



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/KR86/00015 (22) International Filing Date: 30 July 1986 (30.07.86) (31) Priority Application Number: 1985-9817 U (32) Priority Date: 30 July 1985 (30.07.85) (33) Priority Country: KR (71)(72) Applicant and Inventor: PARK, Hyung, Sik [KR/KR]; 597-25, Poonghyang-dong, Book-ku, Kwang Ju-shi, Jeonlanam-do, 500 (K.R). (81) Designated States: AT (European patent), BE (European patent), BR, CH (European patent), DE (European patent), FR (European patent), GB (European patent), IT (European patent), JP (Utility model), LU (European patent), NL (European patent), SE (European patent), US.</p>		<p>Published <i>With international search report.</i></p>
<p>(54) Title: A CHAIR ADJUSTABLE TO OPTIMUM STANDARD HEIGHT</p>		
<p>(57) Abstract</p>		
<p>A chair whose height can be adjusted to an optimum standard height in relation to the height of desk and the stature of user. The chair fixes and attaches the chair height lookup plate (11) which engraves the standard desk height indications (12), the stature scale of user (13) and the optimum standard height scale of chair (14) related with the user's stature on one side of supporting cylinder (5) and also attaches the scaled plate (15) which engraves the chair height scale (16) on one side of the circumferential surface of lifting strut (5).</p>	<p>The drawing shows a side view of an adjustable office chair. It features a rectangular seat (1) supported by two vertical posts (4). The seat is mounted on a central vertical cylinder (5) which is part of a lifting mechanism. A circular lookup plate (11) is attached to the cylinder, with a scale (12) and a pointer (13). A hand crank (7) and a locking mechanism (8) are used to adjust the height. The chair has a base (3) with four casters (10) and a central pedestal (2). A scaled plate (15) is attached to the cylinder, with a scale (16) and a pointer (17).</p>	

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Title of Invention

A chair adjustable to optimum standard height

Technical Field

5 This invention relates to a chair whose height can be adjusted to an optimum standard height or level in relation to the height of desk and the stature of user.

Background Art

10 Generally, the height of desk is normalized to desks for children, for students and for adults, and the height of chair is adjusted to an optimum level in accordance with the stature of user, so that the user can sit on a chair to perform his study and work with a comfortable posture.

15 However, the existent chair is adapted to liftably insert a lifting strut or column fixed to the lower surface of seat plate into a supporting cylinder with a plurality of supporting legs attached, and to tighten up closely the tip of setscrew engaged threadedly to a supporting cylinder, thereby fixing a seat plate to the desired height from the bottom surface. In the chair, the defining of a chair height in relation to the height of desk and the stature of user is accomplished not by setting into a certain reference value, but by first adjusting the chair height at a rough guess of user ; and then deciding whether the user's
20 posture is comfortable or not when the user sits on a chair in front of a desk. Therefore, the existent chair has a drawback in that the adjusting of the chair height is very complicated because adjusting of the chair height into an optimum level is difficult by the adjust of one time and is possible by the trying of many times.

25 Accordingly, it is an object of the present invention to provide a chair whose height can be adjusted to an optimum standard level conveniently in relation to the height of desk and the stature of user to remove the drawback as described previously.

Disclosure of Invention

This object of the present invention is accomplished by a chair which liftably inserts the lifting strut fixed to the lower surface of a seat plate into the supporting cylinder with a plurality of supporting legs attached and fix the same by a setscrew threaded to the supporting cylinder, characterized by fixing
5 and attaching the chair height hookup plate which engraves the standard desk height indications, the stature scale of user and the optimum standard height scale of chair related with the user's stature on said one side of supporting cylinder ; and attaching the scaled plate which engraves the chair height scale
10 on one side of the circumferential surface of said lifting strut. The indications of a standard desk height engraved to said chair height hookup plate are made in accordance with the use of desks, that is, desks for children, for stature scale is indicated by the range extending from the standard stature of children to that of adults while the optimum standard height scale of a chair is indicated
15 by the optimum height scale related to the standard desk height and the user's stature.

A user can read the optimum standard chair height for his stature in the chair height hookup plate ; and then release the setscrew and lift the lifting strut against the supporting cylinder in such manner that match a scale corresponding to said read height in the chair height scale with the upper surface of
20 supporting cylinder, to set the height of seat plate into an optimum height ; and thereafter fix the lifting strut by tightening up the setscrew, thereby adjusting the chair height into an optimum level conveniently.

Brief Description of Drawings

25 This and other objects and features of the present invention will become clear from the following description of a preferred embodiment of the invention with reference to the accompanying drawings, wherein :

Figure 1 is a front view of the chair adjustable to an optimum standard level, which is a preferred embodiment of the present invention.

30 Figure 2 is a perspective view illustrating explodedly the main portion of the present invention.

Figure 3 is the enlarged view of the chair height hookup plate.

Figure 4 is the enlarged view of the chair height scale.

Best Mode for Carrying out the Invention

Referring now to drawings, there is shown a chair 1 applying the present
5 invention, which inserts a lifting strut or column 5 fixed to the lower surface of
a seat plate 4 into a supporting cylinder 2 with a plurality of supporting legs
attached, and tightens up a setscrew 7 with a handle : engaged threadedly
through a screw hole 6 defined in one side of the upper portion of supporting
cylinder 2 to fix a lifting strut 5 with reference to the supporting cylinder 2.

10 In said one side of lifting strut 5 is longitudinally defined the long slot 9
engaging the tip of said setscrew 7 closely. Further, in said supporting legs 3
are rolling wheels 10 for contacting with the bottom surface.

Moreover, between the supporting cylinder 2 and the lifting strut 5 is
conventionally inserted a liner made of synthetic resin, which is not shown
15 because it has not a direct relationship with the object of this invention.

In accordance with the present invention, a hookup plate 11 indicating the
chair height, which is engraved the indications of standard chair height 12, the
stature scale of user 13 and the optimum height scale of chair 14 related to the
user's stature, is attached fixedly to one side of the circumferential surface of
20 supporting cylinder 2.

In said one side of the circumferential surface of lifting strut 5 is attached
a scaled plate 15 which engraves the chair height scale.

Said chair height lookup plate is attached fixedly to the supporting cylinder
by a fixing rod 17, and the interior end of this fixing rod 17 is engaged to a
25 groove for anti-rotation 18 defined longitudinally in the lifting strut 5 through
the supporting cylinder 2, for preventing the lifting strut 5 from being rotated
with reference to the supporting cylinder 2.

Said the scaled plate 15 of chair height is preferable attached by defining the attached groove 19 in the lifting strut 5 not to project more largely than the circumferential surface of lifting strut 5, and may be carved on the surface of attached groove 19 directly rather than may attach the separately scaled plate 15, as illustrated in figure 4.

The indications of standard chair height 12 engraved on said chair height lookup plate 11 is set to the standard height such as the order of 70cm , and the stature scale 13 is indicated by the range of 100 to 185cm, so that the chair may be used by all persons from children to adults. Further, the optimum standard height scale 14 is indicated to be viewed with the stature scale as the optimum standard height related to the user's stature when the standard desk height is used as the reference.

The optimum standard chair height means the height covering from a pit of stomach to a navel when an user sits on a chair in front of a desk, which results in providing the user with the most comfortable posture.

For example, in case that the chair height is in the order of 70cm, the optimum standard height becomes the order of 39.5cm for a person having the stature of 170cm while becomes the order of 37.5cm for a person having the stature of 180cm.

This indication is provided by indicating the optimum standard height scale 14 for the stature of 100 to 185cm in relation to the stature scale 13.

Said stature scale 13 of a hookup plate 11 and said optimum standard height scale 14 indicate the indications or marks as the reduced scale in relation to the size in the lookup plate 11, while the chair height scale 16 of a scaled plate 15 indicates the marks as the real scale.

On the front surface of said supporting cylinder 2 may be attached a guide plate 20 which engraves the guide words as follows : "The stature scale on a lookup plate and the optimum standard height scale of this chair are to use the chair height of 70cm as their reference." and "In case that the chair height is higher or lower than 70cm, please adjust the chair height by adding or

subtracting the difference of chair height to or from the optimum standard chair height on the lookup plate respectively".

In using the chair in accordance with the present invention, a user first must read the optimum standard chair height with reference to his stature from
5 the stature scale 13 of a chair height lookup plate 11 and the optimum standard height scale 14 ; and then release the setscrew 7 and lift the lifting strut 5 against the supporting cylinder 2, in such a manner that matches the scale corresponding to said read height value in the scale 16 of a chair height scale plate 5 with the upper surface of supporting cylinder 2, to adjust the height of
10 seat plate 14 into the optimum height ; and thereafter tighten up the setscrew 7 and fix the lifting strut 5 into the supporting cylinder 2.

For example, a child having the stature of 145cm must set the chair height scale 16 to 44.5cm, while an adult having that of 185cm must set the chair height scale to 36.5cm.

15 An embodiment as shown in the drawings is to set the stature scale 13 and the optimum standard chair height 14 for the chair height of 70cm, and which may be used by setting the same to the height adding or subtracting the difference of chair height to or from the optimum standard chair height obtained in the lookup plate 11 if a chair having the height of more or less than 70cm is used.
20 For example, if the chair height to be used is in the order of 72cm, a person having the stature of 170cm must adjust the chair height into 41.5cm, which is a value adding the optimum standard height of 39.5cm obtained in the lookup plate 11 to the difference of 2cm.

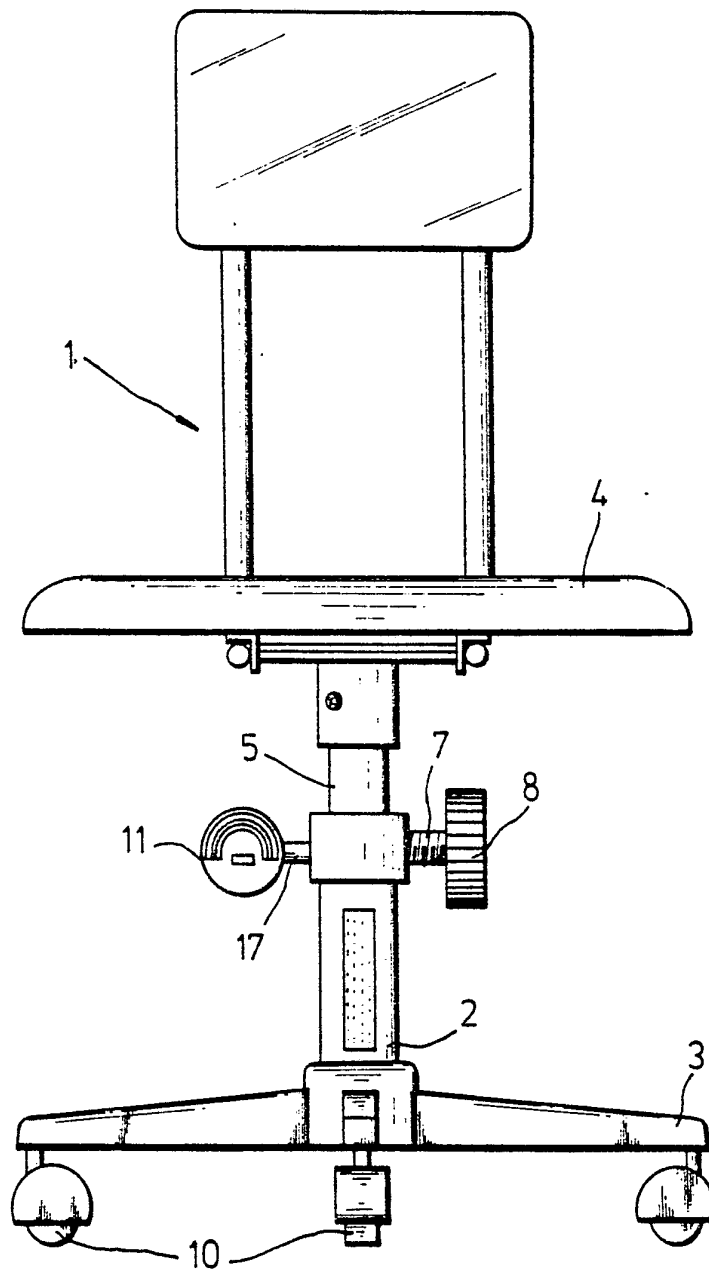
In the state adjusted this way, since a user can maintain the most
25 comfortable posture when he sits on a chair in front of a desk, it is possible to alleviate the extent of fatigue in sitting to perform his study or work during long periods.

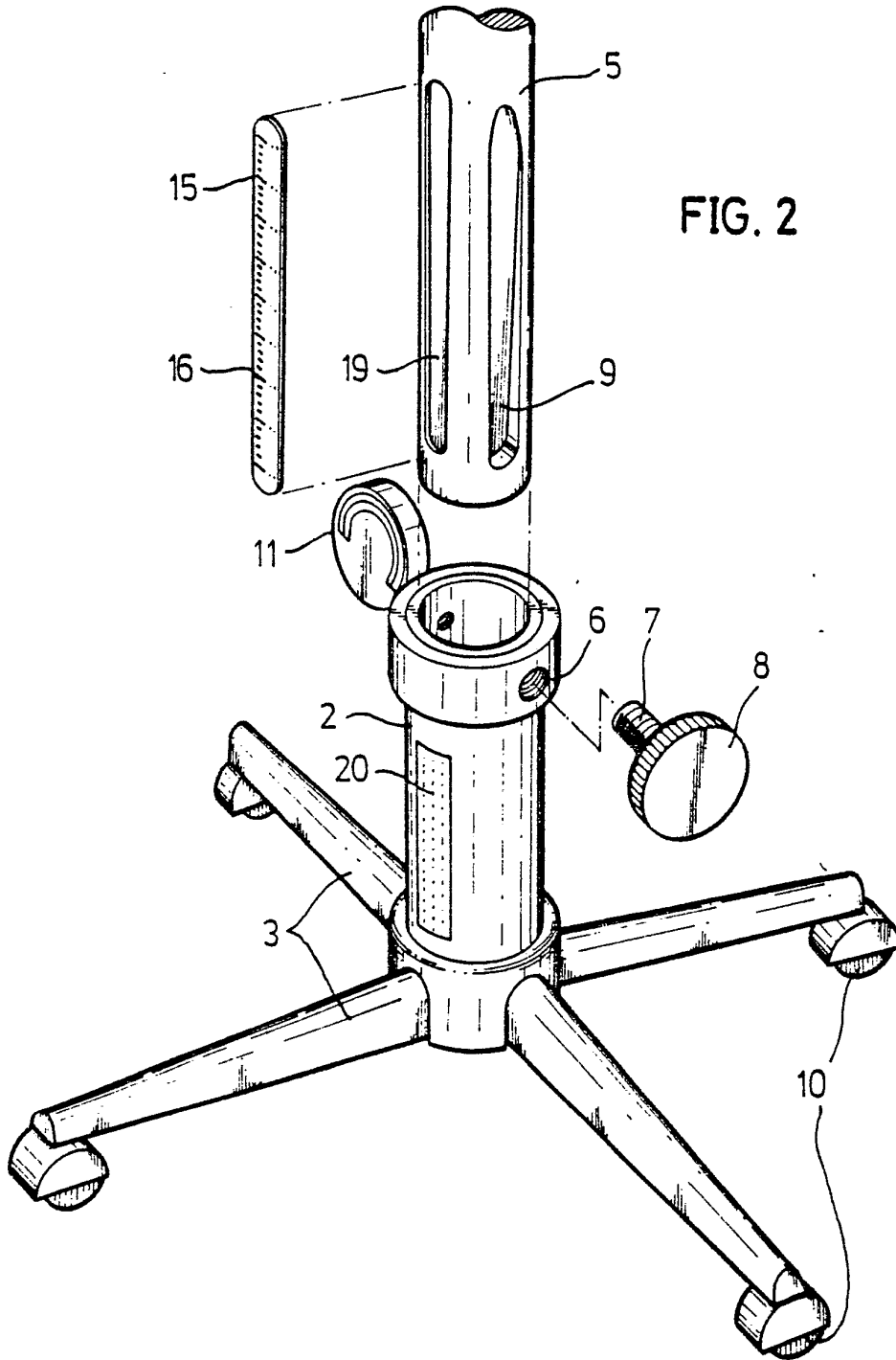
While the preferred embodiment of the present invention has been described,
it is to be understood that the invention is not limited thereto, but may be
30 variously modified or changed without departing from the spirit and scope of the invention, and also can be applied to any type of chair whose height is adjustable.

Claims

1. A chair adjustable to an optimum standard height, which liftably inserts the lifting strut (5) fixed to the lower surface of a seat plate (4) into the supporting cylinder (2) with a plurality of supporting legs (3) attached and
5 fix the same by a setscrew (7) threaded to the supporting cylinder (2), characterized by fixing and attaching the chair height lookup plate (11) which engraves the standard desk height indications (12), the stature scale of user (13) and the optimum standard height scale of chair (14) related with
10 the user's stature on one side of supporting cylinder (5) ; and attaching the scaled plate (15) which engraves the chair height scale (16) on one side of the circumferential surface of said lifting strut (5).

FIG. 1





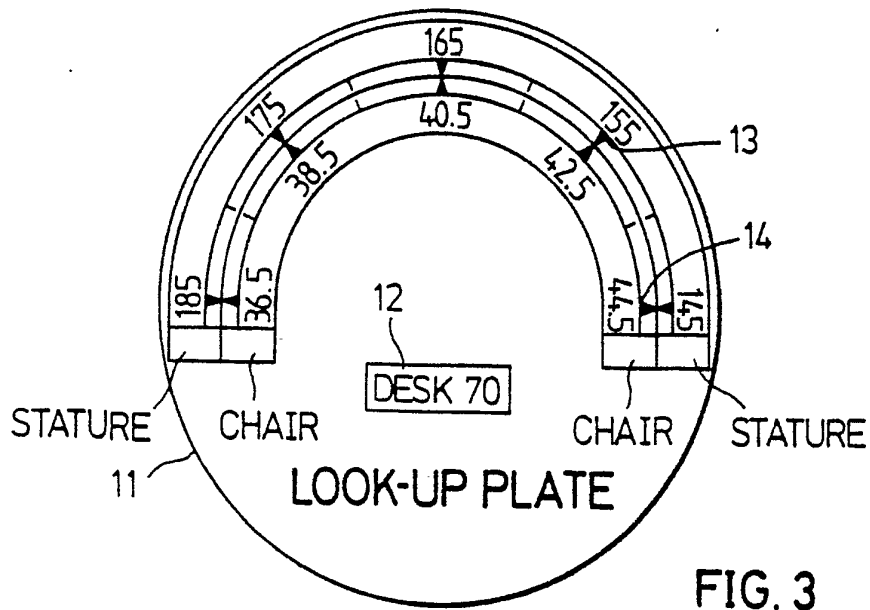


FIG. 3

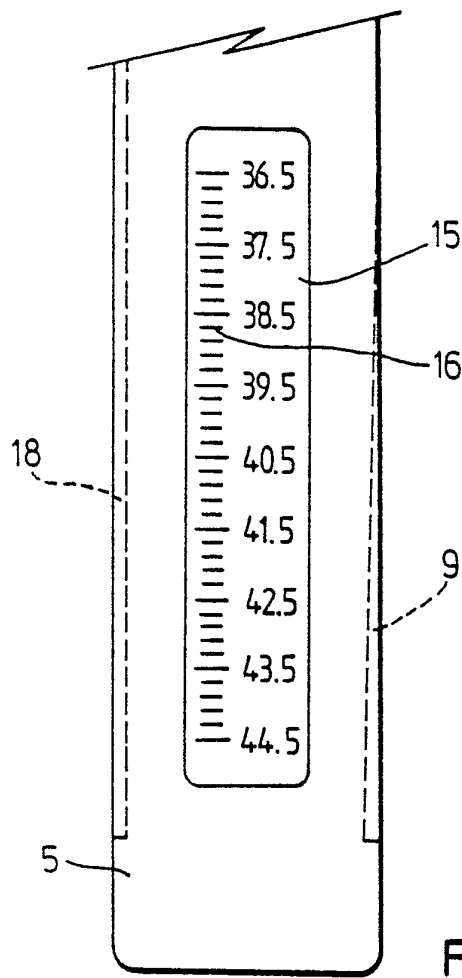


FIG. 4

INTERNATIONAL SEARCH REPORT

International Application No PCT/KR 86/00015

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶				
According to International Patent Classification (IPC) or to both National Classification and IPC				
IPC ⁴ : A 47 C 3/20				
II. FIELDS SEARCHED				
Minimum Documentation Searched ⁷				
Classification System	Classification Symbols			
Int.Cl. ⁴	A 47 C 3/00, 3/18, 3/20, 3/24, 3/26, 3/28, 3/30, 3/32, 7/00, 7/02; A 47 B 17/02			
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸				
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹				
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³		
	A DE, A1, 2 922 945 (SIEMENS AG) 06 June 1979 (06.06.79), see page 3, lines 20-25; page 4, lines 1-20. -----	(1)		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> <p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="width: 50%; border: none; vertical-align: top;"> <p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p> </td> </tr> </table>			<p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>
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IV. CERTIFICATION				
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report			
10 October 1986 (10.10.86)	20 October 1986 (20.10.86)			
International Searching Authority	Signature of Authorized Officer			
AUSTRIAN PATENT OFFICE	<i>Piggman</i>			

Anhang zum internationalen Recherchenbericht über die internationale Patentanmeldung Nr.

In diesem Anhang sind die Mitglieder der Patentfamilien der im obengenannten internationalen Recherchenbericht angeführten Patentedokumente angegeben. Diese Angaben dienen nur zur Unterrichtung und erfolgen ohne Gewähr.

Annex to the International Search Report on International Patent Application No. PCT/KR 86/00015

This Annex lists the patent family members relating to the patent documents cited in the above-mentioned International search report. The Austrian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Annexe au rapport de recherche internationale relatif à la demande de brevet international n°.

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Im Recherchenbericht angeführtes Patentedokument Patent document cited in search report Document de brevet cité dans le rapport de recherche	Datum der Veröffentlichung Publication date Date de publication	Mitglied(er) der Patentfamilie Patent family member(s) Membre(s) de la famille de brevets	Datum der Veröffentlichung Publication date Date de publication
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DE-A1-2 922 945

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EP-A2- 21 089
EP-A3- 21 089

07/01/1981
22/07/1981