

- ☐ Description : paged to paged
☒ Claim(s) : paged ...13... to paged ...14...
☐ Drawing(s) : paged to paged
☐ Abstract : paged to paged

~~CHAIR-TYPE AIR MESSAGE DEVICE~~

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a chair-type massage device, especially a chair-type air massage device which has inflatable and deflatable air bags which are positioned inside the body of the chair for moderately massaging a user's local parts by varying the air pressure within the air bags by means of an intake/exhaust control mechanism.

2. Description of the Prior Art

Previously, various kinds of chair-type massaging devices, for example, a chair-type kneading massage device equipped with a kneading function, a chair-type knocking massage device equipped with a knocking function, a chair-type rolling massage device equipped with a rolling function, and a chair-type finger pressure massage device equipped with a finger pressure function have been developed and manufactured and each of them has its own characteristic function so that users can select one according to their preference to use.

However, females and older people tend to avoid using them because the conventional chair-type massage devices provide strong friction against a user's skin. Therefore, in recent years, the development of a chair-type massage device which gives an efficient massage with comparatively weak friction has been desired.

Further, though various kinds of chair-type air massage devices as above-mentioned have developed as long as a massage against a user's back, there have been no more than devices which provide just a vibration against a user's legs on a footrest including vibrators as for a simultaneous massage against a user's legs besides back.

Then, a kind of leg massaging device able to give an efficient massage with comparatively weak friction, which

provides a massage against a user's legs simultaneously with his back or independently against his legs, is desired to be developed.

This invention has been done in compliance with the above actual circumstances with the object of providing a chair-type air massaging device able to give an air massage against a user's back and waist while the user is in his comfortable position.

This invention has been done also with the object of providing a chair-type air massaging device able to give a moderate air massage against a user's buttocks.

Further, this invention has been done with the object of providing a chair-type air massaging device able to give a moderate air massage against a user's thighs.

Still further, this invention has been done with the object of providing a chair-type air massaging device to give an air massage against a user's legs while a user is sitting or is lying on his back.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a chair-type air massage device which is equipped with a reclinable backrest installed on the rear end of its seat, and which is also equipped with air bags inside the backrest for massaging a user's back and waist, and which is further equipped with an intake/exhaust control mechanism which supplies and exhausts compressed air to the air bags.

Another object of the present invention is to provide a chair-type air massage device which is equipped with a footrest which can be varied between a forwardly-projected position and a retracted position at the front end of the seat.

The other object of the present invention is to provide a chair-type air massage device which is equipped with a plurality of air bags for massaging a user's legs

inside the preceding footrest, which is connected to the preceding intake/exhaust control system through a distributing system.

The other object of the present invention is to provide a chair-type air massage device which is equipped with a plurality of air bags for massaging a user's buttocks inside the previous seat, which is connected to the previous intake/exhaust control system through the preceding distributing system.

The other object of the present invention is to provide a chair-type air massage device which is equipped with a plurality of air bags for massaging a user's neck inside an upper part of the previous backrest, which can be adjustably positioned in an up and down, and which is connected to the previous intake/exhaust control system through the previous distributing system.

Further, the other object of the present invention is to provide a chair-type air massage device which is equipped with a plurality of air bags for massaging a user's thighs inside the previous seat, which is connected to the previous intake/exhaust control system through the previous distributing system.

In the above composition, a chair-type air massage device of the present invention brings about the following effects.

Firstly, a chair-type air massage device of the present invention can provide a back and waist air massage while a user is comfortably lying on his back on the backrest reclined at a favorable angle, by supplying and exhausting compressed air to the air bags installed inside the backrest to cause their expansion and contraction against the user's back and waist.

Further, in the preceding situation, a user doesn't have to step forward and stretch his both legs on a floor and fix himself backward to fit himself to the air bags in order to get an appropriate massage effect, because he

can comfortably weigh against the air pressure during the expansion of the air bags while he is lying on his back.

Further, when a user changes the footrest into the forwardly-projected position in addition to the preceding situation, he can get an air massage more comfortably while lying on his back with his legs stretching forwardly on the footrest.

Still further, when a plurality of air bags for massaging a user's buttocks or neck or thighs are installed, the user can also get an air massage against these parts of his body while lying as precedingly on his back comfortably.

Still further, when the preceding plurality of air bags for massaging a user's neck are installed to be changeably positioned in an up and down, the user can also get an air massage against whole his neck by moving them in the up and down in order.

Still further, when a plurality of air bags for massaging a user's legs are installed inside the footrest which is pivotally joined to the front end of the seat, the user can also get a leg massage provided by expanding and contracting each air bags by supplying and exhausting compressed air to them while he is lying comfortably on his back on the backrest reclined at his favorable angle and simultaneously stretching his legs forwardly on the footrest changed into the forwardly-projected position.

Still further, when the footrest is changed into the retracted position below the front end of the seat, a user can get an air massage against his legs while he is up-right sitting with his legs hung down below the front end of the seat.

Other objects and purposes of the invention will be apparent to persons familiar with devices of this general type upon reading the following specification and inspecting the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view showing an embodiment of the chair-type air massage device of the present invention;

Fig. 2 is a sectional view of the chair-type air massage device of the present invention;

Fig. 3 is a side elevational view of the chair-type air massage device of the present invention;

Fig. 4 is a plan view showing an air bag arrangement for massaging a user's various body parts in the air massage device of the present invention;

Fig. 5 is a partial cross-section view showing an air bag arrangement for massaging a user's neck in the chair-type air massage device of the present invention;

Fig. 6 is a partial cross-section view showing a mechanism for adjusting the position of the air bags for a neck massage relative to a seatback of the chair-type air massage device of the present invention;

Fig. 7 is a top view showing a first embodiment of a footrest for the chair-type air massage device of the present invention, the footrest having air bags for a leg massage;

Fig. 8 is a top view showing a second embodiment of a footrest for the chair-type air massage device of the present invention, the footrest having air bags for a leg massage;

Fig. 9 is a top view showing a third embodiment of a footrest for the chair-type air massage device of the present invention, the footrest having air bags for a leg massage; and

Fig. 10 is a top view showing a fourth embodiment of a footrest for the chair-type air massage device of the present invention, the footrest having air bags for a leg massage.

PREFERRED EMBODIMENT OF THE INVENTION

Fig. 1 shows a perspective view and Fig. 2 shows a center longitudinal sectional view of an embodiment of

the air massage chair of the present invention. The air massage chair comprises a seat 2, backrest 3 secured to the seat 2 and having an adjustable inclination relative to the seat 2, and armrests 4 disposed on right and left sides of the seat 2.

A mechanism for securing the backrest 3 to the seat 2, for example, as Fig. 2 and Fig. 3 show, includes a frame 6 extending downward below the backrest 3 and secured to the back side of seat 2 around rotatable shaft 5 for permitting forward and rearward rocking movement, and a fluid pressure (i.e. hydraulic) cylinder 7 rotatably supported and connected to the lower end of the frame 6 below the rotatable shaft 5. Therefore, the pressure cylinder 7 is operated by a reclining lever 8 disposed on the outer side of the seat 2, such that the backrest 3 can be optionally inclined around the rotatable shaft 5.

A footrest 10 is secured to the front end of the seat 2, and the footrest 10 is capable of changing positions between a projected position wherein it is projected forward of the seat 2 in a nearly horizontal or level orientation wherein it is nearly aligned with the front edge of the seat as shown in Fig. 3, and a retracted position wherein it is retracted below the front end of the seat 2 in a nearly vertical orientation as shown in Fig. 2. For example, the footrest 10 is secured to the seat 2 by linkage 11, and can be changed between the projected position or the retracted position through the linkage 11 by turning a turn shaft 13 around a center thereof by a manual lever 12 which is fixed to the shaft and is disposed on the outer side of the seat 2.

Air bags 14 defining a neck massage pillow for permitting a neck massage are secured to the upper part of the backrest 3, and as shown in Fig. 5 and Fig. 6, the right and left air bags 14a, 14a are placed in a row and

covered with a pillowcase or cover 15. A bolt 16 projects from the rear of the pillow defined by air bags 14a, 14a. The air bags 14 are adjustable in an up and down direction relative to the upper part of the backrest 3 by inserting the bolt 16 from the front side of the backrest 3 through a longitudinal slit 17 provided in the upper part of the backrest 3, and securing a nut 19 to the end of the bolt 16 with a washer 18 positioned under the nut. Therefore, the air bags 14 are positioned by loosening the nut 19 and sliding the air bags 14 to the required position guided by the slit 17 and resealing the nut 19.

Each air bag 14a, 14a has a finger pressure ball 20 made of hard urethane foam etc. together with a flexible plate 21 such as a resin plate so that the finger pressure balls 20 can provide a pressurization and depressurization function efficiently to both sides of a user's neck according to the expansion of the air bags 14a. As shown in Fig. 5. the air bags 14a, 14a are composed of internal and external layers A, B. Polyurethane, which is effective for air leakage prevention, may be used for the internal layer A, and 6 - nylon, which is effective for excessive expansion prevention, may be used for the external layer B.

As shown in Fig. 1 and Fig. 4, air bags 22 for a back massage and air bags 23 for a waist massage are disposed below the air bags 14 on the backrest 3. Each of the air bags 22, 23 is formed by separate left air bags 22a, 23a and right air bags 22a, 23a so that they provide and relieve the pressure against the muscle on both sides of a user's spine. Each of the air bags 22, 23 are covered with an exterior cover 31 made of flexible and smooth materials such as chloroethylene leather or cloth etc. which covers the whole backrest 3, and loosely covers each of the air bags 22, 23 so that it expands according to the expansion of each air bag 22, 23.

The air bags 24 for a buttocks massage are installed on the seat 2, and air bags 25 for a thigh massage are installed on the seat 2 in front of the air bags 24. Each of the air bags 24, 25 is also covered with an exterior cover which is made of the same materials as the exterior cover 31 which covers the whole upper surface of the seat 2. The exterior cover 31 covers the air bags 24, 25 loosely so that it can expand according to the expansion of the air bags 24, 25.

The air bags 32 for a leg massage are provided in the footrest 10. As shown in Fig. 7, the air bags 32 for a leg massage include right and left air bags 33, and center air bags 34 provided between the air bags 33. Further, the center air bags 34 are formed as separate left and right center air bags 34a, 34a. Concave cavities 35, through which each of a user's legs can be placed, are formed between the left air bags 33 and the center left air bag 34a, and between the right air bag 33 and the center right air bag 34a. The air bags 32 are also covered with the exterior cover 31 made of same materials as the exterior cover 31 which covers the whole footrest 10. This exterior cover covers the air bags 32 loosely so that it can expand according to the expansion of the air bags 32.

Each of the air bags 22, 23, 24, 25, 32 for a back massage, waist massage, buttocks massage, thigh massage and leg massage, respectively, includes internal and external layers formed from the same cross sectional construction as the air bags 14 as shown in Fig. 5.

An intake/exhaust control mechanism which supplies and exhausts compressed air to each of the air bags is disposed in the lower part of the seat 2. As shown in Fig. 1, the intake/exhaust control mechanism has an ON-OFF power switch 26 and several massage selecting switches 27 provided on the armrest 4. As shown in Fig. 4, an air source 28 such as an air compressor or air

pump, a distributor 29 having valves (not shown) which distributes compressed air to each air bag from the air source 28, and intake/exhaust ports of each air bag are interconnected by hoses 30.

The massage selecting switches 27 include a general massage button which provides a sequential massage for a user's neck, back, waist, buttocks, thighs, and legs, and several separate massage buttons which selectively provide independent partial massages. Turning on the power switch 26 and pushing the general massage button of the selecting switches 27, for example, sequentially causes each of the air bags 14 for a neck massage, air bags 22 for a back massage, air bags 23 for a waist massage, air bags 24 for a buttocks massage, air bags 25 for a thigh massage, and air bags 32 for a leg massage to repeatedly expand and contract to sequentially provide an air massage to a user's neck, back, waist, buttocks, thigh, and leg in order, by varying the air pressure supplied to the air bags. Further, by pushing a button for any of the air bags separately, compressed air can be supplied and exhausted to only specific air bags through the distributor 29 so as to provide an intensive air massage to a user's neck or legs, for example.

When providing a massage to a user's leg(s), a user places his right and/or left legs in the respective cavities 35. Compressed air may be supplied and exhausted to the left air bag 33 and the center left air bag 34a, and the right air bag 33 and the center right air bag 34a, at the same time or alternately, so as to provide and relieve pressure against the user's calf muscles.

In the above embodiment, the air bags 34a, 34a separately provide and relieve pressure against a user's calf muscles from both right and left sides. However, the center air bags 34 can be combined into a single center air bag 34 as shown in Fig. 8.

Further, the footrest 10 may only include the right and left air bags 33, 33 which are positioned along a line to provide and relieve the pressure against the back of a user's calf muscles as shown in Fig. 9.

Further, shin covers 36 may be removably disposed in front of the left air bag 33 and the center left air bag 34a, and in front of the right air bag 33 and the center right air bag 34a, as shown in Fig. 10. The shin covers 36 retain a user's legs within the cavities 35 during a leg massage. The shin covers 36 can include additional air bags. Velvet-type fasteners, such as Velcro, or hook buttons may be used to retain the shin covers 36 during a leg massage.

The chair-type air massage device of the above embodiment may include air bags 14, 22, 23, 24, 25 and 32 for a neck, back, waist, buttocks, thigh and leg massage in order to provide almost a whole body massage. However, the above embodiment may omit one or several among these air bags except for the air bags 22 and 23 for providing a back and waist massage.

In the above embodiment, instead of using the linkage 11 and the manual lever 12 as a means for varying the position of the footrest 10 relative to the seat 2, the footrest 10 may be connected to the seat 2 via a rotatable shaft which changes the position of the footrest 10 by rotating the footrest 10 around the shaft by operating a pressure cylinder.

The present invention can provide an air massage to a user's back and waist by supplying and exhausting compressed air to the air bags 22 and 23 to thereby expand and contract them, while the user is comfortably lying on his back by reclining the backrest 3 rearwardly.

Further, the present invention has the footrest 10 which is capable of changing its position between the forwardly-projected position and the retracted position on the front end of the seat 2 so that an air massage

can be provided while a user is putting his legs on the footrest 10 in the projected position and lying comfortably on his back. When the footrest 10 is in the retracted position, an air massage can be provided to the user in a sitting position without being disturbed by the footrest 10.

Further, the present invention can provide an air massage to a user's legs by supplying and exhausting compressed air to the air bags 32 disposed on the footrest 10 to thereby expand and contract them, while the user is lying comfortably on his back by reclining the backrest 3 rearwardly.

Further, the present invention includes removable shin covers 36 in front of the air bags 32 so that a user's legs can be retained without being pushed out of the cavities 35 by the air bags 32. Thus, an air massage can be provided efficiently to the user's whole legs by using the shin covers 36 while expanding and contracting the air bags 32.

Further, the present invention can provide an air massage to a user's buttocks by supplying and exhausting compressed air to the air bags 24 disposed on the seat 2 to thereby expand and contract them, while the user is lying comfortably on his back by reclining the backrest 3 rearwardly. And this air massage to the user's buttocks also can be provided together with the previous air massage to his back and waist.

Further, the present invention can provide an air massage to a user's neck by supplying and exhausting compressed air to the air bags 14 disposed on an upper part of the backrest 3 to thereby expand and contract them, while the user is lying comfortably on his back by reclining the backrest 3 rearwardly or is up-right sitting. And this air massage to the user's neck also can be provided together with the previous air massage to his back and waist.

Further, the present invention may have the preceding air bags 14 to be capable of changing their positions between an upper position and a lower position within an upper part of the backrest 3 so that an air massage can be provided efficiently to a user's whole neck by moving the air bags 14 from the upper position to the lower position in order while these air bags are alternately expanding and contracting.

Still further, the present invention can provide an air massage to a user's thigh by supplying and exhausting compressed air to the air bags 25 disposed on the seat 2 to thereby expand and contract them, while the user is lying comfortably on his back by reclining the backrest 3 rearwardly or is up-right sitting. And this air massage to the user's thigh also can be conveniently provided together with the previous air massage to his back and waist.

Although a particular preferred embodiment of the invention has been disclosed in detail for illustrative purposes, it will be recognized that variations or modifications of the disclosed apparatus, including the rearrangement of parts, lie within the scope of the present invention.



What is claimed is:

1. A chair-type massage device comprising:
a seat;
a backrest pivotally joined with a first end of the seat;
a plurality of air bags disposed on the backrest for providing a back massage and a waist massage; and
an intake/exhaust control assembly which supplies and exhausts compressed air to and from the plurality of air bags.

2. The air massage device according to Claim 1, comprising:
the device according to Claim 1;
a footrest pivotally joined with a second end of the seat, permitting a position-change between a forwardly-projected position and a retracted position.

3. The air massage device according to Claim 1, comprising:
the device according to Claim 1;
the preceding footrest pivotally joined with the second end of the seat, permitting the position-change between the forwardly-projected position and the retracted position;
a plurality of air bags disposed on the footrest for providing a leg massage; and
a distributing assembly for connecting the plurality of air bags to the previous intake/exhaust control assembly.

4. The air massage device according to Claim 3, comprising:
the device according to Claim 3;
a plurality of air bags disposed on the seat for





providing a buttocks massage; and

a distributing assembly for connecting the plurality of air bags to the previous intake/exhaust control assembly.

5. The air massage device according to Claim 4, comprising:

the device according to Claim 4;

a plurality of air bags disposed on an upper part of the backrest of the seat for providing a neck massage; and

a distributing assembly for connecting the plurality of air bags to the previous intake/exhaust control assembly.

6. The air massage device according to Claim 5, comprising:

the device according to Claim 5;

the preceding plurality of air bags for providing a neck massage disposed permitting a position-change between an upper position and a lower position within an upper part of the backrest.

7. The air massage device according to Claim 6, comprising:

the device according to Claim 6;

a plurality of air bags disposed on the seat for providing a thigh massage; and

a distributing assembly for connecting the plurality of air bags to the previous intake/exhaust control assembly.

