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(54) **Treadmill**

(57) The invention relates to a treadmill comprising a frame structure (1) supported to a floor (2) by means of a subframe (3) and a belt part (4) arranged for being supported by the frame structure. The belt part (4) is formed into an endless loop and arranged to run around front and rear roller parts (5, 6). The treadmill also com-

prises means for adjusting the inclination of the frame structure and the frame structure (1) is arranged to fold about a pivoted axle (10) provided at one end of the frame structure from a use position to a storage position and vice versa. The pivoted axle (10) arranged in the frame structure (1) is connected to the subframe (3) by means of at least one connecting rod (11).

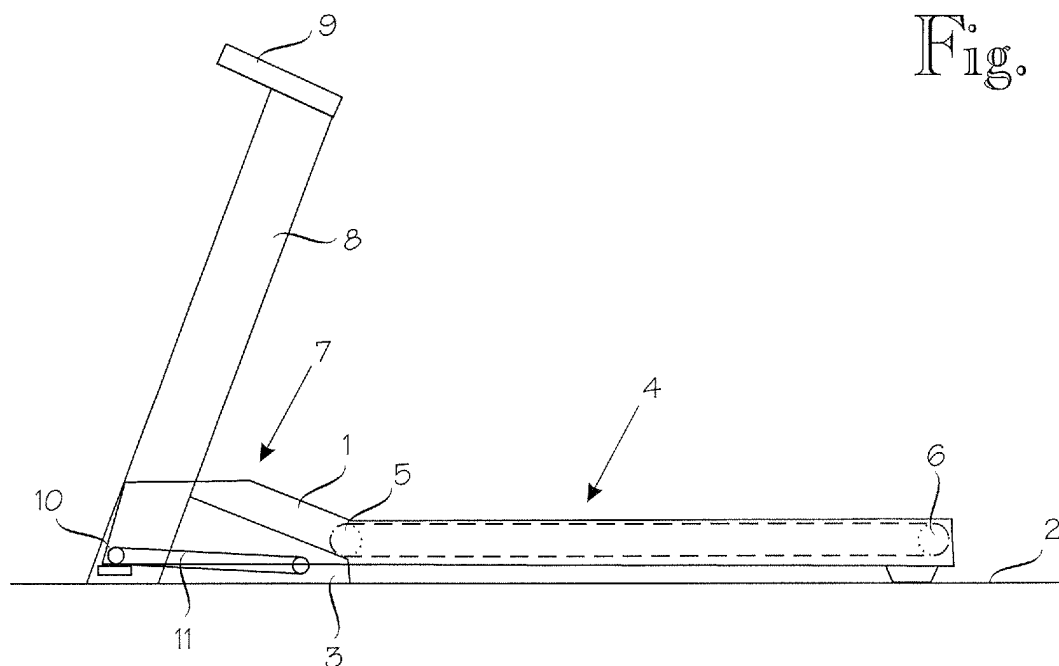


Fig. 1

Description

[0001] The invention relates to a treadmill comprising a frame structure to be supported to a floor by means of a subframe and a belt part arranged for being supported by the frame structure, in which the belt part is formed into an endless loop and arranged to run around a front roller part and a rear roller part, the treadmill comprising means for adjusting the inclination of the frame structure and the frame structure being arranged to fold about a pivoted axle arranged at one end of the frame structure from a use position to a storage position and vice versa.

[0002] Treadmills of the above type are currently very popular and widely used both in gyms and homes. A problem with the treadmills, especially when used in homes, is the space they require and also their usability. The treadmills often take a lot of space, so they cannot always be stored in a use position when not in use. Thus, for storage the treadmill must be folded into a storage position, and correspondingly, when the treadmill will be employed it must be unfolded to the use position. The folding of the treadmill from the use position to the storage position and back to the use position is a frequent operation, so it is very important in view of the usability of the apparatus that said operation is effortless.

[0003] Because of the above-described facts, the field has developed a plurality of solutions with the objective to achieve advantageous use of space and ease of use. A drawback with prior art solutions is, however, complexity, which has led to expensive solutions and inconvenience in usability. Most prior art solutions have a drawback that the inclination of the treadmill frame, in other words the running angle, must be adjusted to a given angle, mostly to a zero angle, before the frame can be set in the upright storage position. In addition, in many known apparatuses the geometry of a mat, a handrail and a console changes in the longitudinal direction of the mat as the running angle changes. In practice operation of this kind is cumbersome and the apparatus will not operate in the best possible manner in view of effortless function.

[0004] The object of the invention is to provide a treadmill, by which the drawbacks of the prior art can be eliminated. This is achieved with a treadmill of the invention. The treadmill of the invention is characterized in that a pivoted axle arranged in the frame structure is connected to a subframe by means of at least one connecting rod.

[0005] A primary advantage of the invention is that the treadmill of the invention can be lifted to a storage position at any running angle, in other words, there is no need to adjust the running angle to any given degree prior to lifting the apparatus to the storage position. The storage position of the apparatus and the lifting operation itself are always the same, irrespective of the running angle. It is also possible to make the treadmill readily such that the geometry of the handrail and the console will not essentially change as the running angle

changes, whereby the invention enables geometry that is always correct. A further advantage of the invention is that the solution is simple, whereby the manufacturing costs and the operating costs of the apparatus are economical.

[0006] In the following the invention will be described in greater detail by means of an embodiment given as an example and illustrated in the attached drawings, in which

Figure 1 shows a treadmill of the invention the running angle being at zero;

Figure 2 shows the treadmill of the invention the running angle being at its maximum;

Figure 3 shows the treadmill of the invention in a storage position;

Figure 4 shows the treadmill of the invention in use the running angle being at zero;

Figure 5 shows the treadmill of the invention in use the running angle being at its maximum, and

Figure 6 shows the treadmill of the invention in a situation where the user lifts the treadmill to the storage position.

[0007] The figures show one exemplary embodiment of the treadmill of the invention in various positions and operating situations. Reference numeral 1 indicates the frame structure of the treadmill. The frame structure 1 is supported to a floor 2 by means of a subframe 3. The term 'floor' should be understood here in a broad sense, in other words, said term indicates any support surface on which the treadmill rests.

[0008] A belt part 4 is arranged for being supported by the frame structure 1, which the belt part is formed into an endless loop and arranged to run around a front roller part 5 and a rear roller part 6. The belt part 4 can be rotated by a suitable power source, such as an electric motor, at a rate the user desires. In the example of the figure the power source rotating the belt part 4 is indicated by reference numeral 7 in principle.

[0009] In the figures reference numeral 8 indicates a handrail part and reference numeral 9 indicates a console part.

[0010] In the example of the figures the frame structure 1 is arranged to fold about a pivoted axle provided at one end of the frame structure from a use position to a storage position and back to the use position. The use position of the treadmill is shown in Figure 1, for instance, and the storage position in Figure 3, for instance.

[0011] The above details are fully obvious to a person skilled in the art, so they are not described in any greater in this connection.

[0012] In accordance with the basic idea of the invention the pivoted axle 10 arranged in the frame structure 1 is connected to a subframe 3 by means of at least one connecting rod 11. The connecting rod 11 is linked at both ends, in other words, the connecting rod is linked

both to the pivoted axle 10 and to the subframe 3. The use of two connecting rods 11 is found particularly advantageous, whereby both ends of the pivoted axle 10 are connected to the subframe 3 by means of the connecting rod 11, for instance.

[0013] The above-mentioned connecting rods 11 bind the geometry, and consequently a change in the running angle does not have any particular effect on the geometry of the handrail and also the geometry of the lifting movement to the upright storage position remains the same irrespective of the running angle. It is also essential that in the treadmill of the invention the storage position remains the same at different running angles and folding to the storage position is possible at any running angle. The pivot point of the folding movement appears clearly from Figure 6, for instance. The pivot point thus has a support point in the subframe.

[0014] The above-described embodiment of the invention is not restrictive in any way, but the invention can be freely modified within the scope of the claims. Hence, it is apparent that the treadmill of the invention or the details thereof need not necessarily be as shown in the figures but other kinds of details are also possible. The example of the figures does not describe in detail what mechanism is used for providing a change in the running angle. Said adjustment can be implemented by any suitable mechanism, for instance by a rotary actuator or rack mechanism. In the example of the drive devices of the belt part are placed in the front part of the treadmill. The devices providing changes in the running angle, for instance the rotary actuator, can also be placed in the front part of the apparatus. In the example of the figures lifting to the storage position is carried out by lifting the rear end of the treadmill, which is lighter. The rail part and the console part can be provided and designed in any suitable manner and they can be equipped with suitable adjustment mechanisms which allow their adjustment to suit the user in the best possible manner.

2. The treadmill of claim 1, **characterized in that** the connecting rod (11) is linked both to the pivoted axle (10) and to the subframe (3).

5 3. The treadmill of claim 1 or 2, **characterized in that** the pivoted axle (10) is connected to the subframe (3) by means of two connecting rods (11).

10 4. The treadmill of claim 3, **characterized in that** the pivoted axle (10) is connected to the subframe (3) in the area of both ends.

Claims

1. A treadmill comprising a frame structure (1) to be supported to a floor by means of a subframe (3) and a belt part (4) arranged for being supported by the frame structure, in which the belt part is formed into an endless loop and arranged to run around front and rear roller parts (5, 6), the treadmill comprising means for adjusting the inclination of the frame structure, whereby the frame structure (1) is arranged to fold about a pivoted axle (10) provided at one end of the frame structure from a use position to a storage position and vice versa, **characterized in that** the pivoted axle (10) arranged in the frame structure (1) is connected to the subframe (3) by means of at least one connecting rod (11).

Fig. 1

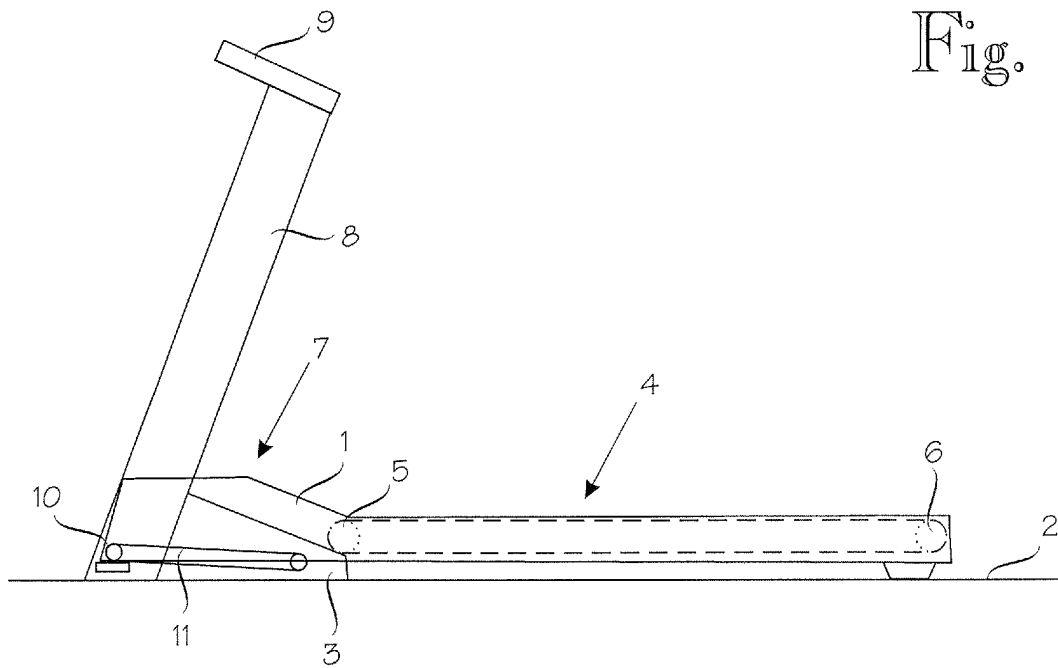


Fig. 2

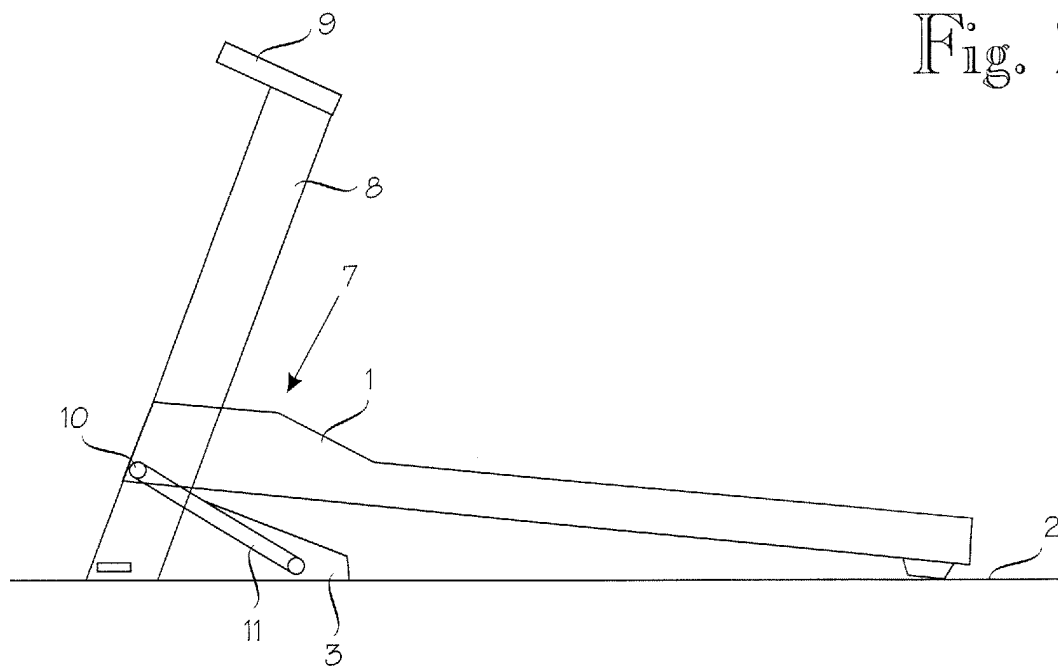


Fig. 3

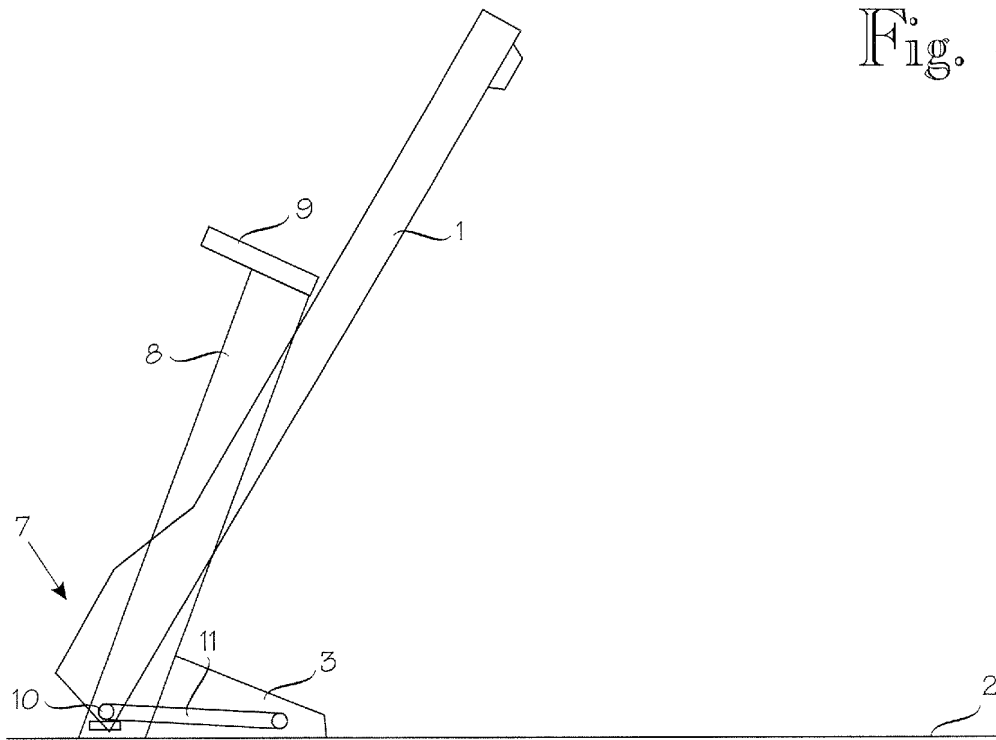


Fig. 4

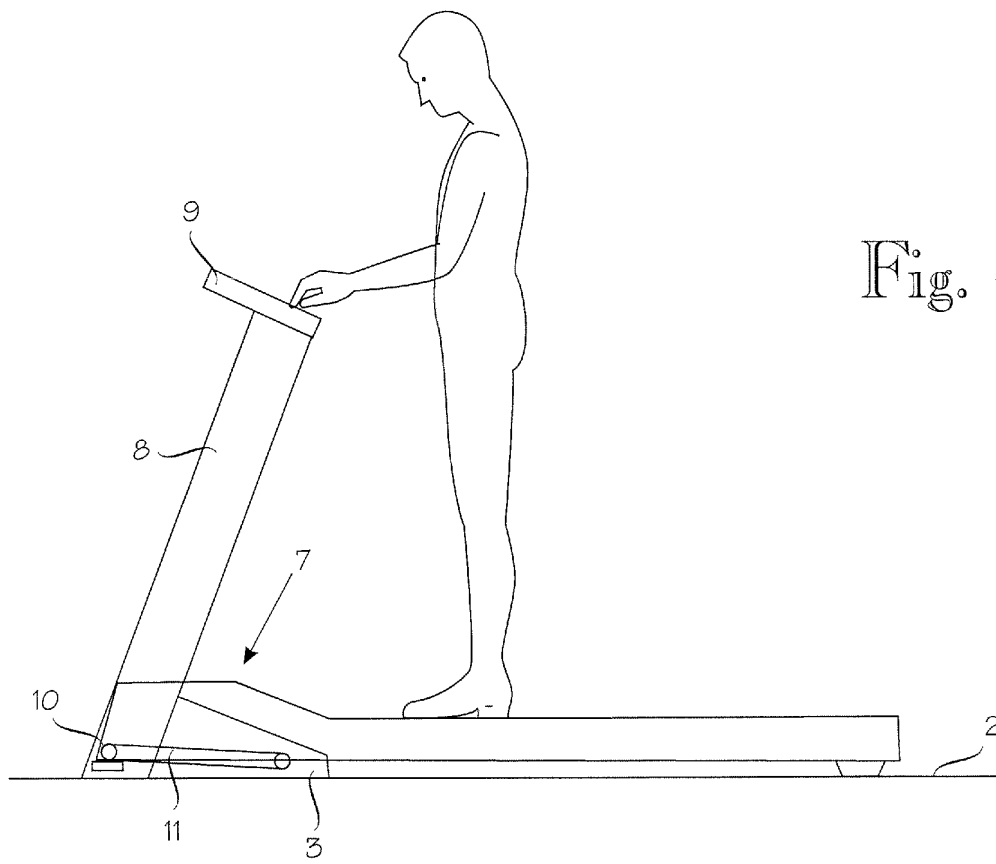


Fig. 5

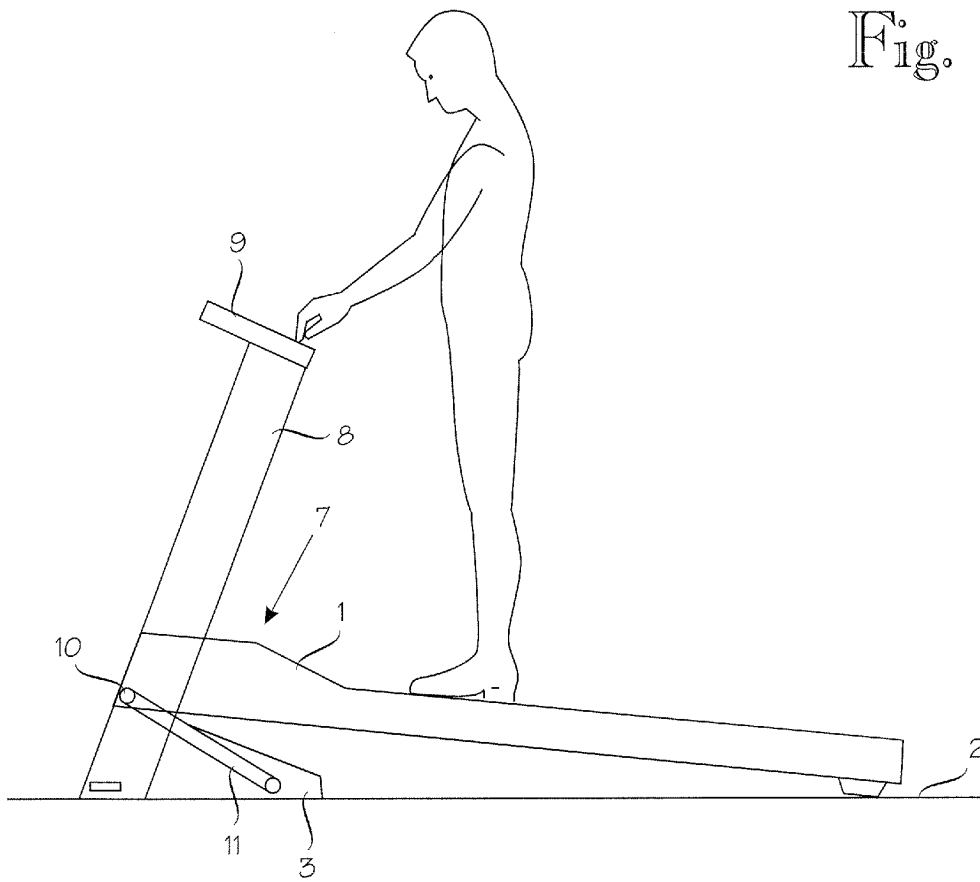
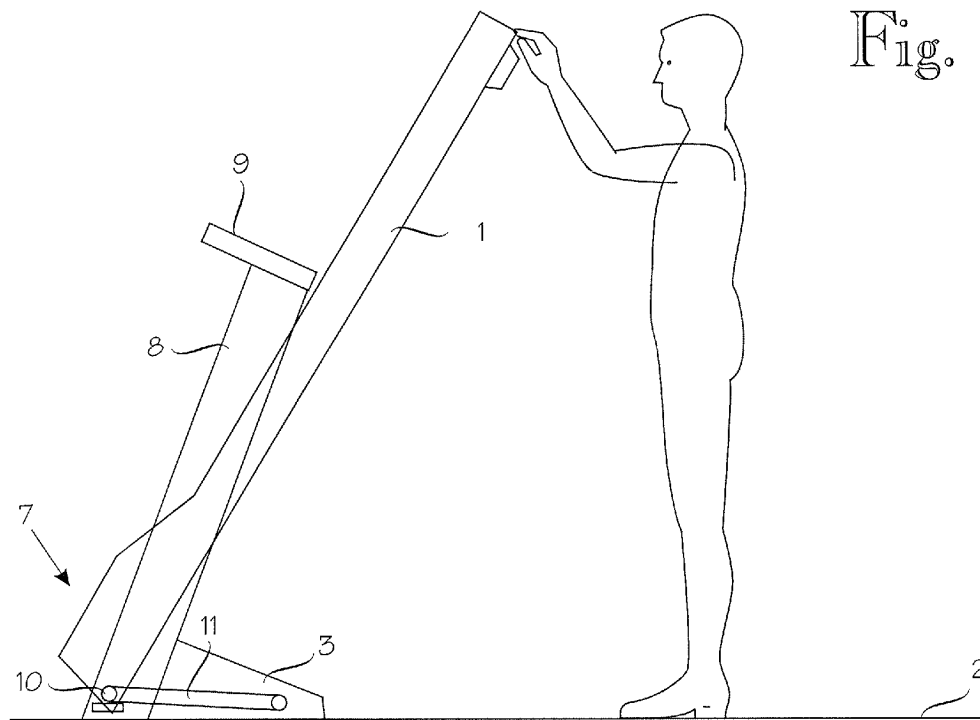


Fig. 6





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 04 10 2479

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X	US 2002/183169 A1 (CHANG MARK) 5 December 2002 (2002-12-05) * paragraph [0020] - paragraph [0030]; figures 3-11 * -----	1-4	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	US 2002/142891 A1 (CHEN JAMES) 3 October 2002 (2002-10-03) * abstract * -----	1	A63B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 October 2004	Examiner Sánchez y Sánchez, J
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 04 10 2479

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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