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(71) Applicant: **Nemoto, Tomoyuki**
Tsukuba-city
Ibaraki 305-0033 (JP)

(72) Inventor: **Nemoto, Tomoyuki**
Tsukuba-city
Ibaraki 305-0033 (JP)

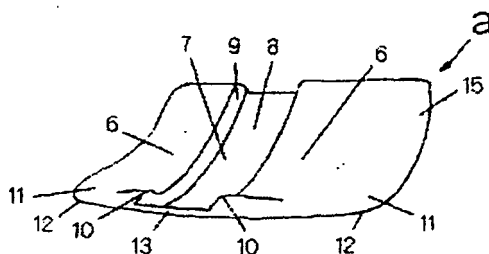
(74) Representative: **Thacker, Darran Ainsley et al**
Serjeants,
25 The Crescent,
King Street
Leicester LE1 6RX (GB)

(54) **CHAIR-USE AUXILIARY CHAIR FOR IMPROVING POSTURE**

(57) The present invention consists in a posture-improving auxiliary chair for use with a chair designed to improve the posture. An object of the invention is to improve the posture by routinely using the auxiliary chair which is placed on a chair. According to this invention, the front center of the concavely curved seat face portion is recessed in the form of a band extending toward the rear center, and raised portions gently raised from the lateral sides toward the recessed portion are formed on the front section of the seat face portion. In the vicinity of the foots of the raised portions there are formed fan-

shaped inclined surfaces gently slanting in an oblique direction toward the front. In the center of the bottom of the seat formation part there is formed a convexly curved portion, on forward and rearward extensions of which there are formed a front stop portion and a rear stop portion, respectively. It is a seat formation support part that includes these component elements and supports the seat formation part from below. These parts are joined together in one-piece and all of the corners are chamfered, whereby a generally rounded auxiliary chair for use with a chair for improving the posture is obtained.

Fig.6



Description

FIELD OF THE INVENTION

[0001] The invention relates to an auxiliary chair for use with a chair for gradually improving the posture by using it routinely, which is like a cushion useful to be placed on a chair.

THE BACKGROUND ART

[0002] The conventional cushion is constructed of a material and in a configuration intended to support the buttocks softly, but is not designed with a view to maintaining the physiological bowing of the backbone. Therefore, when the user sits naturally on a cushion placed on a flat-seat chair with his or her both soles touching the ground, his or her pelvises are prone to be bent rearwardly relative to the forward-bending of the pelvises in the standing posture, in linkage with which the coccyx, sacrum and backbone will also be rearwardly bent. As a result, the backbone will lose its physiological bowing, and turn into a rearwardly bent state, so that the weight of the upper body of the trunk is exerted on the coccyx, ischia and their vicinities, lower lumbar vertebrae and intervertebral disks, and the thigh's backsides to thereby increase the burden on the waist and coccyx. In addition, since the user is likely to assume a posture in which he or she may easily cross the legs, the weight of the upper body of the trunk exerted on the ischia and their vicinities tends to become unbalanced to thereby possibly cause strains on the skeleton.

DISCLOSURE OF THE INVENTION

[0003] For the benefit of brevity of the description of the present invention, the auxiliary chair for use with a chair for improving the posture will sometimes be referred to simply as "auxiliary chair" in the following description.

[0004] According to this invention, the front center of the concavely curved seat face portion is recessed in the form of a band extending toward the rear center, and raised portions gently raised from the lateral sides toward the recessed portion are formed on the front section of the seat face portion. In the vicinity of the foots of the raised portions there are formed fan-shaped inclined surfaces gently slanting in an oblique direction toward the front. The seat including these component elements comprises a seat formation part. In the center of the bottom of the seat formation part there is formed a convexly curved portion, on forward and rearward extensions of which there are formed a front stop portion and a rear stop portion, respectively. It is a seat formation support part that includes these component elements and supports the seat formation part from below. These parts are joined together in one-piece and all of the corners are chamfered, whereby a generally rounded auxiliary chair for use with a chair for improving the posture is obtained.

[0005] When the user sits on a chair with the use of the auxiliary chair, he or she is urged to spread out the legs to thereby make it hard to cross the legs. In addition, as the pressure on the genital organ is alleviated, it is possible to relieve deterioration of the reproductive capability, oppressive pain of the genital organ, constriction in the urethra, etc. Moreover, the pelvises are bent forwardly and the physiological bowing of the backbone is guided, so that the weight of the upper body of the trunk exerted on the coccyx, the ischia and their vicinities, the lower lumbar vertebrae and intervertebral disks, and the thigh's backsides are distributed in good balance to the legs, with the result that the legs will be exercised while at the same time the burden on the waist and coccyx may be alleviated. Furthermore, since the auxiliary chair is of such a construction as to make it hard to bring the pelvises into their rearwardly bent state, the user may be prevented from assuming a posture with his or her backbone bent rearwardly for a long time. As a result, the user may gradually improve his or her posture by continuing to routinely use this auxiliary chair placed on a chair.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Before making a brief description of the drawings, the reference characters and numerals used in the drawings will be explained below. The character (a) indicates an auxiliary chair and the character (b) indicates an auxiliary chair devoid of the recessed portion. The weight reduced auxiliary chair designated by the character 1a used in Figs. 17 and 18 has a configuration and functions similar to those of the auxiliary chair designated by the character (a) used in Fig. 3. Accordingly, the drawing of Fig. 3 is used to describe both the auxiliary chair (a) and the weight reduced auxiliary chair 1a. Likewise, since the weight reduced auxiliary chair devoid of the recessed portion designated by the character 1b used in Figs. 22 and 23 has a configuration and functions similar to those of the auxiliary chair devoid of the recessed portion as designated by the character (b) used in Fig. 19. Accordingly, the drawing of Fig. 19 is used to describe both the auxiliary chair (b) devoid of the recessed portion and the auxiliary chair 1b which is reduced in weight and is devoid of the recessed portion.

[0007] Figs. 1, 2 and 3 illustrate one mode for carrying out the auxiliary chair according to this invention, in which Fig. 1 is a cross-sectional view taken in the direction indicated by the arrows A-A in Fig. 3; Fig. 2 is a cross-sectional view taken in the direction indicated by the arrows B-B in Fig. 3 and Fig. 3 is a top plan view showing the posture-improving auxiliary chair (a) for use with a chair being tilted forwardly to a maximum;

[0008] Figs. 4, 5 and 6 illustrate the auxiliary chair (a) according to this invention depicted from the various angles, in which Fig. 4 is a side view of the auxiliary chair (a); Fig. 5 is a front view showing the auxiliary chair (a) being tilted forwardly to a maximum; and Fig. 6 is a perspective view showing the auxiliary chair (a) being tilted

forwardly to a maximum;

[0009] Before describing the drawing of Fig. 7, the reference characters and numerals used in Fig. 7 will be explained. The character (E) indicates a tangent line with the point 21 on the seat face portion of the auxiliary chair (a) as an apex; the character (F) indicates a tangent line with the point 22 on the seat face portion of the auxiliary chair (a) as an apex; the character (G) indicates a tangent line with the point 23 on the seat face portion of the auxiliary chair (a) as an apex; the character (X) indicates an angle between the tangent line (E) and the seat face portion 24; the character (Y) indicates an angle between the tangent line (F) and the seat face portion 24; and the character (Z) indicates an angle between the tangent line (G) and the seat face portion 24; Fig. 7 is to show the comparison between the angles of the seat face portion of the auxiliary chair (a) tilted forwardly to a maximum on a flat seat chair at the points 21, 22 and 23;

[0010] Figs. 8, 9, 10, 11, 12 and 13 show examples of use of the auxiliary chair (a) according to this invention, in which Fig. 8 is a side view showing the user being seated on the auxiliary chair (a) in the center thereof with his legs closed together; Fig. 9 is a side view showing the user being seated on the auxiliary chair (a) toward the front thereof with his legs closed together; Fig. 10 is a side view showing the user being seated on the auxiliary chair (a) toward the rear thereof with his legs closed together; Fig. 11 is a front view showing the user being seated on the auxiliary chair (a) in the center thereof with his legs closed together; Fig. 12 is a front view showing the user being seated on the auxiliary chair (a) in the center thereof with his legs spread out; and Fig. 13 is a side view showing the user being seated on the auxiliary chair (a) in the center thereof with his legs spread out;

[0011] Fig. 14 and Figs. 15 and 16 show a cushion and the auxiliary chair (a), respectively placed on a flat seat chair and the user being seated on the cushion and the auxiliary chair (a), respectively with his or her pelvises bent rearwardly, in which Fig. 14 is a side view showing the cushion placed on the flat seat chair and the user being seated with his pelvises rearwardly bent; Fig. 15 is a side view showing the auxiliary chair (a) being tilted rearwardly and the user being seated with his pelvises rearwardly bent; and Fig. 16 is a front view of Fig. 15;

[0012] Figs. 17 and 18 show a weight-reduced form of the auxiliary chair (a) according to the present invention, in which Fig. 17 is a cross-sectional view taken in the direction indicated by the arrows A-A in Fig. 3 and Fig. 18 is a cross-sectional view taken in the direction indicated by the arrows B-B in Fig. 3;

[0013] Figs. 19, 20 and 21 illustrate still another mode for carrying out the auxiliary chair of the present invention, in which Fig. 19 is a top plan view showing the auxiliary chair (b) being tilted forwardly to a maximum; Fig. 20 is a cross-sectional view taken in the direction indicated by the arrows C-C in Fig. 19 and Fig. 21 is a cross-sectional view taken in the direction indicated by the arrows D-D in Fig. 19; and

[0014] Figs. 22 and 23 show a weight-reduced form of the auxiliary chair (b) of the present invention, in which Fig. 22 is a cross-sectional view taken in the direction indicated by the arrows C-C in Fig. 19 and Fig. 23 is a cross-sectional view taken in the direction indicated by the arrows D-D in Fig. 19.

BEST MODES FOR CARRYING OUT THE INVENTION

[0015] The present invention will now be described in details with reference to the accompanying drawings.

[0016] Figs. 1, 2 and 3 illustrate one embodiment of carrying out the auxiliary chair according to the present invention, which is a one-piece auxiliary chair (a) comprising a seat formation part 1 on which a person sits and a seat formation support part 5 bonded to the seat formation part 1 for supporting it from below.

[0017] The seat formation part 1 may be formed of rubber, wood, steel, plastic, resin, corrugated cardboard and other materials comfortable in seating, moderately hard and having reversibility or restorability.

[0018] The seat face portion 6 is smoothly and concavely curved from the rear toward the front in order to enhance fitness feeling for the buttocks, to facilitate guiding the forward-bending of the pelvises, and to make it possible for the user to select the forward-bending angle of the pelvises depending on his or her seating position. The degree of the curvature of the seat face portion 6 may be varied as required since the forward-bending angle of the pelvises in the standing posture delicately varies depending on the age, individual difference and the race.

[0019] The recessed portion 7 is recessed in the form of a band extending from the front center of the seat face portion toward the rear center thereof in order to relieve the pressure on the genital organs and coccyx. The width and depth of the recessed portion 7 may be varied as required since the size of the genital organs and coccyx varies from person to person.

[0020] The front section of the seat face portion 6 is gently raised from the lateral sides thereof toward the recessed portion 7 to form raised portions 10, in order to retain the roots and their vicinities of the inner portions of the thighs to urge both legs to spread out to thereby prevent the upper body of the trunk from leaning excessively forwardly as well as to prevent the seated position from creeping. The size and height of the raised portions 10 may be varied as required.

[0021] The thigh's backside rests 11 formed in the vicinity of the foots of the raised portions 10 are fan-shaped inclined surfaces gently slanting in an oblique direction toward the front which are designed to facilitate guiding the forward-bending of the pelvises and to smoothly transfer the weight of the upper body of the trunk to the legs. The degree of the starting point of inclination, the angle of inclination and the extent of the thigh's backside rests 11 may be varied as required since the size of the buttocks, the spacing between the ischia, the excursion

of the hip joints, the size of the thighs, etc. vary from person to person.

[0022] The front edge 12 is moderately curved in order to relieve the pressure on the nerves and blood vessels passing through the thighs' backsides.

[0023] The front section 13, the rear section 14 and the side section 15 are smoothly inclined from the seat formation part 1 toward the bottom of the seat formation support part 5.

[0024] The seat formation support part 5 may be formed of rubber, wood, steel, plastic, resin, corrugated cardboard and other hard materials less deformable under the weight of the upper body of the trunk when seated.

[0025] The bottom curved portion 16 is moderately convexly curved in order to facilitate forward- and rearward-bending of the pelvises. It should be noted, however, that the bottom curved portion 16 is curved only in forward and rearward directions but not in transverse directions in order to make the weight of the upper body of the trunk exerted on the ischia and their vicinities approach to uniformity and to bring the heights of the left and right pelvises into uniformity. Consequently, the auxiliary chair (a) is capable of swinging or tumbling only in forward and rearward directions. The degree of curvature of the bottom curved portion 16 may be varied as required.

[0026] The front stop portion 17 lies forwardly on an extension of the bottom curved portion 16 and acts to prevent the auxiliary chair (a) and the upper body of the trunk from leaning forwardly excessively. The rear stop portion 18 lies rearwardly on an extension of the bottom curved portion 16 and acts to prevent the user from falling rearwardly. While the front stop portion 17 and the rear stop portion 18 are basically of a planar shape, they may be varied in shape as required depending upon the material or configuration of the seat formation part of used chair.

[0027] Figs. 4, 5 and 6 are side, front and perspective views of the auxiliary chair (a) drawn to assist in visual understanding of the present invention as viewed from the various angles.

[0028] From Fig. 4 it is seen that the seat face portion 6 is gently curved, the front section 13 is smoothly inclined from the seat face portion 6 toward the front stop portion 17, and that the rear section 14 is smoothly inclined from the seat face portion 6 toward the rear stop portion 18.

[0029] Seen from Fig. 5 are the thigh's backside rests 11 gently slanting an oblique direction toward the front, the location and the degree of projection of the raised portions 10 and the location and the breadth of the recessed portion 7.

[0030] Seen from Fig. 6 are the recessed portion 7 in the form of a band extending from the front center of the seat face portion of the auxiliary chair (a) toward the rear center thereof, and the depth of the recess is noted from the bottom 8 and the side walls 9 of the recessed portion.

[0031] Fig. 7 shows, from the side, the angles between tangent lines E, F and G which are tangent to the seat

face portion 6 of the auxiliary chair (a) at points 21, 22, and 23, respectively as apexes lying on the seat face portion 6 and the seat face portion 24 of a chair having a flat seat, when the auxiliary chair (a) is tilted forwardly to a maximum on the flat seat chair. The angles between X, Y and Z, respectively of the tangent lines E, F and G tangent to the seat face portion 6 of the auxiliary chair (a) at the points 21, 22, and 23 as apexes lying on the seat face portion 6 and the seat face portion 24 of the flat seat chair are such that $X < Y < Z$. Consequently, when a user with no impediments in the backbone and pelvises is seated on the auxiliary chair (a) tilted forwardly to a maximum, the forward-bending angle of the pelvises increases as the seating position is moved to the rear.

[0032] Figs. 8, 9, 10, 11, 12 and 13 illustrate examples of use of the auxiliary chair (a). The examples of use will be described below.

[0033] Preferably, a chair 25 on which the present invention is to be used includes a seat 26 having a seat area at least equal to that of the auxiliary chair (a) which is preferably planar without being inclined rearwardly, having a hardness allowing for swinging or tumbling of the bottom curved portion 16, and having a height such that the user 27 may sit on the auxiliary chair (a) on the seat with his both soles 28 positively resting on the ground.

[0034] The method of using the present invention comprises first placing the auxiliary chair (a) on the chair 25 with the front edge 12 of the auxiliary chair (a) oriented toward the front edge 29 of the seat 26 of the chair 25 on which the user is going to sit. However, it should be noted that the front edge 12 of the auxiliary chair (a) must not extend beyond the front edge 29 of the seat 26 of the chair 25 being used.

[0035] The user 27 sits slowly with his buttocks 30 resting on the center of the auxiliary chair (a), his legs 31 closed together, his both soles 28 securely touching the ground, and his pelvises 32 forwardly bent, as shown in Fig. 8. Fig. 11 shows this state in a front view. Here, if it is desired to mitigate the forward-bending of the pelvises, the user moves his buttocks 30 toward the front of the auxiliary chair (a) whereupon he bends his pelvises 33 forwardly as shown in Fig. 9. If it is desired to increase the forward-bending of the pelvises, the user moves his buttocks 30 toward the rear of the auxiliary chair (a) whereupon he bends his pelvises 34 forwardly as shown in Fig. 10. Once the seating position has been determined, the user spreads out his legs 31 with his soles 28 opening forwardly in an inverted V shape and is thus seated bracing both legs securely as shown in Fig. 12. From Fig. 12 it is seen that the roots and their vicinities 35 of the inner portions of the thighs are pressed up by the raised portions 10 and the pressure against the male genital organ 36 is relieved. Fig. 13 shows this state in a side view. In addition, the user is also able to sit on the auxiliary chair (a) while keeping his balance on the bottom curved portion 16.

[0036] Fig. 14 is a side view showing that the user 27

sitting on a cushion 37 placed on the flat seat chair 25 on which the present invention is to be used, with his legs 31 spreading out, his both soles 28 resting on the ground and his pelvises 38 rearwardly bent. Fig. 15 is a side view showing that the auxiliary chair (a) is placed on said flat seat chair 25 and that the user 27 sits astride the auxiliary chair (a) with his both soles 28 touching the ground and his pelvises 39 rearwardly bent. Fig. 16 shows this state in a front view. With reference to Figs. 14, 15 and 16, the differences therebetween will be described below.

[0037] When the user 27 is seated in a posture as shown in Fig. 14, his pelvises 38 will be rearwardly bent, whereupon his coccyx 40, sacrum 41 and backbone 42 will also be rearwardly bent. Consequently, the weight of the upper body of the trunk bears on the coccyx 40, ischia and their vicinities 43, the lower lumbar vertebrae 44 and intervertebral disks 45, and the thigh's backsides 46. As a result, if the user continues to have such posture for a long time or a long period of time, the burden on the lumbar region 47 and coccyx 40 will be aggravated, so that the user's own physiological bending of the back bone may possibly change gradually into rearward bending.

[0038] Next, when the user 27 is seated in a posture as shown in Fig. 15, his pelvises 39 will be rearwardly bent, whereupon the front section of the auxiliary chair (a) is lifted up and consequently the thighs 48 are also lifted up. In an attempt to keep his sitting posture, however, the user 27 will lean forwardly the upper body tending to fall rearwardly, whereupon the rearward-bending of the backbone 42 and the extension of the muscle of back 49 shown in Fig. 15 will be greatly aggravated as consequently will the contraction of the abdominal muscle 50 also be greatly aggravated. As a result, the user 27 may easily restore the posture as shown in Fig. 13 that is an anteverted posture which exerts a less burden on his abdominal muscle 50.

[0039] Figs. 17, 18, 19, 20, 21, 22 and 23 illustrate still other modes for carrying out the present invention.

[0040] The weight reduction of the auxiliary chair (a) is made possible by varying the thickness of the seat formation part 1 and hollowing out the interior of the auxiliary chair (a). The reference numeral 19 in Fig. 17 shows the hollow interior of the auxiliary chair (a). However, as a result of the hollowing out, the seat formation part 2 may possibly be deformed due to the weight of the upper body of the user's 27 trunk, depending on the material of which the seat formation part 2 is made. For this reason, support bars 20 to support the seat formation part 2 are inserted in the hollow interior 19. The support bars 20 may be made of the same material as the seat formation support part 5 and be joined with the seat formation part 2 and the support part 5 in the hollow interior 19. The shape and the number of the support bars 20 may be varied as required.

[0041] Figs. 19, 20 and 21 illustrate yet another embodiment for carrying out the auxiliary chair according to the present invention.

[0042] This auxiliary chair (b) is intended to be used mainly by women who suffer less pressure on their genital organs from the seats. The raised portion 10 on the front section of the auxiliary chair (b) is gently raised from the lateral sides toward the center of the front section of the auxiliary chair (b). The description on the rest of the best mode for carrying out the invention of the auxiliary chair (b) is the same as that already made hereinbefore on the best mode for carrying out the present invention excluding the description of the recessed portion.

[0043] Figs. 22 and 23 are cross-sectional views of a weight-saved auxiliary chair 1b. The weight reduction of the auxiliary chair (b) is achieved in a similar manner to the manner of weight reduction described hereinabove in the passage on page 11 lines 1-12 in connection with the auxiliary chair (a).

[0044] The auxiliary chair of the present invention is provided over its entire surface with nonslipping treatment in order to prevent the seated position from creeping when the user is seated in his or her selected position as well as to prevent the orientation of the auxiliary chair as placed on the chair from becoming displaced and further to enhance the function of the front stop portion 17 and the rear stop portion 18. In addition, the auxiliary chair has all its corners chamfered in order to enhance the safety. Therefore, the auxiliary chair becomes rounded shape as a whole. Further, it is a matter of course that the size of the auxiliary chair of the present invention may be varied without departing from the essential characteristics thereof as individual persons differ in their physiques from person to person. Moreover, this auxiliary chair is applicable as a seat for various types of chairs.

Claims

1. An auxiliary chair for improving the posture for use with a chair, said auxiliary chair having a size and thickness such as to allow a person to sit with his or her buttocks resting on the auxiliary chair, and comprising a top part and a bottom part, **characterized in that** the top part has a concavely curved seat face portion in which a recessed portion is formed, said recessed portion being recessed in the form of a band extending from the front center of the seat face portion toward the rear center thereof, a raised portions being formed in the front section of said seat face portion, said raised portions being gently raised from the lateral sides of the seat face portion toward said recessed portion, in the vicinity of the foots of said raised portions there being formed fan-shaped inclined surfaces gently slanting in an oblique direction toward the front, said bottom part having a convexly curved portion in the center thereof and stop portions formed forwardly and rearwardly on extensions of the convexly curved portion.
2. The auxiliary chair according to Claim 1 which is de-

void of said recessed portion.

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Fig.1

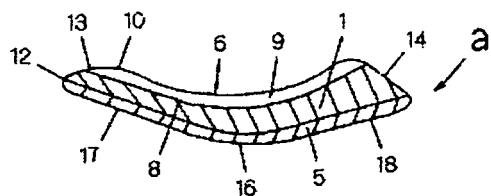


Fig.2

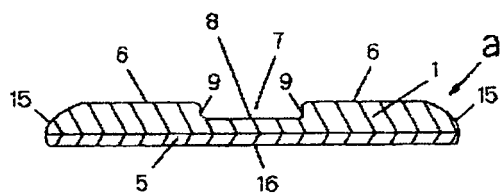


Fig.3

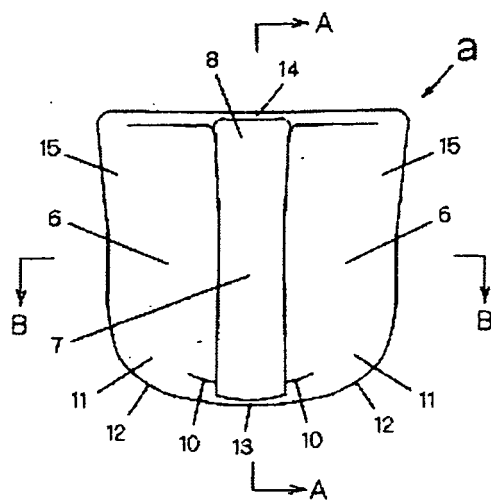


Fig.4

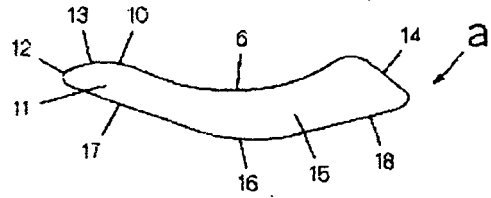


Fig.5

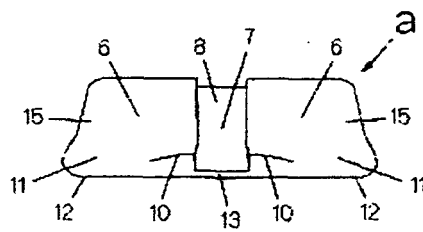


Fig.6

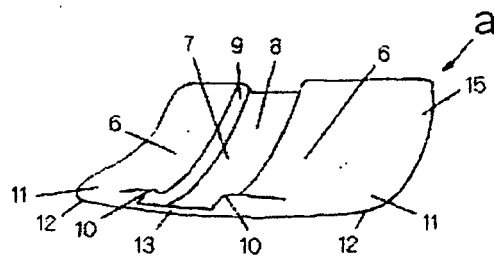


Fig.7

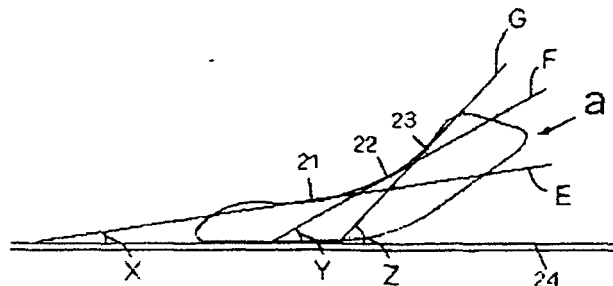


Fig.8

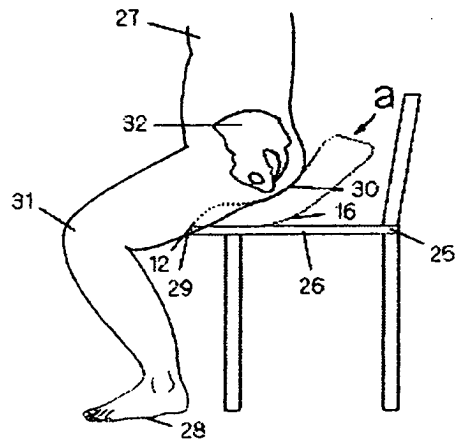


Fig.11

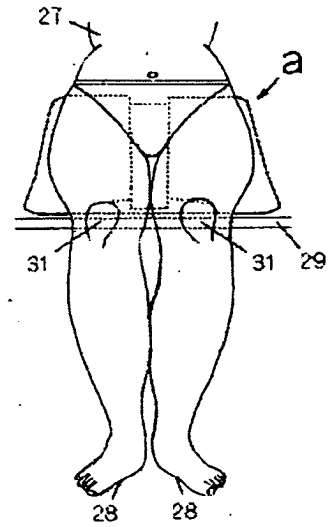


Fig.9

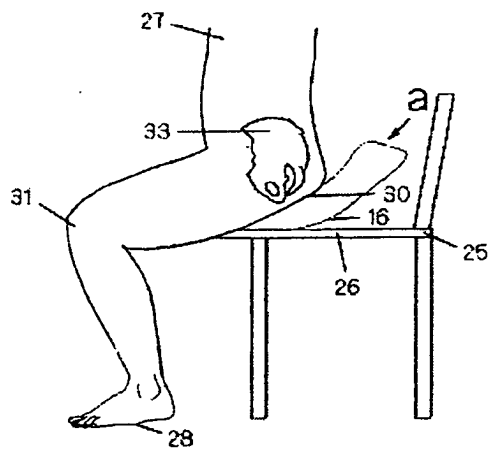


Fig.12

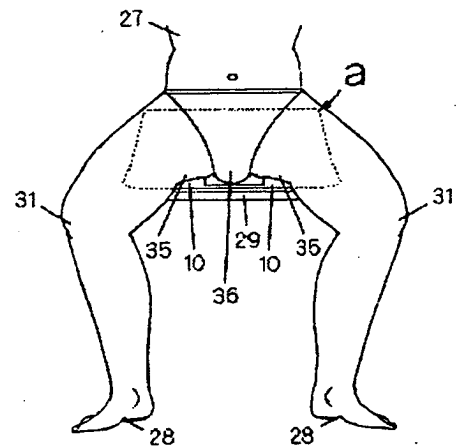


Fig.10

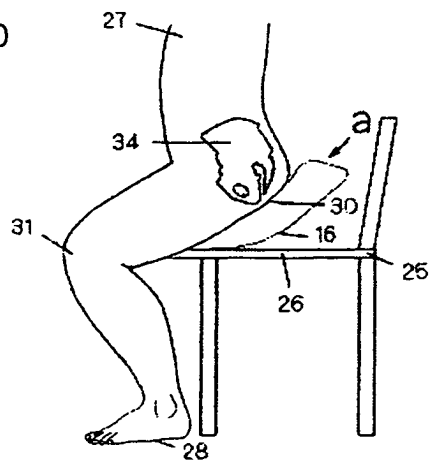


Fig.13

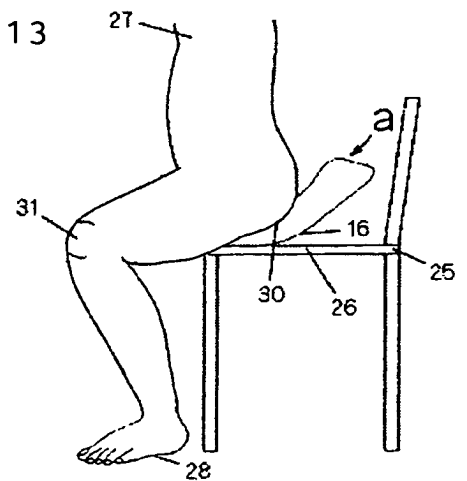


Fig.14

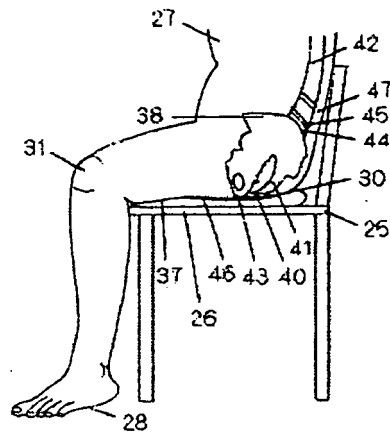


Fig.15

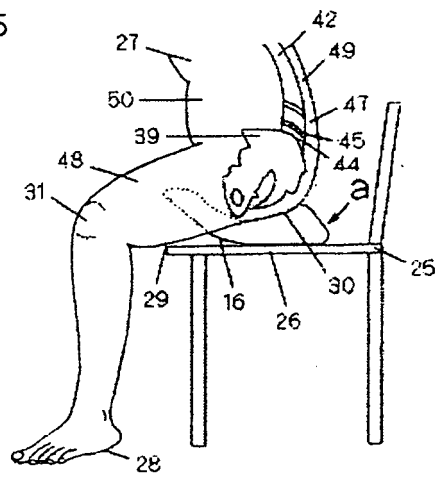


Fig.16

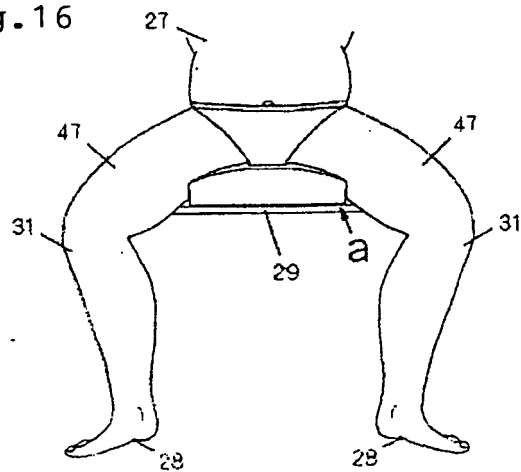


Fig.17

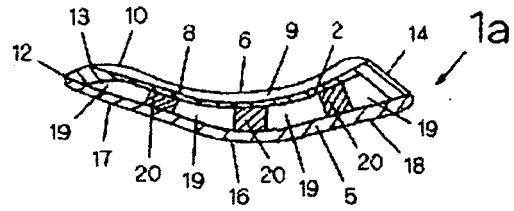


Fig.18

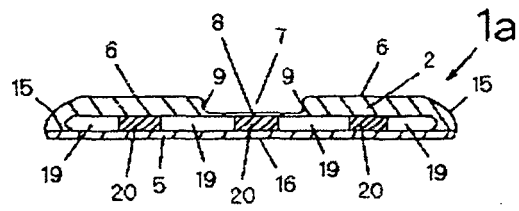


Fig.19

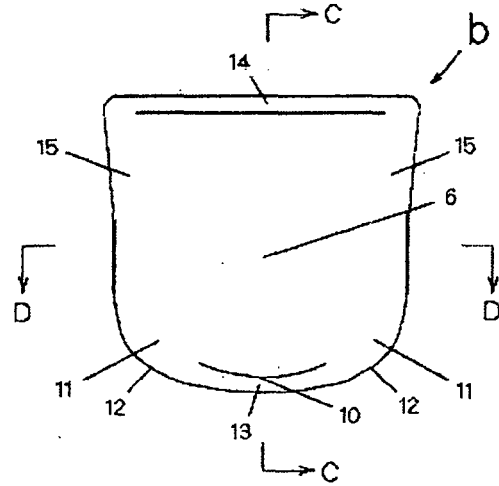


Fig.20

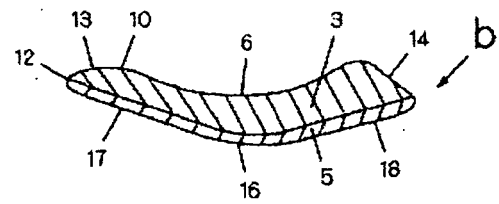


Fig.21

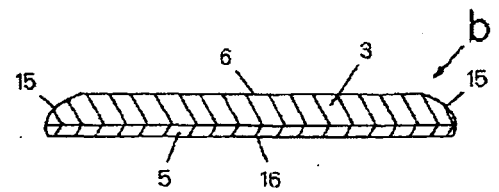


Fig.22

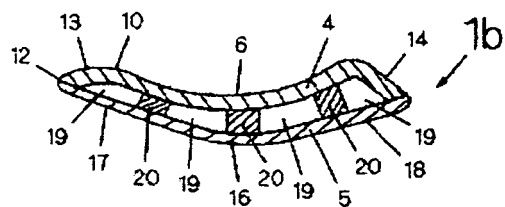
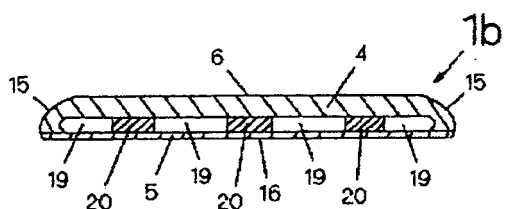


Fig.23



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2007/071458

A. CLASSIFICATION OF SUBJECT MATTER

A47C7/62 (2006.01) i, A47C27/00 (2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A47C7/62, A47C27/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2007
Kokai Jitsuyo Shinan Koho	1971-2007	Toroku Jitsuyo Shinan Koho	1994-2007

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 11-239526 A (Kiyoe HIROSE), 07 September, 1999 (07.09.99), Full text; all drawings (Family: none)	1, 2
A	JP 2001-128800 A (Akio SAKURAI), 15 May, 2001 (15.05.01), Full text; all drawings (Family: none)	1, 2
A	JP 3123499 U (Yugen Kaisha Asahi Kairo Purakutikku), 20 July, 2006 (20.07.06), Full text; all drawings (Family: none)	1, 2

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"&" document member of the same patent family

Date of the actual completion of the international search
13 December, 2007 (13.12.07)Date of mailing of the international search report
25 December, 2007 (25.12.07)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.