(19) Europäisches Patentamt
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(11) **EP 2 735 248 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
28.05.2014 Bulletin 2014/22

(51) Int Cl.:
A47C 7/02 *(2006.01)*

(21) Application number: **12462015.4**

(22) Date of filing: **23.11.2012**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

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Remarks:
Amended claims in accordance with Rule 137(2) EPC.

(54) **Chair with two stable seating positions**

(57) Chair with two stable seating positions, especially for office or working place applications, comprising a seat with a conventional seat portion, a chair support that has a vertical central support line, and a position adjusting assembly placed between the chair support and the seat to enable adjustment of the position of the seat, wherein the seat comprises a saddle shaped seat portion attached and fitted to a front end of the conventional seat portion, and the position adjusting assembly (30) can be used to place the seat in a first stable conventional sitting position, wherein a central portion of the conventional seat portion is substantially horizontal and the load is predominantly held by the conventional sitting portion, and the vertical central support line of the chair support substantially falls in the extension of a central weight line (32) of a subject when sitting on the chair (1), and in a second stable position, the seat is inclined in forward direction, the load is predominantly held by the saddle shaped seat portion and the chair support is shifted in forward direction relative to the seat so that the vertical central support line of the chair support falls substantially again in the extension of the weight line of the subject.

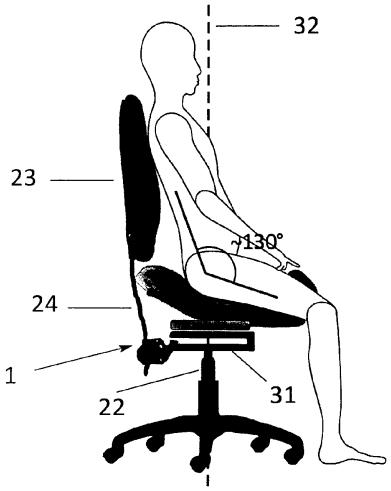

Fig. 4

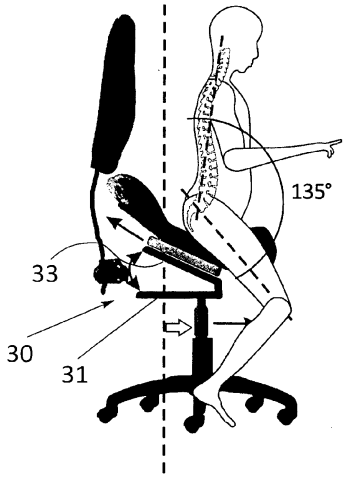

Fig. 5

EP 2 735 248 A1

Description

[0001] The invention relates to a chair with two stable seating positions, especially for office or working place applications, wherein the first position provides a conventional seat and the second position provides a seat similar when a rider sits on a saddle.

[0002] It has long been discovered that the sitting in the office or before a keyboard on conventional chairs through an extended period of time is tiring and unhealthy for the subjects. This is especially true when the seat of the chair has a substantially horizontal curved or flat seating surface, a backrest and a support which can be adjustable in height, tilting angle and it may also provide a certain degree of telescopic suspension. Such chairs generally have supports with a central column and several leg branches closing substantially the same angle with each other, wherein at the end region of each branch there is a rolling member (a sphere or a wheel) that enables rolling motion. For providing ergonomically improved seat comfort numerous solutions have been designed which predominantly use a sophisticated adjustable support systems, various seat forms and adjustable backrests. Some of them have proven quite good, but after extensive use, the user's comfort decreases, and long term use might slowly cause different health problems. It has also been suggested that instead of conventional sitting, a position similar to kneeling can be healthier, wherein there is one or more support surface that are downwardly inclined by about 15° to 30° so that the spinal column is forced to take a substantially vertical position, where there is no need to use any backrest. It is also known that horse riding is healthy for the human body and sitting in a saddle is one of the healthiest positions. Chairs or sits that provide such a healthy position are infrequently used, as they do not fit in normal office environment or most people prefer sitting in a conventional way.

[0003] There is a need for providing a freedom to the subjects to select whether he or she wishes to seat in a conventional way or in a healthier position whenever the need arises, i.e. to have a chair which is adjustable between two different sitting positions.

[0004] A chair that has a seat which comprises a substantially flat seating surface that continues after a short transitional section in a saddle-like front section with a high central portion that has an arced cross-sectional profile has been published in the international publication W02011/055948. Such a chair has a seat-support system by which (apart from the usual possibility of height adjustment) the plane of the seat can be turned into a downwardly inclined position, wherein the subject is basically supported against slipping down by the central curved profile of the saddle-shaped portion of the seat. Here the support is provided by a vertical column arranged in the centre of the leg-branches, so that the weight of the subject is evenly distributed among the leg branches. The angle of inclination of the seat can be adjusted by the adjustment of the angle of inclination of a pivotal shaft attached to the central column.

[0005] The combined depth of the conventional and saddle-like portions of the seat is the same or at most slightly higher than the depth of the seats of similar office chairs, whereby both the conventional seat portion and the saddle-like portion are less deep than the seat of a usual chair. From this it follows, that this chair can hardly be used to provide a comfortable feeling when it is adjusted so that the conventional but short seat portion is adjusted in horizontal position, and the chair is mainly intended for seating in an inclined position when the subject is supported both by the conventional and saddle-like portions. The central support column is arranged in the vertical extension of the centre of weight line of the sitting subject, whereby the stability of the chair is not affected. If, however, the seat is adjusted by the rotation of the pivoted support member so that the conventional seat portion takes a horizontal, i.e. non-inclined or less inclined position, then the centre of weight of the subject is shifted backwards relative to the vertical axis of the support column, whereby the stability of the chair is decreased. In such a design the offset distance between the centre of weight line of the subject and the central axis of the support column increases if the depth of the two portions of the seat are increased, and the stability of the support sharply decreases with the increase of the offset distance.

[0006] The object of the invention is to provide an improved chair, which has two stable sitting positions, so that in the first position the subject sits and feels as if he/she sat in a conventional office chair and uses the backrest as a back-support, and in the second sitting position the subject is held by the downwardly inclined saddle-shaped seat portion and takes a healthy sitting position with the spinal column being substantially vertical, and there is no need for supporting the back of the subject by any backrest.

[0007] According to the invention a chair has been provided with two stable seating positions, especially for office or working place applications, that comprises a seat that has a conventional seat portion, a chair support that has a (virtual) vertical central support line, and a position adjusting assembly placed between the chair support and the seat to enable adjustment of the position of the seat, and according to the invention the seat comprises a saddle shaped seat portion attached and fitted to a front end of the conventional seat portion, and the position adjusting assembly can be used to place the seat in a first stable conventional sitting position, wherein a central portion of said conventional seat portion is substantially horizontal and the load is predominantly held by the conventional sitting portion, and the vertical central support line of the chair support substantially falls in the extension of a central weight line of a subject when sitting on the chair, and in a second stable position, the seat is inclined in forward direction, the load is predominantly held by the saddle shaped seat portion and the chair support is

shifted in forward direction relative to the seat so that the vertical central support line of the chair support falls substantially again in the extension of the weight line of the subject.

[0008] In a preferable embodiment the angle of inclination of the seat in the second stable position is substantially between 15° and 30°.

[0009] It is furthermore preferred that the chair support comprises a central support column and a position adjusting assembly connected to said support column (22), and the connection between the central support column (22) and the chair support (20) is an adjustable sliding connection, where the sliding direction is substantially a back-to-forward showing direction.

[0010] In a preferable embodiment the support column has a substantially planar lower part, and an upper part connected to the seat, which parts are connected together by a pivotal connection arranged at the front edges thereof to enable the adjustment of the inclination of the seat.

[0011] With the suggested design a novel chair has been provided which has two stable sitting positions that can be freely adjusted.

[0012] The invention will now be described in connection with preferable embodiments therefore, wherein reference will be made to the accompanying drawings. In the drawing:

Figs. 1a, 1b and 1c. show schematically an embodiment of the chair according to the invention;
Figs. 2a, 2b and 2c show different perspective views of a curved wooden seat of the present invention;
Figs. 3a, 3b and 3c show different perspective views of a cushioned seat wherein parts of the upper portion of the support assembly has also been shown;
Fig. 4 shows schematically the chair according to the invention in a first conventional position showing also the silhouette of a sitting subject; and
Fig. 5 is similar to Fig. 4 but it shows the chair in a second saddle-like healthy position.

[0013] In Fig. 1a the top view of the seat 10 of a chair 1 is shown which consists of two parts, a conventional seat portion 11 and a saddle shaped seat portion 12. Fig. 1b shows the same seat 10 from a different direction as placed on a conventional office chair support 20 that has a plurality of leg branches 21 each having a roller on their ends and a central support column 22 to which the seat 10 is attached. Fig. 1c shows the same seat 10 on the chair support 20 in side view. The saddle shaped seat portion 12 is illustrated in Fig. 1 in black so that the viewer can see that this portion is different both in shape and in function.

[0014] Figs. 2a, 2b and 2c show a wooden design of the seat 10 and here it can be seen that the seat 10 has a uniform curved surface with a smooth transition between the conventional seat portion 11 and the saddle shaped seat portion 12, the two portions 11 and 12 are made of a single bent wooden plate. Finally, Figs. 3a, 3b and 3c show substantially the same seat 10 as shown in Fig. 2, but here the wooden skeleton of the seat 10 is cushioned to provide a higher degree of seat comfort. In Fig. 3 a position adjusting assembly 30 is shown, which is placed between the top of the central support column 22 and the bottom of the seat 10, whereby the position adjustment described in connection with Figs. 4 and 5 can be carried out. The essence is, however, the same in all of the embodiments illustrated in Figs. 1 to 3. The conventional seat portion 11 has a substantially horizontal planar or slightly curved central part 13 which can have an upwardly bent rear part 14 that provides a support for the lower back of the subject. The size (more particularly the width and depth) of this seat portion 11 is sufficiently large to provide the same comfort as a conventional office chair. The saddle shaped seat portion 12 has a central ridge or crest 15 that has a slightly and upwardly curved upper central contour line 16 and the two sides around the central line define a curved surface which is convex when looked from above, wherein the profile of the surface follows a substantially parabolic line which deepen along the ridge 15 with increasing forward position. A specialty of the saddle shaped from lies in that the profile has an inflexion when the previously convex shape becomes gradually convex. While it is rather difficult to exactly describe a shape with words, the drawings of Figs. 1 to 3 illustrate how the seat 10 looks like. It is important to note that the upward inclination of the ridge is located so that this part will be between the thighs of the subject so that its presence cannot affect sitting comfort. Furthermore, the slope and shape of the sides of the saddle shaped seat portion 12 conform to the body contours of a subject sitting in usual position on the conventional seat portion 11.

[0015] Fig. 4 shows the chair 1 in the first conventional position, wherein the silhouette of a subject is shown indicating also the positioning of his vertebral column. The chair has a backrest 23 with a support sheet 24 fixed to a lower part 31 of the position adjusting assembly 30. Fig. 4 also shows that the angle between the upper leg part and the vertebral column of the subject is about 130°, whereas the central weight line 32 of the subject is substantially vertical and falls in the extension of the axis of the support column 22. The drawing does not show, but the adjusting assembly 30 is provided with adjusting means whereby the height of the seat 10 can be adjusted according to the needs of the user.

[0016] Fig. 5 shows the chair with its seat adjusted to the second stable sitting position. This figure is arranged intentionally under Fig. 4 so that the rear and front limiting planes of the seat 10 remain in the same position as in Fig. 4. In the embodiment shown in Figs. 4 and 5 the support assembly 30 has a substantially horizontal lower part 31 and an upper part 33 to which the seat 10 is attached, and the lower and upper parts 31 and 33 are pivotally connected to each other, and the plane of the upper part 33 can be angularly displaced (tilted) with re-

spect to the lower part 31. The angular position can be changed and fixed by means of handle means not shown. In Fig. 5 the upper part 33 is inclined by about 20 to 30° forward with respect to the horizontal lower part 31, and the support column 22 is moved forward along a path tooled in the lower plate 31 so that the central axis of the support column will be again in the extension of the weight line of the subject, now taking a quite different, forwardly shifted position. In this second position the backrest 23 and most of the conventional seat part 11 have no role in holding the weight of the subject, as the subject is held predominantly by the saddle shaped second seat portion 12. Here the ridge 15 and the curved side surfaces thereof care for the comfortable support of the body, where the angle between the limbs and the vertebral column slightly increases to reach around 135°. The difference between the direction of the vertebral column in the first and second positions can also be observed in Figs. 4 and 5. In Fig. 4 the vertebral column is slightly inclined in backward direction, and a part of the weight is held by the backrest, the major part of the weight is held by the conventional seat portion 11, while in the riding position of Fig. 5 the vertebral column is either vertical or slightly inclined in forward direction, there is no need of any back rest or back support, and the body takes a healthy and comfortable position. By sliding the support column 22 in forward direction relative to the seat 10 and placing it under the new weight line of the subject, the stability of the chair has been retained, therefore the adjustment between the first and the second sitting positions include not only the tilting of the seat 10 but also the sliding of its support in forward direction, i.e. offset from the geometric centre of the seat 10, because in the second position the weight is held predominantly by the saddle shaped seat portion 12, and in this way the support column 22 is moved under the weight line of the subject when taking the second riding position.

[0017] The chair 1 according to the invention provides a healthy solution as it combines the properties of a conventional office chair and of a specially designed healthy seat keeping the body in optimum position, and the user has the freedom of easily changing between these two positions. At the same time the sitting on the chair 1 is comfortable in both positions.

[0018] The fact that the chair has two stable sitting positions does not exclude its use in any intermediate position, wherein the weight is carried in different extent by both of the seating portions.

Claims

1. Chair with two stable seating positions, especially for office or working place applications, comprising a seat (10) having a conventional seat portion (11), a chair support (20) that has a vertical central support line, and a position adjusting assembly (30) placed between the chair support (20) and the seat (10) to enable adjustment of the position of the seat (10), **characterized in that** the seat (10) comprises a saddle shaped seat portion (12) attached and fitted to a front end of the conventional seat portion (11), and the position adjusting assembly (30) can be used to place the seat in a first stable conventional sitting position, wherein a central portion (13) of said conventional seat portion (11) is substantially horizontal and the load is predominantly held by the conventional sitting portion, and the vertical central support line of the chair support (20) substantially falls in the extension of a central weight line (32) of a subject when sitting on the chair (1), and in a second stable position, the seat (10) is inclined in forward direction, the load is predominantly held by the saddle shaped seat portion (12) and the chair support (20) is shifted in forward direction relative to the seat (10) so that the vertical central support line of the chair support (20) falls substantially again in the extension of the weight line of the subject.

2. The chair as claimed in claim 1, **wherein** the angle of inclination of the seat (10) in the second stable position is substantially between 15° and 30°.

3. The chair as claimed in either of claims 1 or 2, **wherein** said chair support (20) comprises a central support column (22) and a position adjusting assembly (30) connected to said support column (22), and the connection between the central support column (22) and the chair support (20) is an adjustable sliding connection, and the sliding direction is substantial back-to-forward showing direction.

4. The chair as claimed in either of claims 1 to 3, **wherein** the support column (22) has a substantially planar lower part (31), and an upper part (33) connected to said seat (10), which parts (31, 33) are connected together by a pivotal connection arranged at the front edges thereof.

Amended claims in accordance with Rule 137(2) EPC.

1. Chair with two stable seating positions, especially for office or working place applications, comprising a seat (10) having a conventional seat portion (11), a chair support (20) that has a vertical central support line, and a position adjusting assembly (30) placed between the chair support (20) and the seat (10) to enable adjustment of the position of the seat (10), **characterized in that** the seat (10) comprises a saddle shaped seat portion (12) attached and fitted to a front end of the conventional seat portion (11) and the saddle shaped seat portion (12) has a central ridge (15) with an upwardly curved upper central contour line (16) and two sides around the central ridge

(15) that define a curved surface which is convex when looked from above and the curved sides have inflexion when the previously convex shape becomes gradually concave, and the position adjusting assembly (30) can be used to place the seat in a first stable conventional sitting position, wherein a central portion (13) of said conventional seat portion (11) is substantially horizontal and the load is predominantly held by the conventional seat portion (11), and the vertical central support line of the chair support (20) substantially falls in the extension of a central weight line (32) of a subject when sitting on the chair (1); and in a second stable position, the seat (10) is inclined in forward direction, the load is predominantly held by the saddle shaped seat portion (12) and the chair support (20) is shifted in forward direction relative to the seat (10) so that the vertical central support line of the chair support (20) falls substantially again in the extension of the weight line of the subject.

2. The chair as claimed in claim 1, **wherein** the angle of inclination of the seat (10) in the second stable position is substantially between 15° and 30°.

3. The chair as claimed in either of claims 1 or 2, **wherein** said chair support (20) comprises a central support column (22) and a position adjusting assembly (30) connected to said support column (22), and the connection between the central support column (22) and the chair support (20) is an adjustable sliding connection, and the sliding direction is substantial back-to-forward showing direction.

4. The chair as claimed in either of claims 1 to 3, **wherein** the support column (22) has a substantially planar lower part (31), and an upper part (33) connected to said seat (10), which parts (31, 33) are connected together by a pivotal connection arranged at the front edges thereof.

5. The chair as claimed in claim 4, comprising a backrest (23) with a support sheet (24) fixed to said lower part (31) of the support column (22), and in the second stable position said backrest (23) and most of the conventional seat portion (11) have no role in holding the weight of the subject.

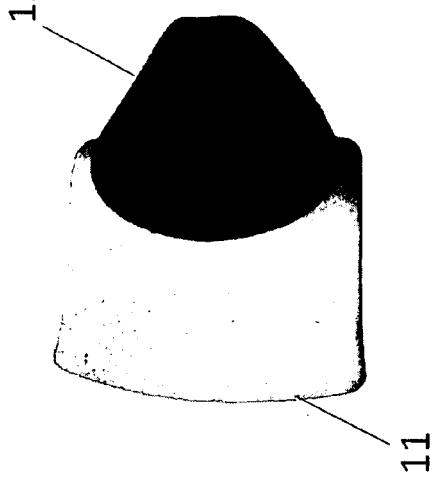

Fig. 1a

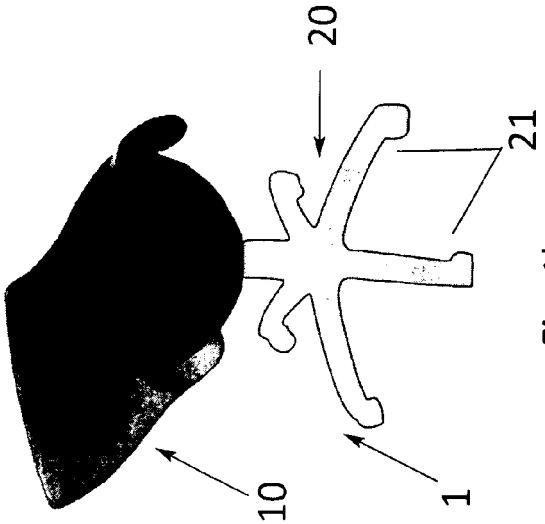

Fig. 1b

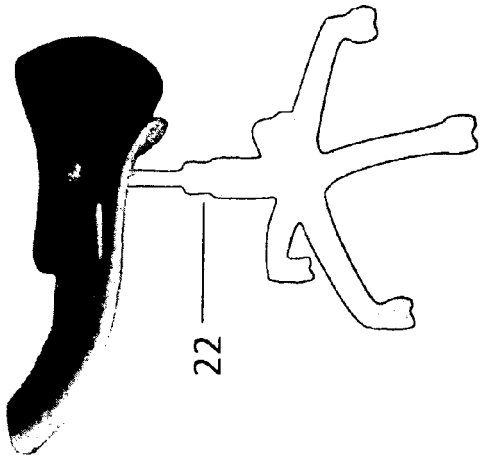

Fig. 1c

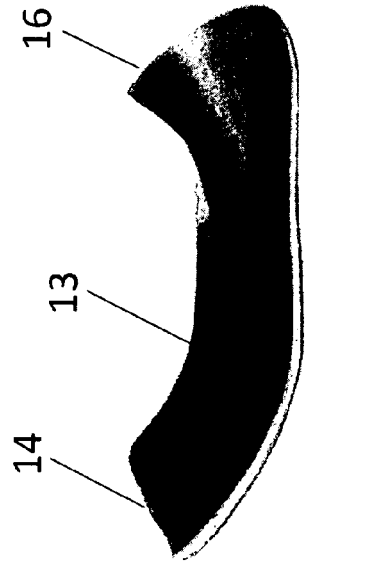

Fig. 2a

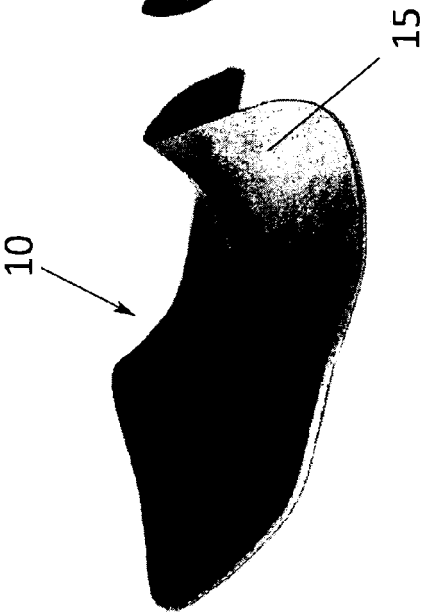

Fig. 2b

Fig. 2c

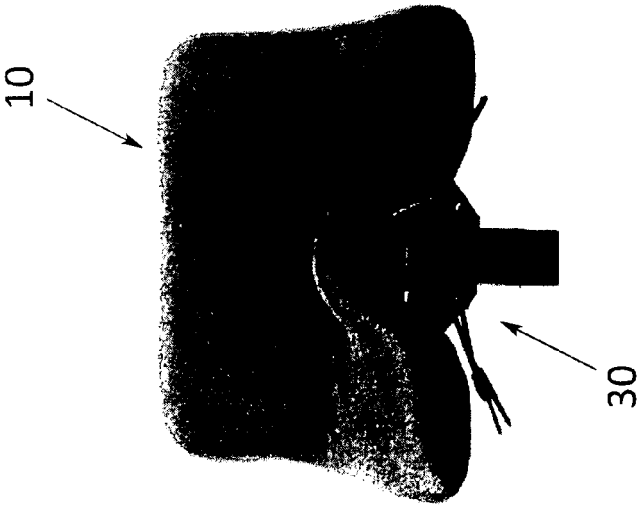

Fig. 3a

Fig. 3b

Fig. 3c

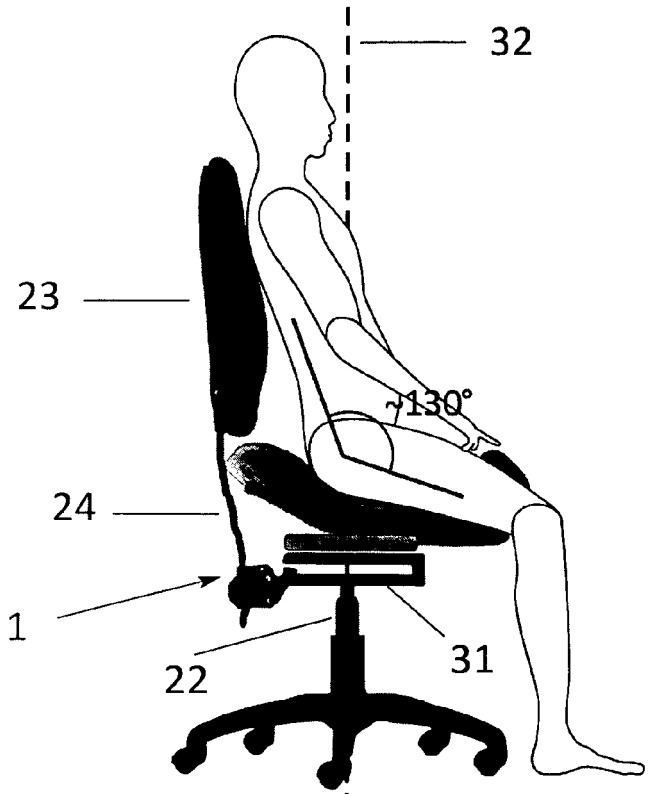

Fig. 4

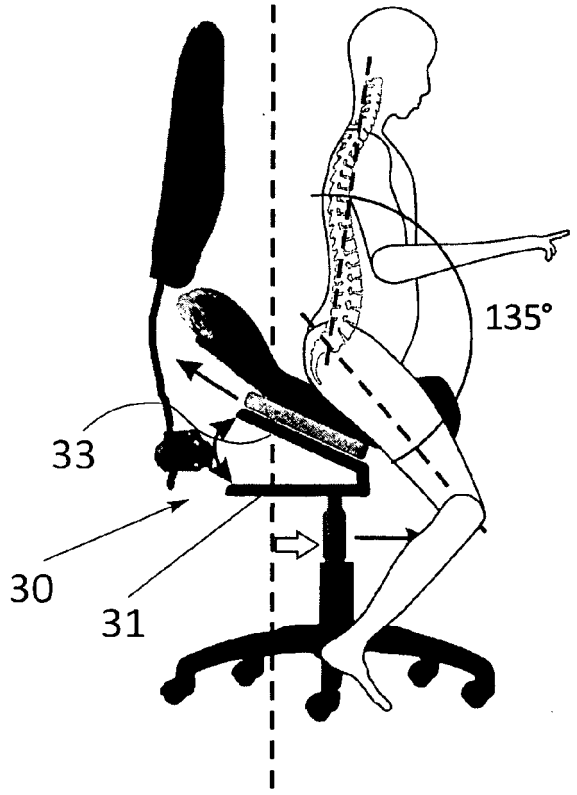

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 12 46 2015

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 42 12 573 A1 (UREDAT; RITTER) 21 October 1993 (1993-10-21) * column 4, line 35 - column 5, line 24; figures 1-3,8 *	1-4	INV. A47C7/02
A	WO 2011/058430 A2 (PROXOWELL GMBH; INST PRAEVENTION UND NACHSORGE GMBH; MRS SPORTY GMBH) 19 May 2011 (2011-05-19) * claims 1,9; figures *	1	
A	DE 39 33 815 A1 (MENZEL) 18 April 1991 (1991-04-18) * claims 1,11,12; figures 1,2 *	1	
A	WO 03/028510 A1 (STRONA) 10 April 2003 (2003-04-10) * abstract; figures *	1	

TECHNICAL FIELDS SEARCHED (IPC)

A47C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	11 April 2013	Kis, Pál

CATEGORY OF CITED DOCUMENTS

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11-04-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 4212573 A1	21-10-1993	NONE	
WO 2011058430 A2	19-05-2011	DE 102009044531 A1	21-07-2011
		WO 2011058430 A2	19-05-2011
DE 3933815 A1	18-04-1991	NONE	
WO 03028510 A1	10-04-2003	AT 287653 T	15-02-2005
		AU 2002342757 A1	14-04-2003
		CN 1561173 A	05-01-2005
		DE 60202789 D1	03-03-2005
		DE 60202789 T2	09-02-2006
		EP 1434506 A1	07-07-2004
		HK 1069750 A1	16-12-2005
		IT MI20012036 A1	01-04-2003
		JP 2005503879 A	10-02-2005
		US 2005067869 A1	31-03-2005
		WO 03028510 A1	10-04-2003

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Patent documents cited in the description

- WO 2011055948 A **[0004]**