion 85 can be adjusted toward and away from the second footrest portion 86 and the seat 3.

[0060] Other features of this embodiment are similar to those of the first embodiment except that pneumatic massaging devices 53 are located in the first footrest portion 85, and pneumatic massaging devices 58 are located in the second footrest portions 86.

[0061] With this embodiment, it is possible for the massaging devices 53 and 58 of the footrest 5 to massage desired parts of the user's legs accurately by adjusting the respective positions of the first and/or second footrest portions 85 and 86 toward and away from the seat 3 depending on the length of the user's legs or other factors.

[0062] Figs. 14 and 15 show yet another embodiment of the present invention, wherein a vibrator 109 adapted to vibrate seat 3 and a vibrator 110 adapted to vibrate footrest 5 are provided. Other features of this embodiment are similar to those of the first embodiment. With this embodiment, the seat 3 and the footrest 5 can provide vibration massage as well as the pressing

massage performed by massaging devices 45,46 and massaging devices 53,58.

[0063] Fig. 16 shows yet another embodiment of the present invention, wherein a vibrator 111 is incorporated into each massaging device 45,46 of seat 3 and/or each massaging device 53,58 of footrest 5 by being placed, for example, within the massaging head of each massaging device. Like the preceding embodiment, this embodiment can provide vibration massage at the seat 3 and/or the footrest 5 thereof as well as the pressing massage performed by massaging devices 45,46 and massaging devices 53,58.

[0064] The vibrators 109, 110 and 111 each may comprise a motor 113 accommodated within a casing 114 as shown in Fig. 17, or instead, a solenoid 115 accommodated within a casing as shown in Fig. 18.

[0065] While only presently preferred embodiments of the present invention have been described in detail, as will be apparent for those skilled in the art, those embodiments are only illustrative and not limitative of the present invention and can be variously modified within the scope of the invention;

for example, the massaging device 8 may be configured to perform only one of the tapping operation and the kneading operation.

Claims

1. A chair-type massaging apparatus comprising a backrest (4) provided with a mechanical massaging device (8), and a seat (3) provided with a pneumatic massaging device (45),

the mechanical massaging device (8) comprising a massaging head (9), a motor (10), and a transmission mechanism (11) for causing the massaging head (9) to perform massage by transmitting the rotary power of the motor (10) thereto,

the pneumatic massaging device (45) comprising a pneumatically expansible and contractible air cell (47) configured to massage the body of a human when air is supplied thereto and discharged therefrom.

2. A chair-type massaging apparatus as set forth in claim 1, wherein the mechanical massaging device (8) is configured to shift up and down in the backrest (4).
3. A chair-type massaging apparatus as set forth in claim 1 or 2 further comprising a footrest (5) under the seat (3), the footrest (5) being provided with a pneumatic massaging device (53,58) configured to massage the legs of the human.
4. A chair-type massaging apparatus as set forth in claim 3, wherein the footrest (5) is removably

attached under the seat (3).

5. A chair-type massaging apparatus as set forth in claim 3 or 4 wherein the footrest (5) is connected to the seat (3) so as to assume selectively one of a dangling position in which the footrest (5) dangles from a front edge of the seat (3) and a resting position in which the footrest (5) rests on a surface extending forwardly of the seat (3).
6. A chair-type massaging apparatus as set forth in claim 3, 4 or 5, wherein the footrest (5) is configured to be movable toward and away from the seat (3) so as to enable adjustment of the spacing therebetween.
7. A chair-type massaging apparatus as set forth in claim 3, 4, 5 or 6, wherein the footrest (5) is divided into a first footrest portion (85) adapted to massage an upper part of the legs of the human and a second footrest portion (86) adapted to massage a lower part of the legs, the first and second footrest portions (85,86) being configured to be movable toward and away from each other so as to enable adjustment of the spacing therebetween.
8. A chair-type massaging apparatus as set forth in claim 6 or 7, wherein the footrest (5) is divided into a first footrest portion (85) adapted to massage an upper part of the legs of the human and a second footrest portion (86) adapted to massage a lower part of the legs, the first and second footrest portions (85,86) being configured to be movable toward and away from each other so as to enable adjustment of the spacing therebetween.
9. A chair-type massaging apparatus as set forth in any of preceding claims, further comprising a vibrator (109) configured to vibrate the seat (3).
10. A chair-type massaging apparatus as set forth in any of claims 3 to 9 further comprising a vibrator (110) configured to vibrate the footrest (5).
11. A chair-type massaging apparatus as set forth in any of preceding claims, further comprising a vibrator (109) incorporated into the massaging device (45) of the seat (3).
12. A chair-type massaging apparatus as set forth in any of claims 3 to 12, further comprising a vibrator (110) incorporated into the massaging device (53,58) of the footrest (5).

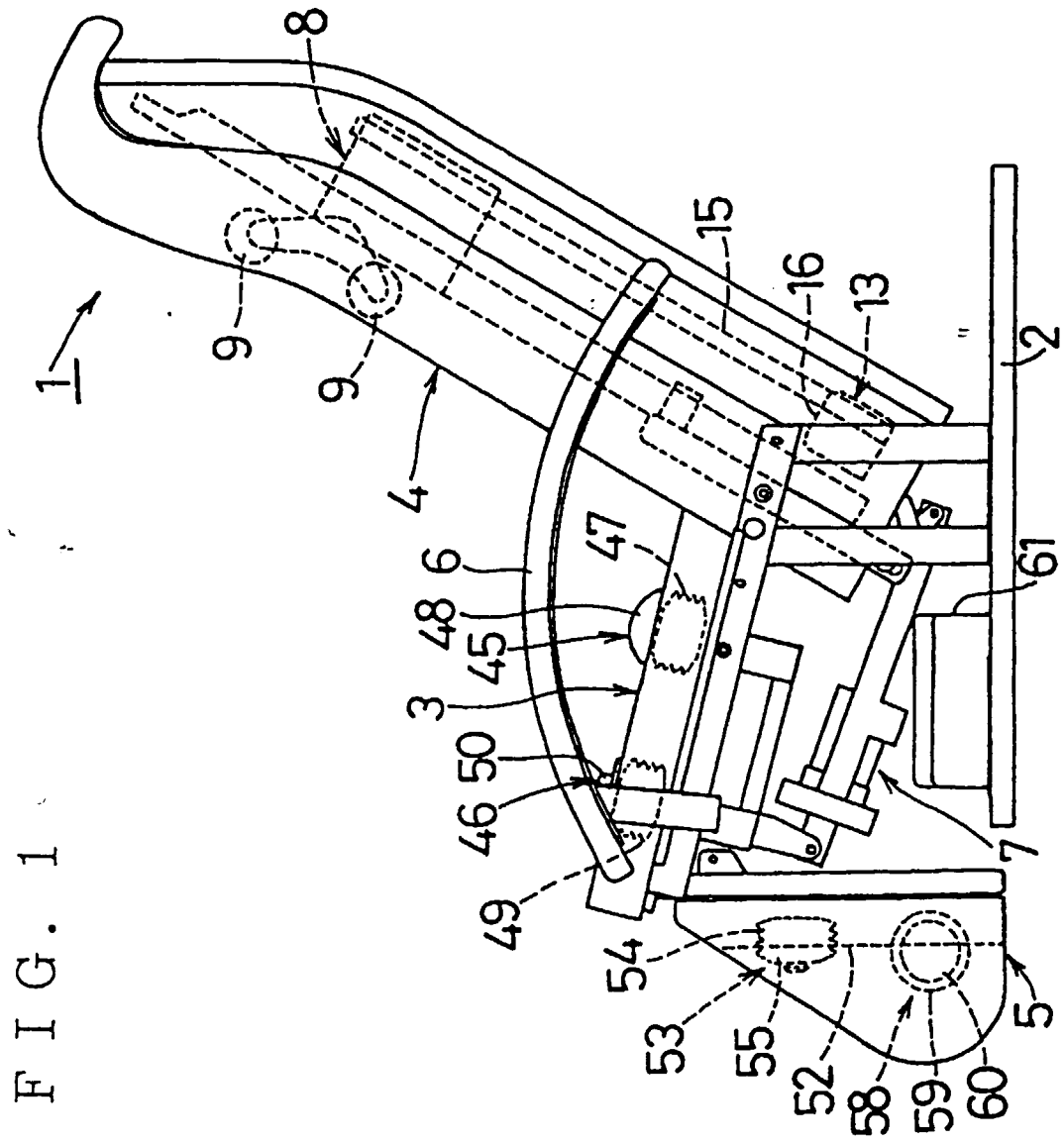


FIG. 2

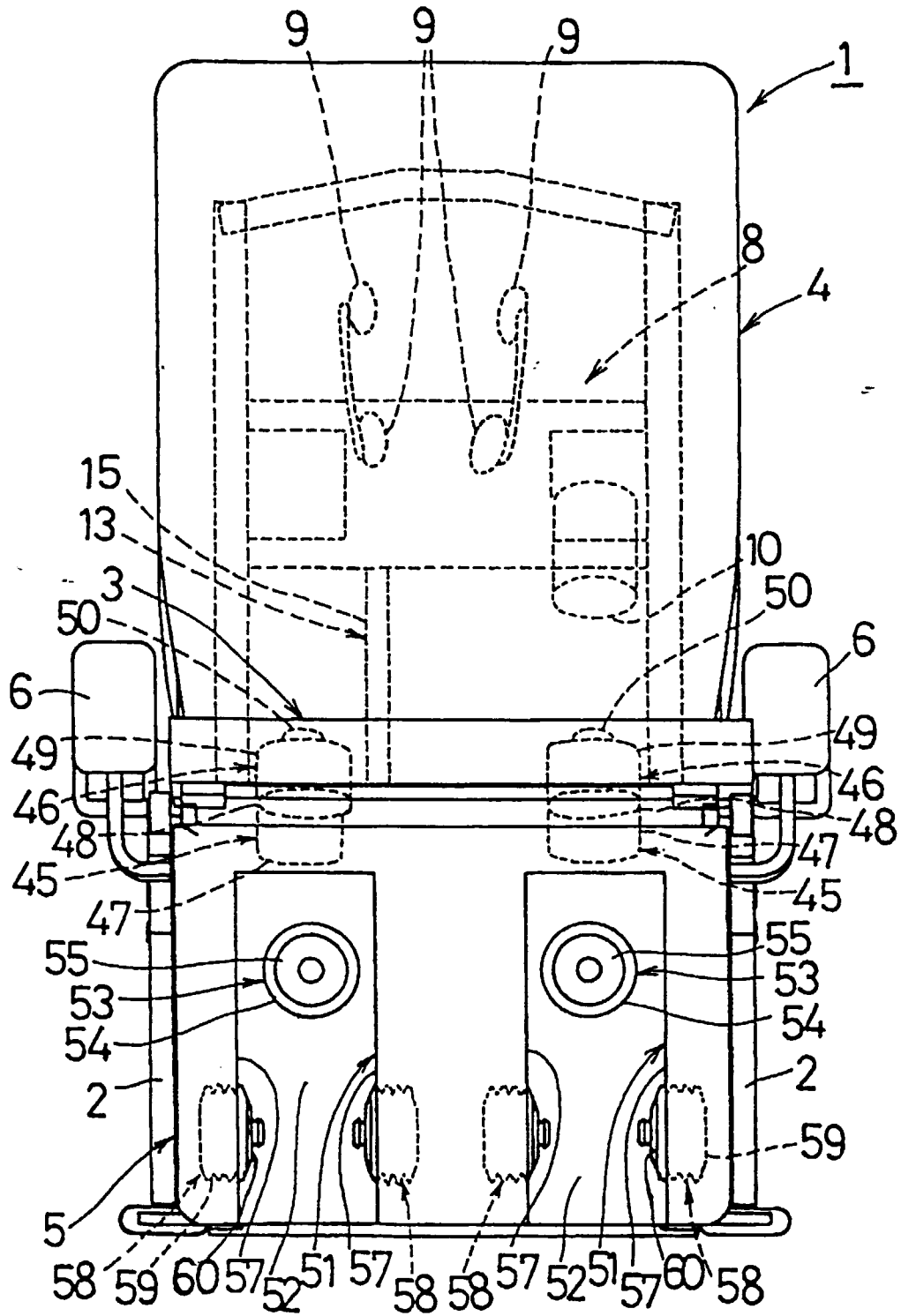


FIG. 3

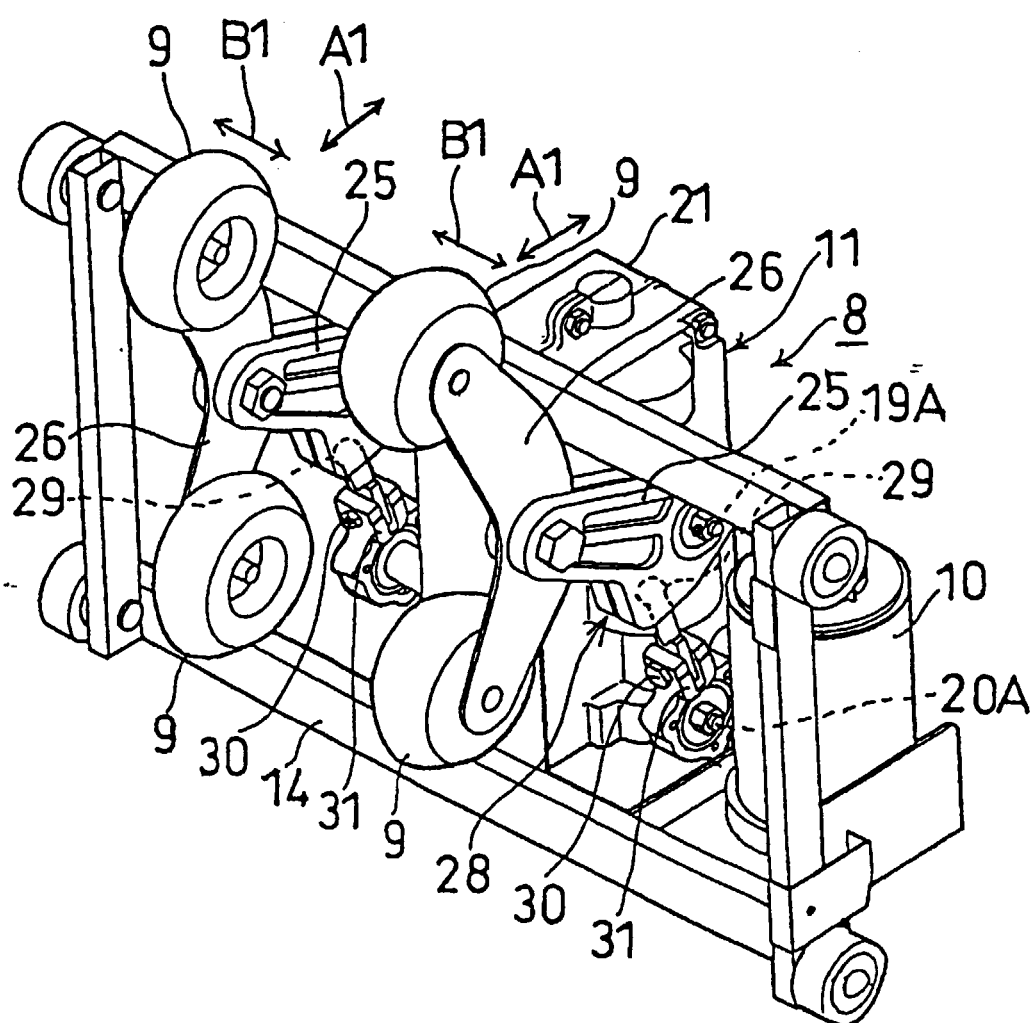


FIG. 4

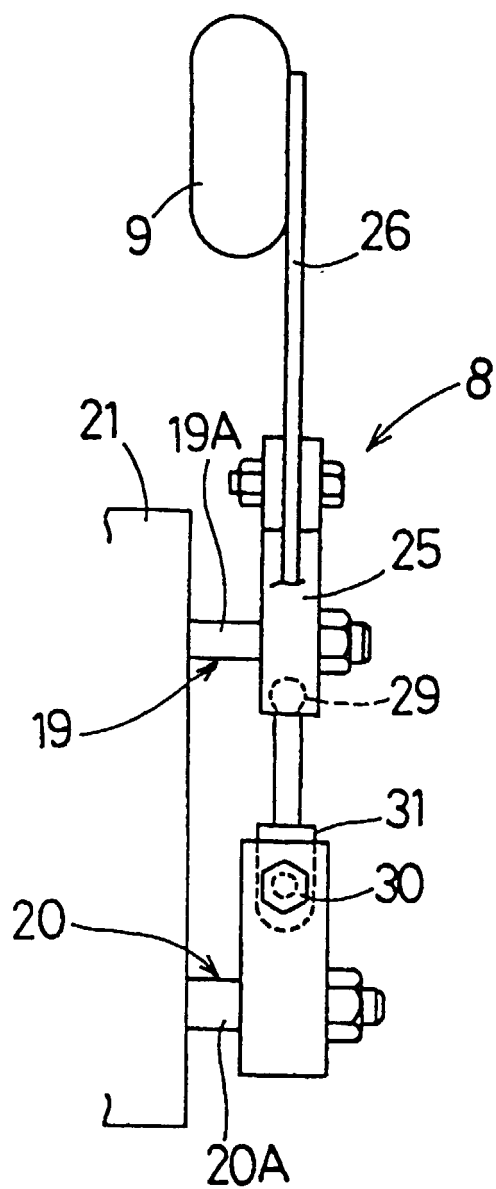


FIG. 5

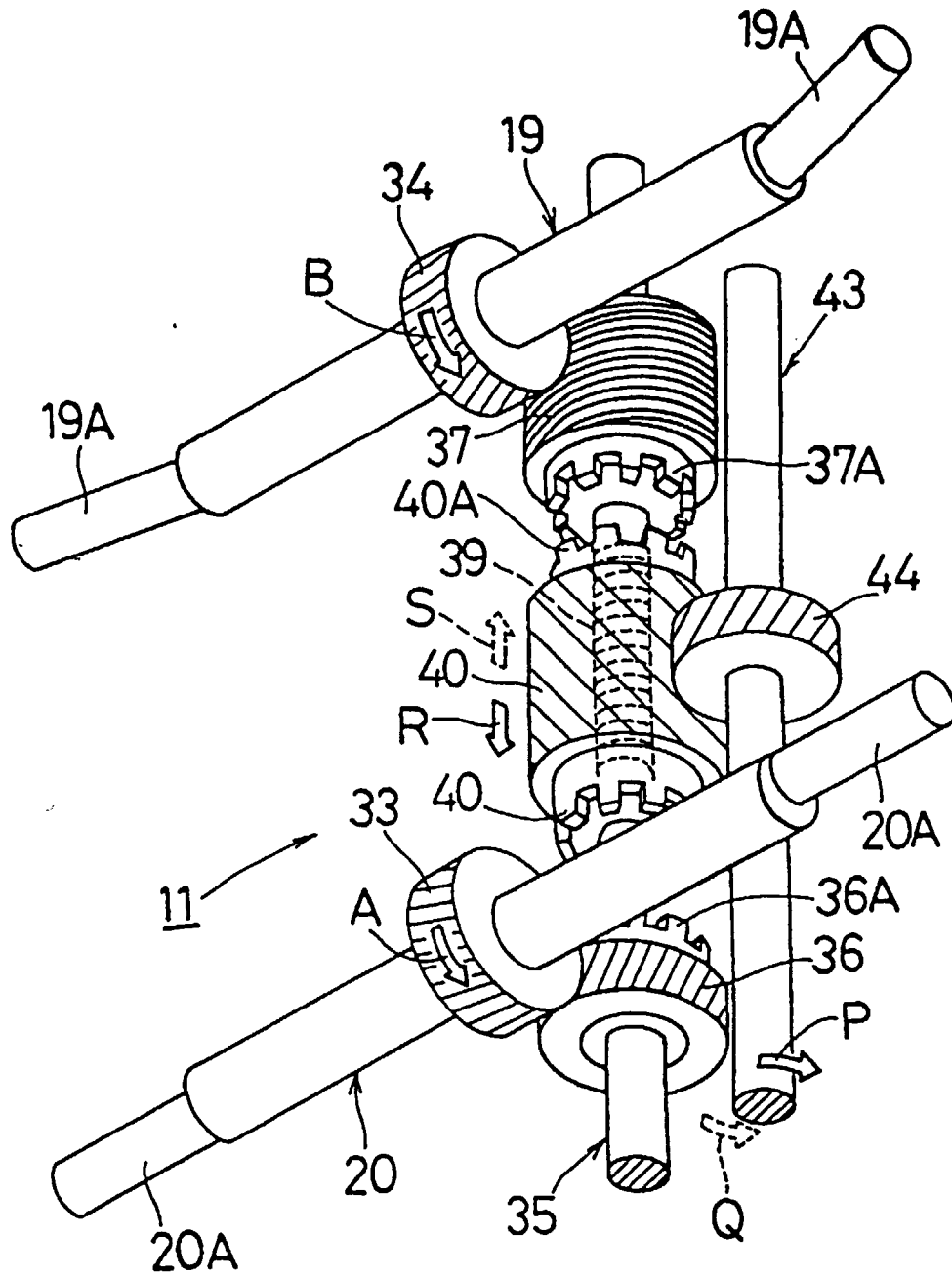


FIG. 6

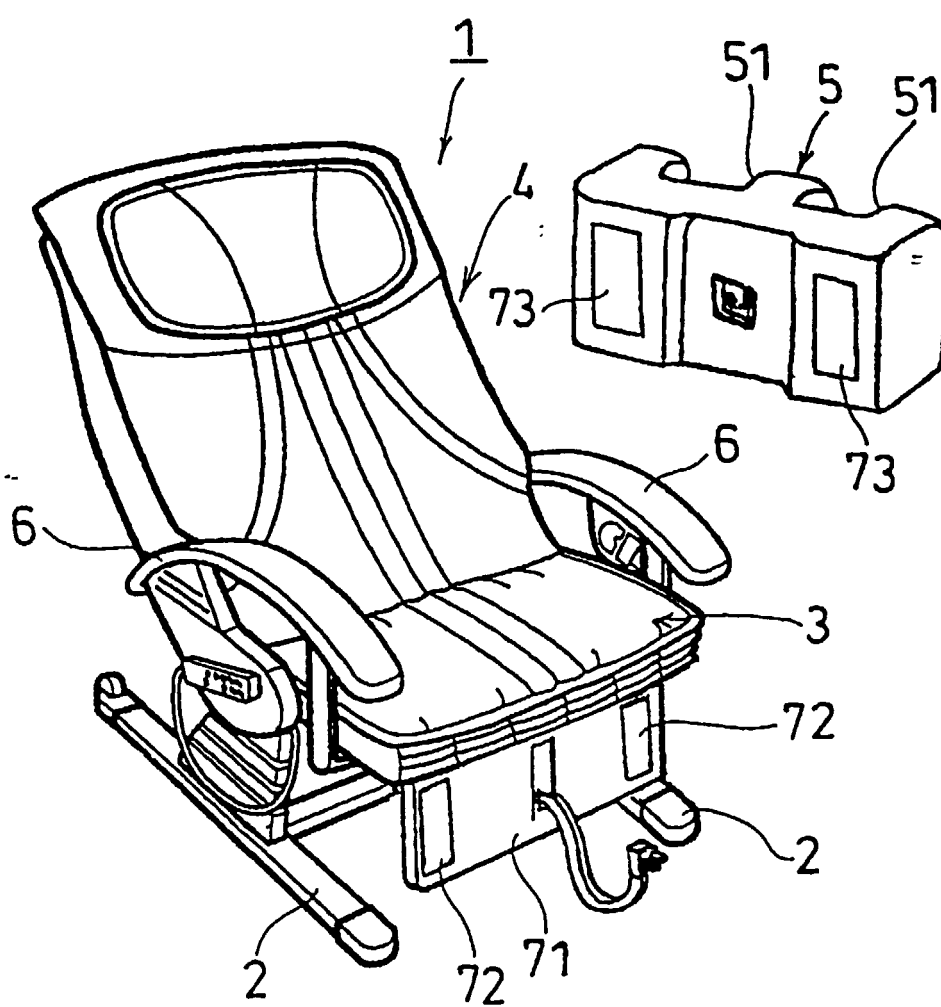


FIG. 7

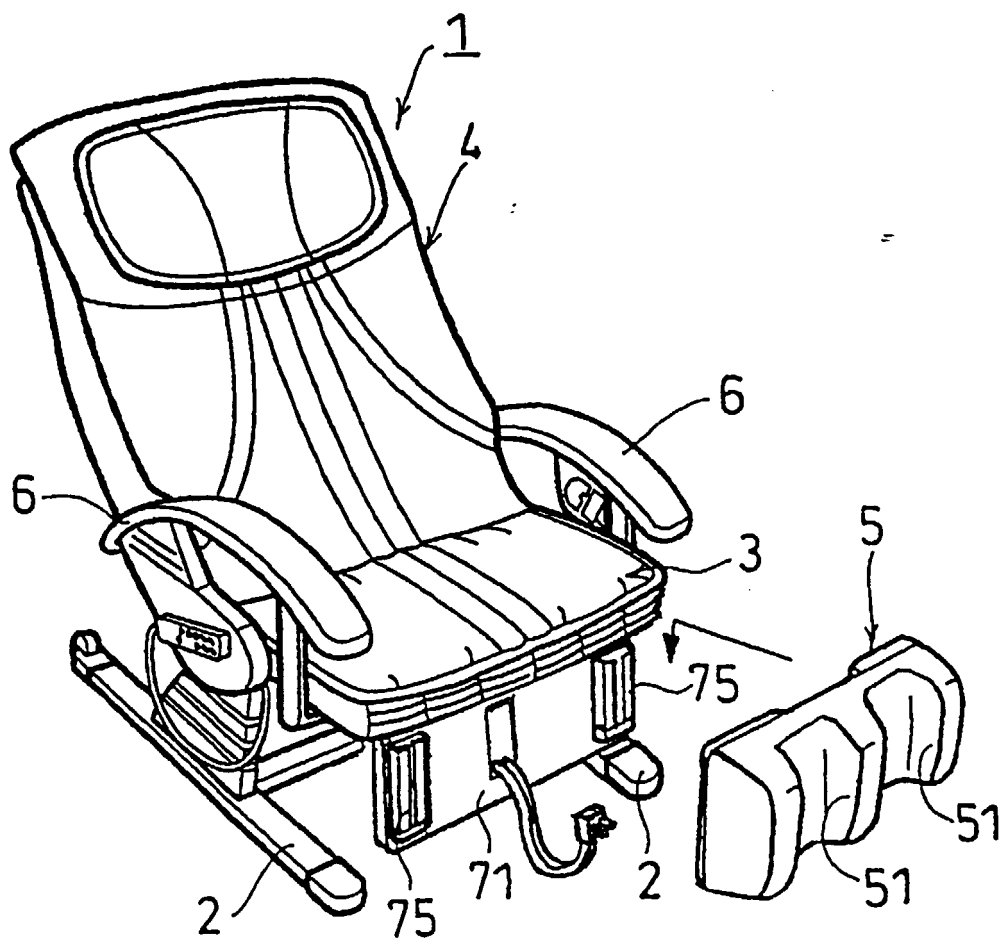


FIG. 8

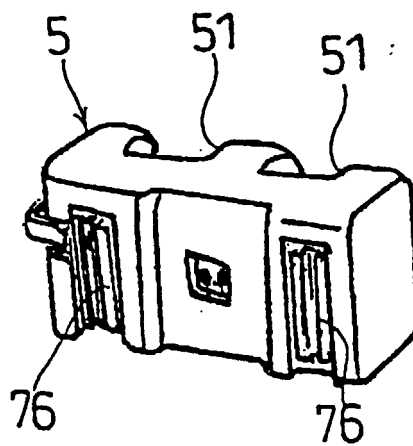


FIG. 9

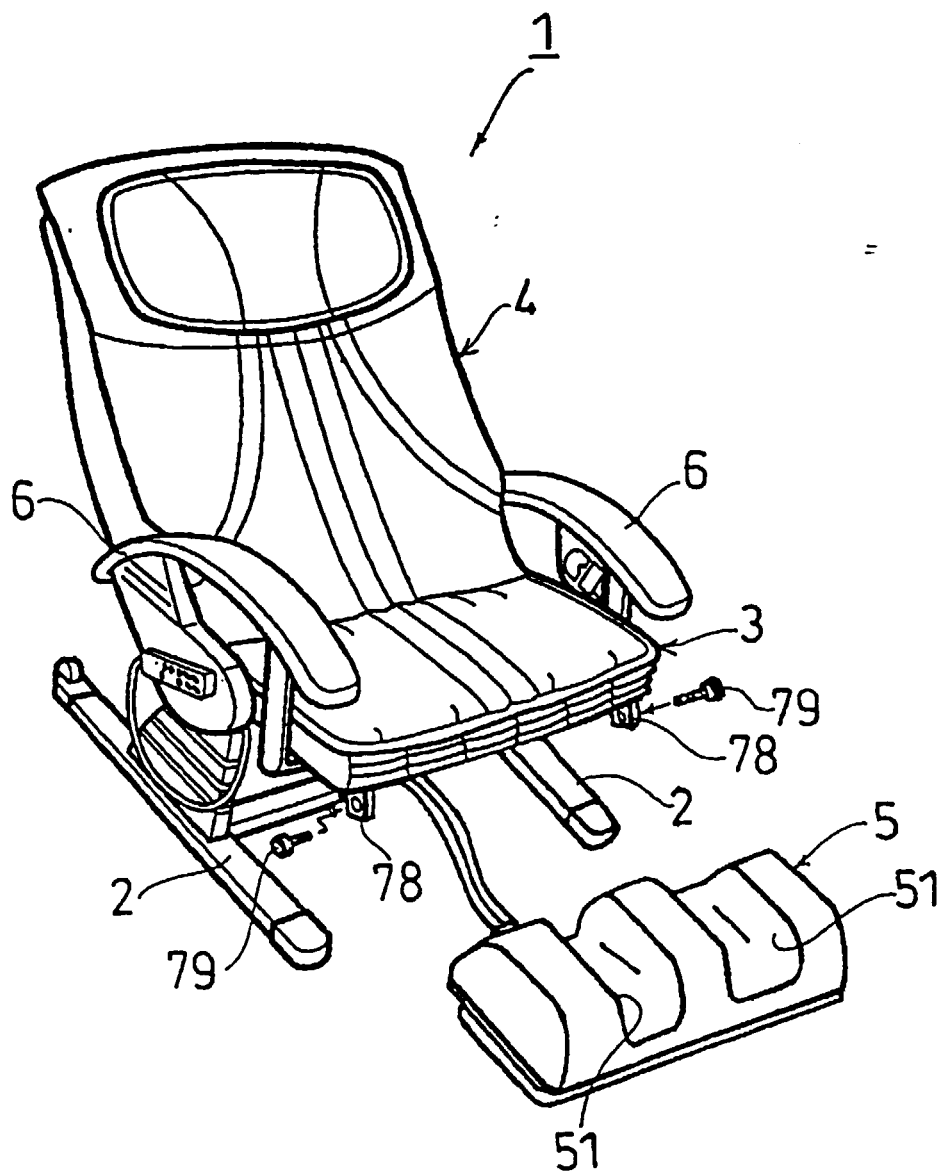
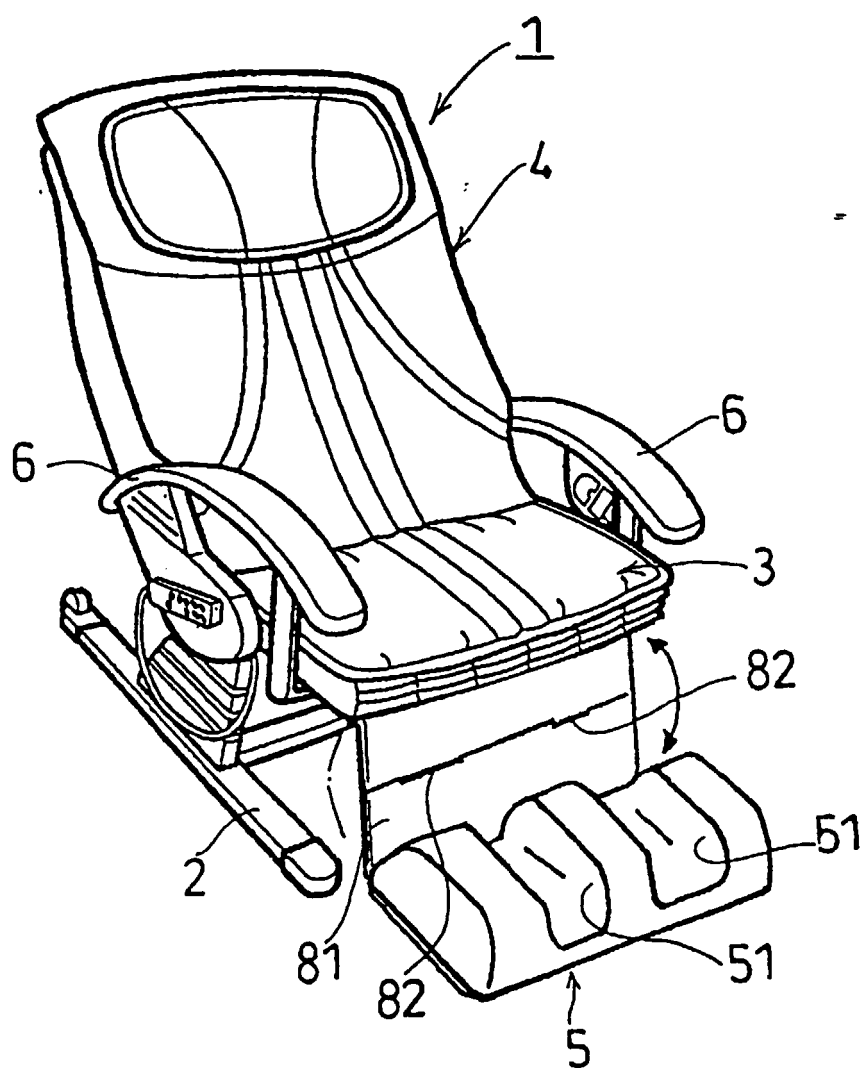
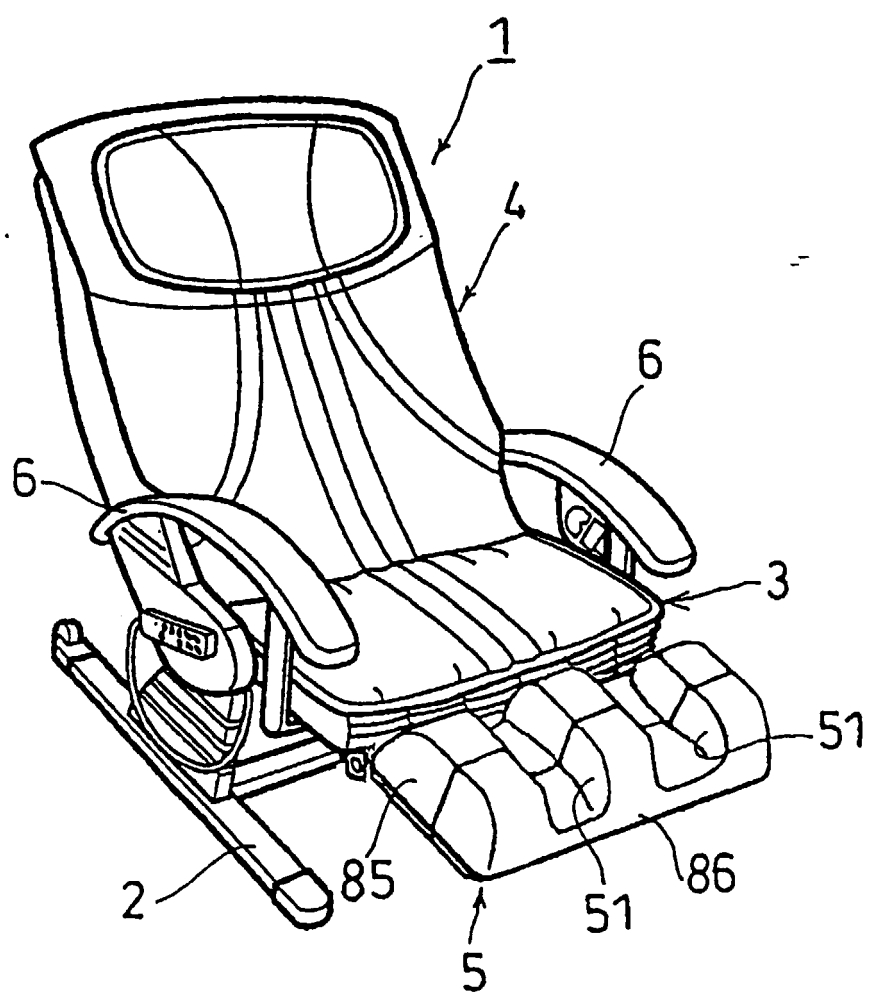


FIG. 10



F I G . 1 1



F I G . 1 2

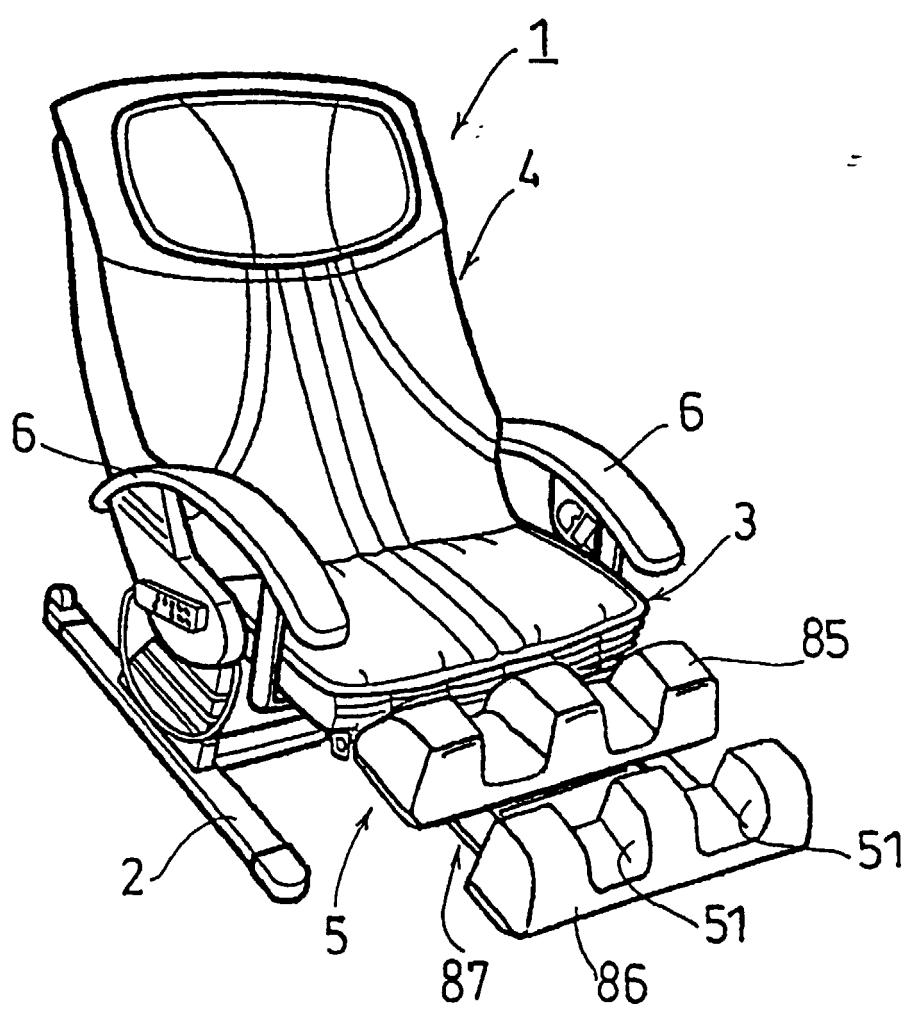


FIG. 13

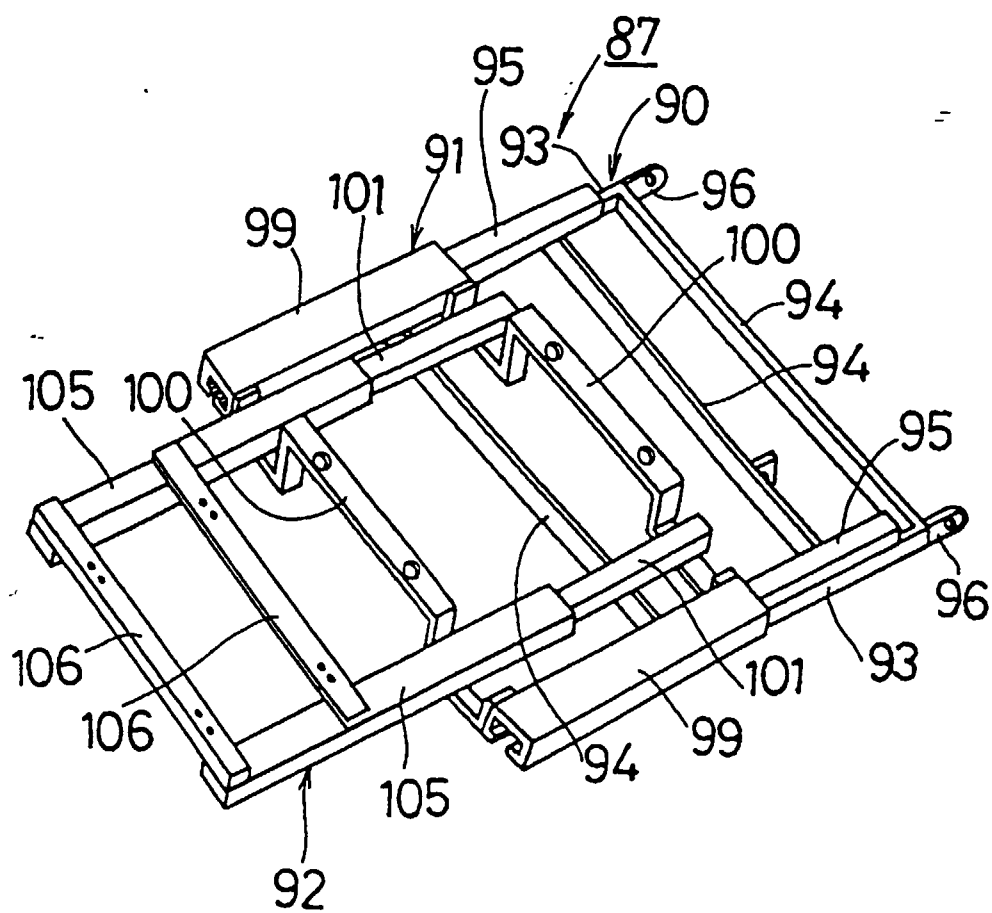


FIG. 14

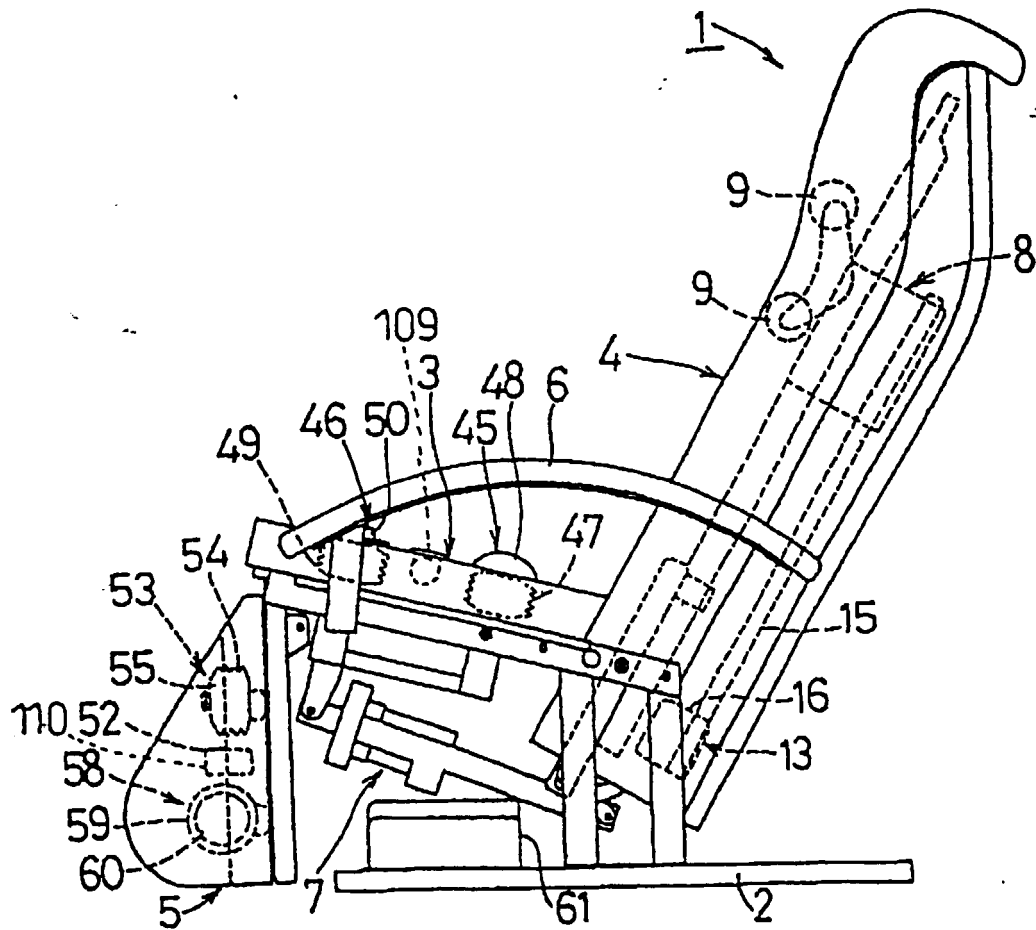


FIG. 15

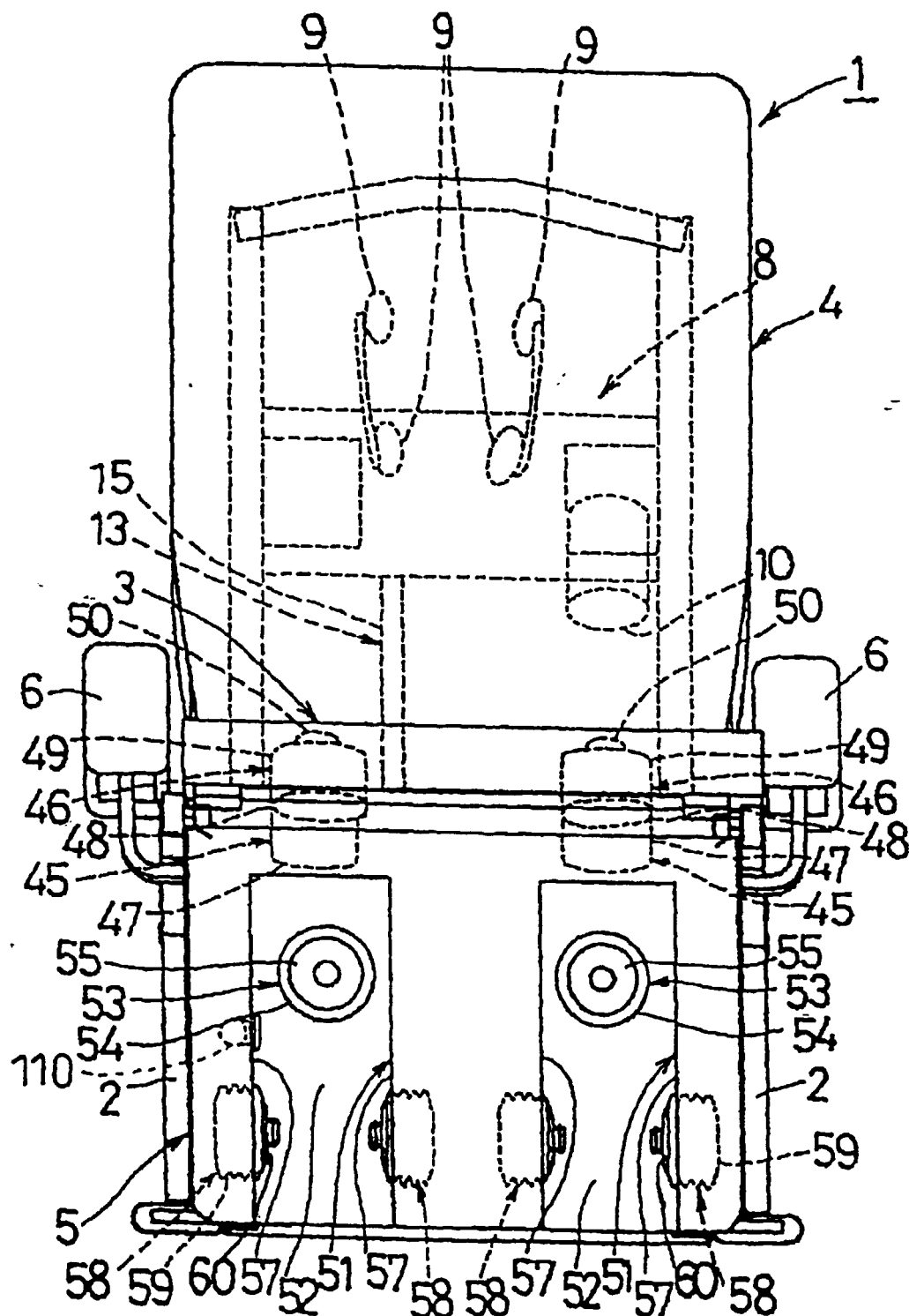


FIG. 16

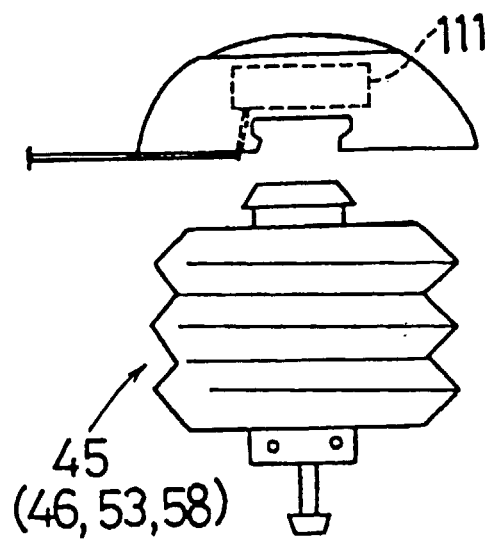
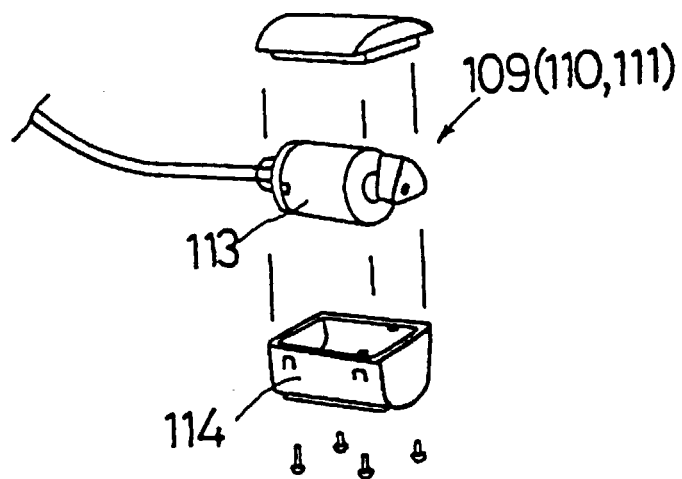
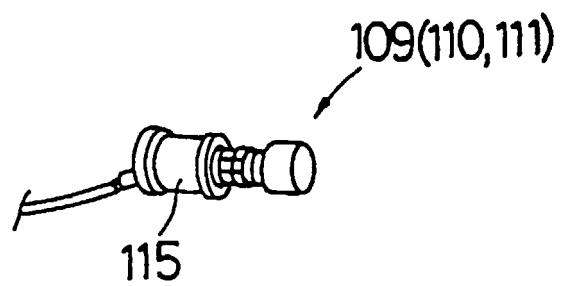


FIG. 17



F I G . 1 8





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 11 9523

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Place of search MUNICH		Date of completion of the search 14 March 2000	Examiner Georgiou, Z
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EP 99 11 9523

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