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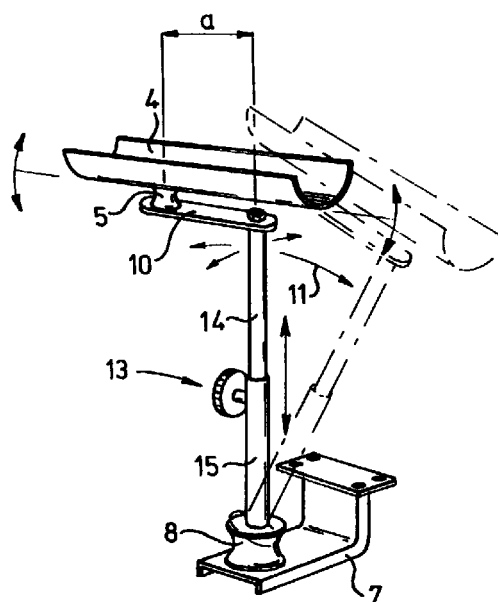
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(54) **Armrest and chair provided with an armrest of this nature**

(57) Armrest for a chair or the like. This armrest can move with the arm of the user. For this purpose, it is composed of various parts which are pivotably connected to one another. The pivots are formed by rubber-elastic hinges which give the armrest a preferred position. The design is such that, when the arm support moves forwards for the user it also moves upwards over part of this movement. Armrest and chair provided with an armrest of this nature.

fig - 2



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Description

[0001] The present invention relates to an armrest for a chair or the like, comprising, in the position of use, a substantially horizontal arm-supporting part, a substantially vertical bearing part which is pivotally connected thereto and is pivotally connected to attachment means for attaching it to the seat, frame or the like of the chair, each of these pivoting connections comprising an elastic/resilient connection which give a preferred position of the parts which pivot with respect to one another

[0002] An armrest of this nature is known from WO 94/23616, which describes a structure in which the arm-supporting part is connected to the vertical bearing part through a horizontal pivot pin. For its part, the vertical bearing part is accommodated rotatably inside a sleeve which likewise extends vertically and is attached to the frame of the chair. A rotational position in the horizontal plane is established by means of spring.

[0003] US-4,069,995-A describes a structure in which the arm-supporting part is likewise connected to a bearing part via a hinge with a horizontal hinge pin. This bearing part is connected to the remaining part of the structure with the aid of three column spring.

[0004] US-4,822,103-A describes an armrest which, with the aid of an elastic connection, is connected to a bearing part which is able to execute a vertical movement.

[0005] The object of the present application is to provide an armrest which can be used in offices and the like. In these environments, the requirements are different altogether. In most offices nowadays, use is made of computers which are partially controlled via keyboards or mice. It has been found that some people experience problems with the arm muscles and/or tendons when using such keyboards and/or mice for prolonged periods. In addition, problems are encountered in the neck, neck-shoulder line and shoulders and arms, due to excessive loads being imposed on the muscles and tendons. These problems involve not only complaints which are caused by the use of mice, but also complaints which are found in any other sedentary occupation, such as those observed in lorry drivers and the like. The object of the present invention is to provide an armrest which provides ergonomic support for such people, but also for other users of chairs at other locations.

[0006] This aim is realised with an armrest as described above, in that said pivoting connections each comprise an all-side pivot connection. With the construction according to the present invention, complete freedom of movement is in principle possible. This contrasts with constructions which are known in the prior art. Moreover, this construction is of comparatively simple design. Moreover, the load on the shoulder of the user is relieved. In this way it is possible, in particular, to optimize the way in which the user's hand moves mice, and operation can continue for a longer time without undesirable phenomena occurring.

[0007] The various parts of the armrest can be returned to their original positions using any spring structure which is known in the prior art. However, it is preferable to use a rubber elastic hinge for this purpose. The properties of a spring of this nature are well suited to the nature of the human arm and shoulder. Moreover, the use of this type of spring avoids the formation of a very discrete middle position, a phenomenon which is observed if coil springs with windings resting on top of one another are used. A very stable middle position of this nature is undesirable for use. Moreover, the spring characteristic of the hinges has proven particularly undesirable.

[0008] Rubber-elastic hinges of this nature may comprise any structure known in the prior art. According to a particularly simple design, they comprise two base members which are at a distance from one another and between which rubber material is arranged (vulcanized).

[0009] According to an advantageous embodiment in the fitted position on a chair or the like, these connections are arranged at a distance from one another with respect to a vertical line. This means that the structure is designed in such a manner that, starting from the at rest position of the armrest, when the arm-supporting part moves forwards, as seen in the direction of the user, is also move slightly upwards. This movement path corresponds to the natural movement path of the arm when it is moving forwards. The movement of the arm is therefore fully supported but on the other hand, is not impeded. The structure according to the invention fully relieves the load on the neck, shoulder and arm muscles. It has been found that this further relieves the load on the user's muscles. The jointed action between hand, lower arm, upper arm and shoulder is combined in a particularly expedient manner with the pivoting effect of the armrest obtained in this way. A movement path of the arm-supporting part of this nature can be obtained in any manner which is known in the prior art. According to an advantageous embodiment of the invention, however, the attachment point of the arm-supporting part on the bearing part is arranged at a distance from the bearing part. This can be achieved, for example, with the aid of a spacer piece or auxiliary rod.

[0010] It will be understood that the various parts of the armrest according to the present invention may be provided with adjustment mechanisms in order to provide an optimum starting position for different users.

[0011] It is possible to arrange the armrest in question on one or both sides of a chair or the like.

[0012] The invention also relates to a chair provided with the armrest described above. A chair of this nature may be an office chair which is used when working on a computer. However, any other chair which is possible in the prior art may be covered by the scope of the invention. Examples which may be mentioned are a seat in a lorry cab, chairs in ergonomic workplaces, seats in cranes, fork-lift trucks, etc.

[0013] The invention will be explained in more detail below with reference to an exemplary embodiment illustrated in the drawing, in which:

Fig. 1 shows a perspective view of the armrest according to the invention arranged on a chair; and Fig. 2 shows a more detailed view of the armrest according to the invention in the at-rest position (solid lines) and a displaced position (dashed lines).

[0014] In Figs. 1 and 2, the armrest according to the invention is denoted overall by 1. It is attached to a chair 2 which is positioned in front of a desk 3 at which the user (not shown) is to work. Armrest 1 comprises an arm support 4. The latter is attached, via a rubber-elastic coupling 5, to an auxiliary rod 10 which is fixedly attached to bearing arm 6. Bearing arm 6 is again connected via a rubber-elastic coupling 8 to attachment bar 7 which is attached in any manner, not shown, to leg 9 of chair 2. It will be understood that this attachment bar extends all the way to the other side of the chair, where a corresponding armrest 1 may be arranged. It will be understood that any other way of attaching the armrest 1 to the chair is possible.

[0015] Fig. 2 shows details of the armrest according to the invention. It is provided with an adjustment mechanism 13, by means of which the top part 14 and bottom part 15, which are arranged slidably with respect to one another, of bearing arm 6 can be fixed in order to provide optimum adjustment to the desired height. Naturally, an adjustment mechanism of this nature may also be arranged at other locations, such as in the auxiliary rod 10.

[0016] It can be seen from Fig. 2 that the distance between the attachment point of the auxiliary rod 10 on part 14 of bearing arm 6 and the rubber-elastic coupling 5 is indicated by a. This distance may be between 2 and 20 cm.

[0017] In the design shown here, the arm support 4 is designed as a channel-shaped member. However, it will be understood that any other embodiment is also conceivable.

[0018] If the two positions shown in Fig. 2 are compared, it will be seen that, starting from the at-rest position indicated by continuous lines and moving towards the position shown by dashed lines (arrow 11), arm support 4 moves upwards slightly. Surprisingly, it has been found that this has a particularly beneficial effect on the support provided for the human arm and thus prevents arm and shoulder complaints.

[0019] It will be understood that the above merely shows a very elementary design of the armrest according to the invention. Numerous variants can be implemented, in which, moreover, it is possible to integrate the various parts in the structure of the chair. Such amendments, which will be obvious to the person skilled in the art on reading the above, are deemed to lie within the scope of the present claims.

Claims

1. Armrest for a chair or the like, comprising, in the position of use, a substantially horizontal arm-supporting part, a substantially vertical bearing part which is pivotably connected thereto and is pivotably connected to attachment means for attaching it to the seat, frame or the like of the chair, each of these pivoting connections comprising an elastic/resilient connection which gives a preferred position of the parts which pivot with respect to one another, characterized in that said pivoting connections each comprise an all-side pivot connection.
2. Armrest according to Claim 1, wherein in the fitted position on a chair or the like, said connections are arranged at a distance from one another with respect to a vertical line.
3. Armrest according to Claim 2, wherein at least one of the said pivot connections comprises a rubber-elastic hinge.
4. Armrest according to Claim 3, wherein said rubber-elastic hinge comprises base members which are fixedly connected to each of the pivoting parts (4, 6; 6, 7), rubber-elastic material extending between the said base members.
5. Armrest according to Claim 4, wherein there are means for limiting the movement between the said base members.
6. Armrest according to one of the preceding claims, wherein, in the preferred position, the length ratio and attachment of the various parts (4, 6) is such that, when the arm-supporting part (4) moves forwards, it moves upwards with respect to the attachment means (7).
7. Armrest according to Claim 6, in which the pivot point of the arm-supporting part on the bearing part is at a horizontal distance (a) from the axis of the bearing part.
8. Armrest according to Claim 7, in which the said distance (a) is 2-10 cm.
9. Chair provided with an armrest according to one of the preceding claims.

fig-1

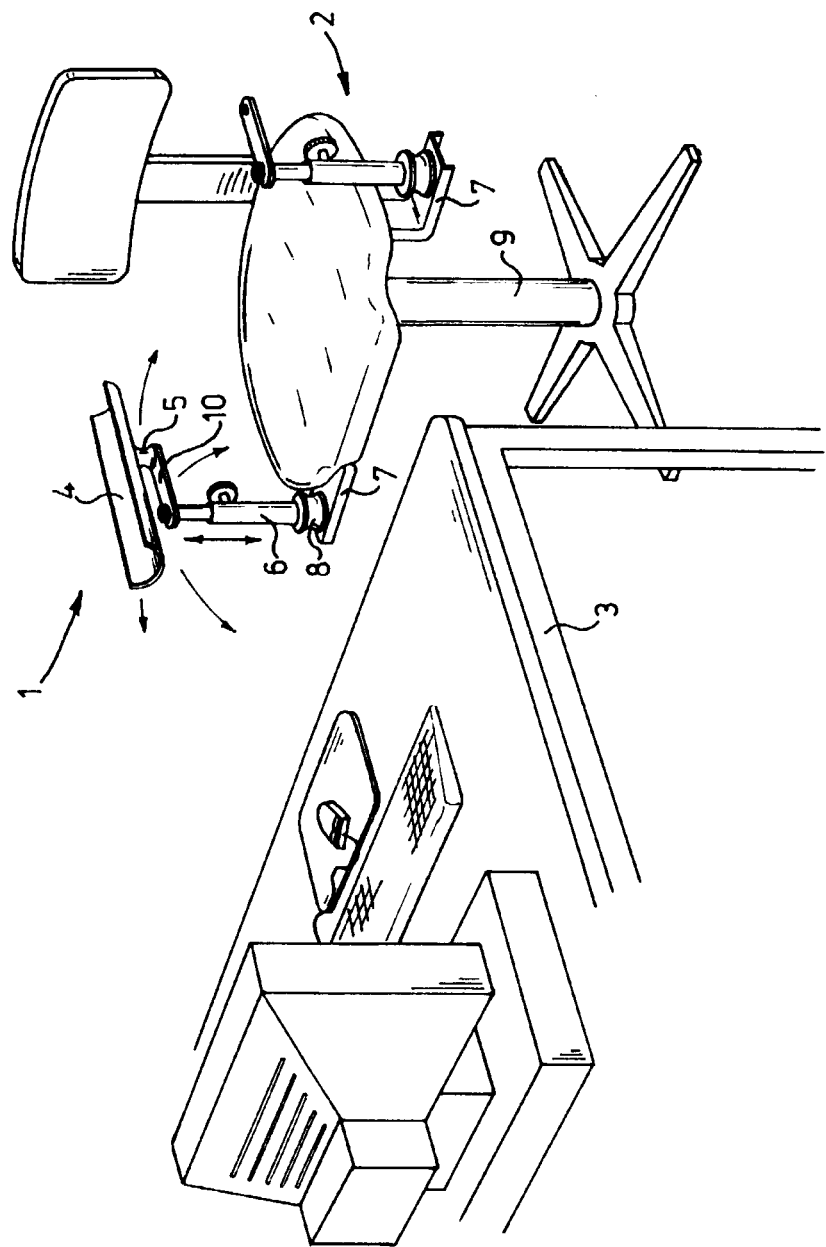
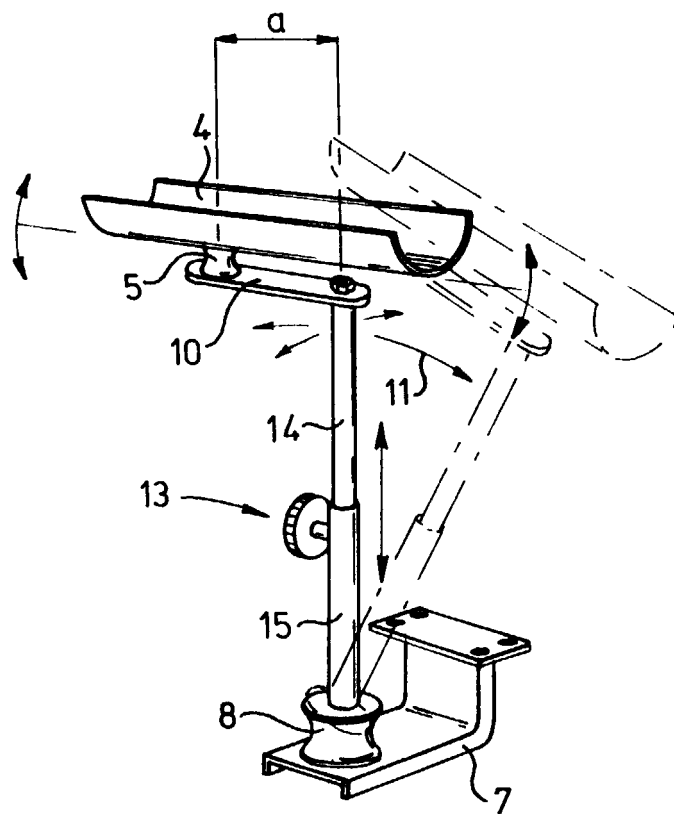


fig - 2





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EUROPEAN SEARCH REPORT

Application Number
EP 00 20 0411

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
D,Y	US 4 822 103 A (STENVALL) 18 April 1989 (1989-04-18) * column 2, line 15 - column 3, line 49; figures *	1	A47C1/03
A	---	2-5,9	
D,Y	US 4 069 995 A (MILLER) 24 January 1978 (1978-01-24) * column 2, line 30 - column 3, line 14; figures *	1	
A	---	2,3,6-9	
A	WO 94 23616 A (ERGONOMIPRODUKTER) 27 October 1994 (1994-10-27) * claims 1,2; figures *	1,2,5,9	

The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47C
Place of search		Date of completion of the search	Examiner
THE HAGUE		12 May 2000	VandeVondele, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.02 (P04/C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 20 0411

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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12-05-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4822103 A	18-04-1989	SE 459313 B SE 8505767 A	26-06-1989 07-06-1987
US 4069995 A	24-01-1978	NONE	
WO 9423616 A	27-10-1994	SE 505551 C AT 167370 T AU 669290 B AU 6547194 A CA 2161003 A DE 69411160 D DE 69411160 T EP 0695134 A SE 9301286 A US 5571274 A	15-09-1997 15-07-1998 30-05-1996 08-11-1994 27-10-1994 23-07-1998 22-10-1998 07-02-1996 21-10-1994 05-11-1996