



(12) **EUROPEAN PATENT APPLICATION**  
published in accordance with Art. 158(3) EPC

(43) Date of publication:  
**28.03.2007 Bulletin 2007/13**

(51) Int Cl.:  
**A47F 7/19 (2006.01) A47B 61/00 (2006.01)**

(21) Application number: **05734315.4**

(86) International application number:  
**PCT/ES2005/000189**

(22) Date of filing: **12.04.2005**

(87) International publication number:  
**WO 2005/099525 (27.10.2005 Gazette 2005/43)**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR**

(72) Inventor: **BERNAL LLOR, Andrés**  
**E-30820 Alcantarilla (Murcia) (ES)**

(30) Priority: **16.04.2004 ES 200400911 U**

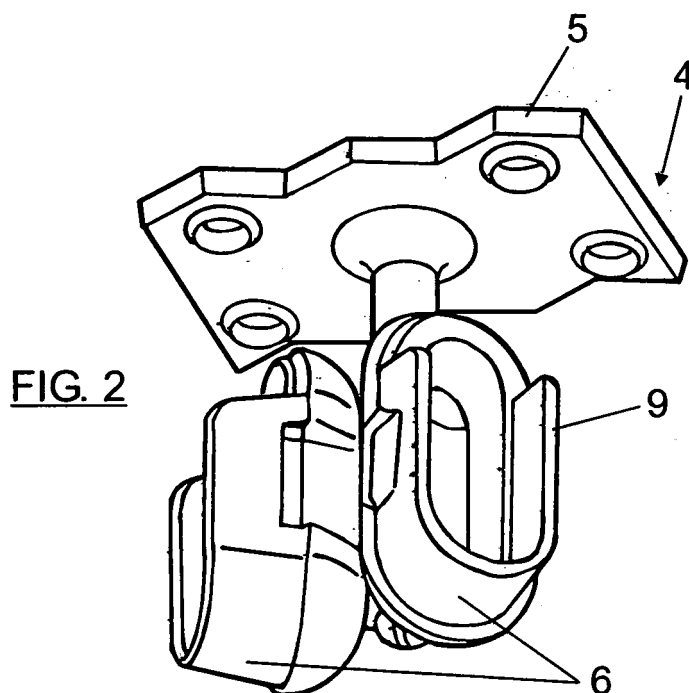
(74) Representative: **Carvajal y Urquijo, Isabel et al**  
**Clarke, Modet & C.**  
**C/ Goya, 11**  
**E-28001 Madrid (ES)**

(71) Applicant: **Herrajes Y Sistemas Belkriss, S.L.**  
**30820 Alcantarilla (ES)**

(54) **ROD SUSPENSION SYSTEM FOR WARDROBES AND THE LIKE**

(57) The invention relates to a suspension system for cupboard bars or the like comprising end support elements (1) for supporting each of the ends of at least one bar in the side walls of the cupboard, and at least one intermediate support element (4) comprising in turn a support (5) and at least two support pieces (6), the support (5) of which has a fixing base (7) for fixing to the

upper wall of the cupboard and a connecting element (8) for the connection with the support pieces (6) having a receiving area for receiving the corresponding end opposite to the one supported by the end support elements (1), said support (5) and support pieces (6) being configured such that the support pieces (6) are connected to the support (5) with the possibility of independent rotation between each other and with respect to the support (5).



## Description

### FIELD OF THE INVENTION

[0001] The present invention is included within the field of manufacture of furniture and more specifically within suspension systems used for supporting cupboard bars or the like arranged therein running longitudinally through the cupboard at its upper part and which are intended to be used as support bars for hanging hangers or different objects.

### BACKGROUND OF THE INVENTION

[0002] The use of bars arranged longitudinally inside the cupboard and serving as a support or holder for the hangers in which the different clothing garments deposited in the cupboard as well as other objects such as belts and ties are hung.

[0003] Said bars are normally placed between the side walls of the cupboard or the like, its ends resting on supports arranged opposite to each other. Said supports have a configuration such that they receive the ends of the mentioned bars, normally being adapted to the shape of the profile thereof.

[0004] Elements by way of rings enabling the connection of two bars located one after the other are known for long distances between the walls of the cupboard, said elements acting as connecting elements.

[0005] Utility model ES 1039514U describes a support bar for hanging hangers comprising a metallic profile with a uniform section supported on end pieces, the mentioned profile having an extruded aluminium core to which a coating formed by a sheet is externally adhered, the profile has at its upper part a groove covering the length of the entire bar into which a piece of rubber or plastic in which the hangers are supported is introduced.

[0006] Utility model ES 221372U describes a support for bars intended for supporting curtains comprising a planar plate which is fixed on the wall or any other vertical surface, said planar plate having a U-shaped housing which is arranged in a vertical direction once the support has been installed with its upper part open to receive the end of the bar, which bar has a cap intended to be fitted on the mentioned plate and keep the ends of the bar retained.

[0007] The described systems can only be used in the event that the cupboard has a parallelepiped shape, with this cupboard shape, the bar will always be located perpendicular to the side walls of the cupboard and therefore to the supports.

[0008] The use of built-in cupboards covering corners of walls, which walls usually form a certain angle which in most cases is a right angle, is more and more widespread. In these cases, two bars covering each of the sections forming the mentioned angle will have to be placed, said bars will have to be placed at different heights because in the event that they were placed at

the same height, the mentioned bars intercept each other and cannot be installed. Therefore, it is decided to assemble them at different heights so that they can be crossed, this circumstance results in a loss of functionality of the bars themselves and in possible problems in the installation since different heights have to be measured to place the bars correctly, having to use a considerable amount of time in said installation.

[0009] The objective of the present invention is to design a suspension system for the bars of a cupboard, which in the case of cupboards located in corners or beveled places allows installing the bars therein at the same height, allowing the possibility of supporting more than one bar thanks to the particular configuration of the intermediate support elements and therefore enabling the assembly, in a continuous manner, of a plurality of bars in the case of cupboards covering corners or beveled areas.

[0010] As an additional functionality, said intermediate support elements will serve as connecting elements between bars for the case of long distances to be covered between the cupboard walls in which the use of more than one bar is necessary, while at the same time they further serve as an intermediate support point for the weight.

[0011] This objective is achieved by means of the invention as it is defined in claim 1; the dependent claims define preferred embodiments of the invention.

### DESCRIPTION OF THE INVENTION

[0012] The invention therefore relates to a suspension system for cupboard bars or the like, comprising end support elements for supporting each of the ends of at least one bar, which elements have receiving areas for receiving said ends and are fixed inside the side walls of the cupboard.

[0013] The system object of the present invention is characterized in that it further comprises at least one intermediate support element comprising in turn a support and at least two support pieces, the support of which has a fixing base for fixing to the upper wall of the cupboard and a connecting element for the connection with the support pieces and each of the support pieces of which has a receiving area for receiving the corresponding end opposite to the one supported by the end support elements, said support and support pieces being configured such that the support pieces are connected to the support with the possibility of independent rotation between each other and with respect to the support, allowing to vary the angular relation between the support pieces and of the latter with respect to the position of the fixing base of the support once the base has been assembled in the cupboard.

[0014] In this way and thanks to the configuration of the intermediate support elements, it is achieved that this suspension system for bars can be used for the case of cupboards installed in corners and beveled wall areas,

the support bars being able to be installed at the same height and allowing to use more than one bar and installing said bars continuously.

**[0015]** The connecting element for the connection of the support with the support pieces consists of a rod penetrating in a through hole made in each of the support pieces, the support pieces being inserted in said connecting element which has its free end projecting from both support pieces, having in said free end a threaded hole for housing a clamping screw configured to fix the angular relation of the support pieces between each other and of the latter with respect to the support.

**[0016]** In this way, once the bars have been installed on the corresponding end and intermediate support elements, the angular position of the two support pieces with respect to the support will be adjusted and when the angular relation is the one desired by the user, the mentioned screw will be acted upon, tightening it and achieving a fixing of the angular position of the support pieces between each other and with respect to the support.

**[0017]** The system also comprises connecting elements between the ends of the bars and the corresponding end and intermediate support elements which consist of pieces having a central opening in which the real end of the bar is introduced, said connecting elements being fitted in turn in the corresponding receiving areas arranged in the end and intermediate support elements.

**[0018]** In this way, it is achieved that the support of the bars on both the end and the intermediate support elements is more adjusted. Furthermore, the mentioned connecting elements will normally be manufactured in elastic plastic materials so that the receiving of the bar in the receiving areas is safer and the supports are cushioned once the bars have been loaded with the clothing garments.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0019]** A series of drawings is very briefly described below which aid in better understanding the invention and which are expressly related to embodiments of said invention which are set forth as illustrative and non-limiting examples thereof.

**[0020]** Figure 1 shows a perspective and front elevational view of one of the end support elements forming the system object of the present invention.

**[0021]** Figure 2 shows a perspective view of one of the intermediate support elements forming the system object of the present invention.

**[0022]** Figure 3 shows a perspective and front elevational view of one of the connecting elements between the ends of the bars and the different support elements of the system object of the present invention.

**[0023]** Figure 4 shows an exploded perspective view of one of the intermediate support elements when connecting elements have been assembled thereupon.

**[0024]** Figure 5 shows a schematic lower plan view of an intermediate support element once the bars have

been assembled for the case in which the latter form a 0° angle.

**[0025]** Figure 6 shows a schematic lower plan view of an intermediate support element once the bars have been assembled for the case in which the latter form a 90° angle.

**[0026]** Figure 7 shows a schematic lower plan view of an intermediate support element once the bars have been assembled for the case in which the latter form a 30° acute angle.

### **DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION**

**[0027]** Figure 1 shows the end support elements 1 forming the system, said elements are normally fixed to the side walls of the cupboard and are responsible for supporting one of the ends of the bar or bars.

**[0028]** In the simplest case, i.e. for a normal cupboard with a parallelepiped shape, these end support elements 1 are arranged in both side walls of the cupboard, the use of a single bar being necessary.

**[0029]** As can be seen in figure 1, in this preferred embodiment of the invention the mentioned end support elements 1 have an approximately oval shape, having a base 2 in which a plurality of holes intended to house screws for fixing the element to the wall of the cupboard are made. The end support element 1 has a peripheral partition 3 running only in the lower part of the perimeter of the element, determining the receiving area for receiving the corresponding end of the bar. With this particular configuration of the end support element 1, once it has been fixed to the wall of the cupboard, the bar is placed by introducing it through the upper part of the element in which the mentioned peripheral partition 3 does not exist.

**[0030]** The intermediate support elements 4, one of which is shown in figure 2, comprise a support 5 and at least two support pieces 6. The support 5 has a fixing base 7 for fixing to the upper wall of the cupboard and a connecting element 8 for the connection with the support pieces 6. The fixing of the fixing base 7 to the upper wall of the cupboard is carried out thanks to a plurality of holes made therein in which the corresponding screws are introduced which will be responsible for joining said base to the mentioned upper wall.

**[0031]** Each of the support pieces 6 has a receiving area like for the case of the end support elements 1, said receiving area is delimited by a peripheral partition 9 running through most of the perimeter of the intermediate support element except at its upper part, to allow the introduction of the corresponding ends of the bars which will be the ends opposite to the those supported by the corresponding end support elements 1.

**[0032]** As can be seen clearly in figure 4, in this preferred embodiment of the invention, the connecting element 8 of the support 5 consist of a rod penetrating in a trough hole 10 made in each of the support pieces 6. The mentioned rod is inserted in both support pieces 6 such

that its free end projects with respect to the latter. The mentioned free end has a threaded hole 11 concentric thereto for housing a clamping screw 12, located and configured such that it allows fixing the angular relation between the support pieces 6 and of the latter with respect to the support 5.

**[0033]** The system further comprises connecting elements 13 between the ends of the bars and both the end 1 and intermediate 4 support element. As observed in figure 3, the mentioned connecting elements 13 consist of pieces provided with a shape similar to the receiving areas of support elements 1 y 4, being smaller so as to fit in said receiving areas. The connecting elements 13 have a central opening in which the end of the bar is introduced, in the case of this preferred embodiment of the invention the section of the bar is oval.

**[0034]** The connecting elements 13 fit in turn in the corresponding receiving areas arranged in the end 1 and intermediate 4 support elements.

**[0035]** The shape of the end support elements 1, of the support pieces 6 as well as of the connecting elements 13 will be able to vary with respect to that described above, which only shows a preferred embodiment of the invention, the latter therefore not being limiting.

**[0036]** Figures 5, 6 and 7 schematically show different cases of arrangement of the bars connected to an intermediate support element 4. Figure 5 specifically shows the case in which the bars form 0° between each other, in this particular case the intermediate support element 4 will also act as an extension element in the case of cupboards in which the distance between side walls to be covered is considerable and it is necessary to use more than one bar to cover the entire distance.

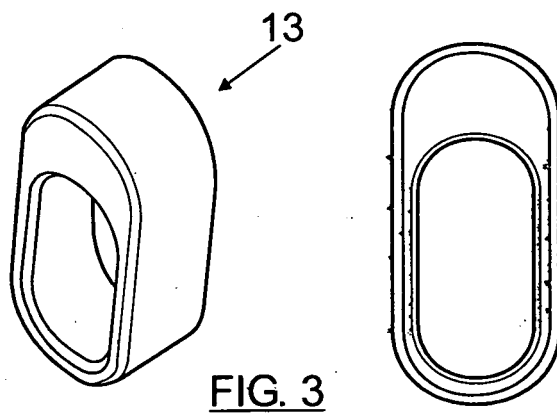
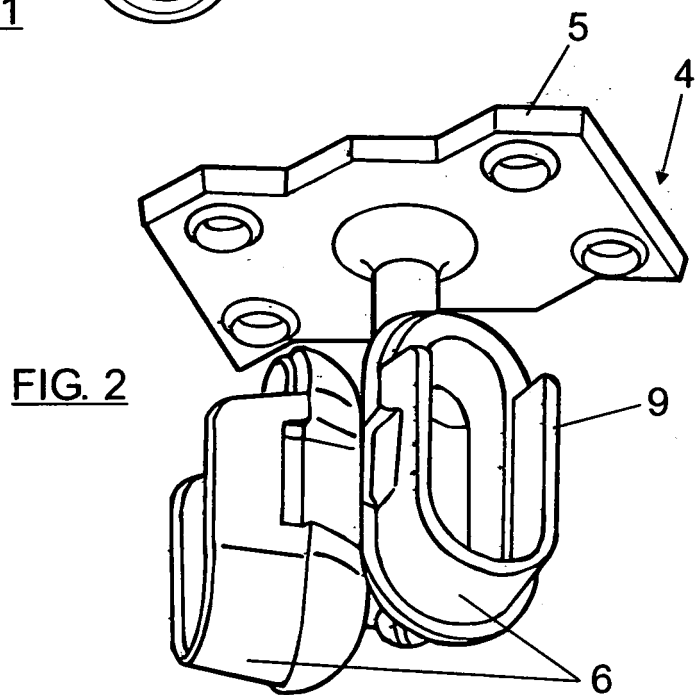
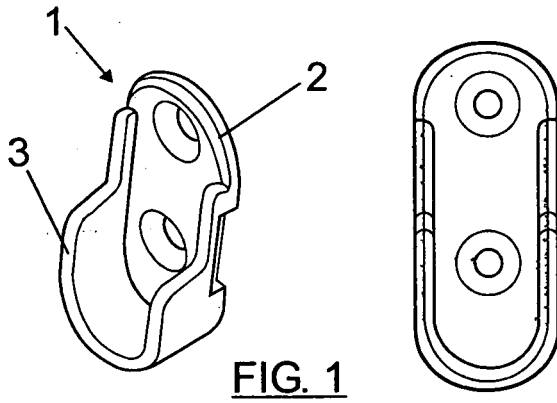
**[0037]** Figure 6 shows the case in which the bars form a 90° angle between each other and figure 7 shows an acute 30° angle.

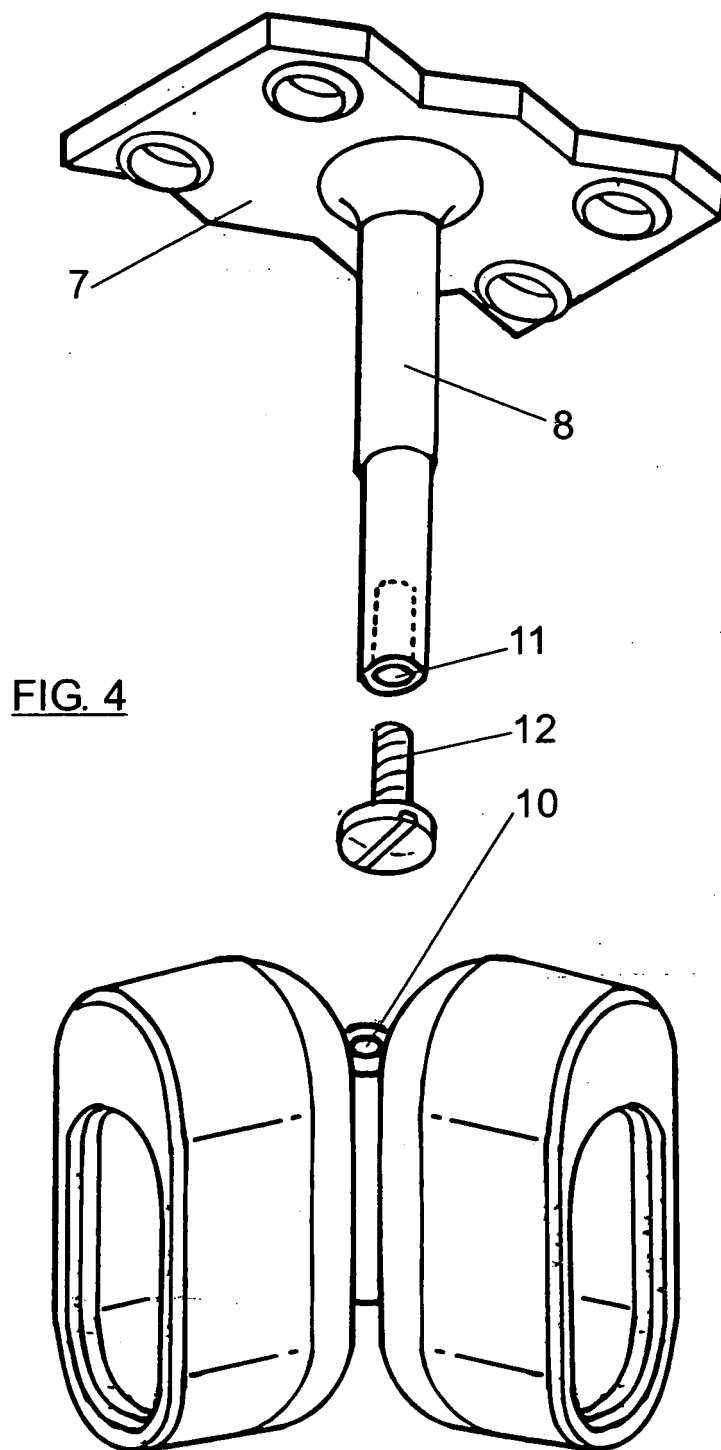
each other and with respect to the support (5), allowing to vary the angular relation between the support pieces (6) and of the latter with respect to the position of the fixing base (7) of the support (5) once the base has been assembled in the cupboard.

2. A system according to claim 1, **characterized in that** the connecting element (8) for the connection of the support (5) with the support pieces (6) consist of a rod penetrating a through hole (9) made in each of the support pieces (6), the support pieces (6) being inserted in said connecting element (8) which has its free end projecting from both support pieces, having in said free end a threaded hole (11) for housing a clamping screw (12), configured to fix the angular relation of the support pieces (6) between each other and of the latter with respect to the support (5).
3. A system according to any of the previous claims, **characterized in that** the system also comprises connecting elements (13) between the ends of the bars and the corresponding end (1) and intermediate (4) support elements (1) which consist of pieces having a central opening in which the real end of the bar is introduced, said connecting elements (13) being fitted in turn in the corresponding receiving areas arranged in the end (1) and intermediate (4) support elements.

## Claims

1. A suspension system for cupboard bars or the like comprising end support elements (1) for supporting each of the ends of at least one bar, which elements have receiving areas for receiving said ends and are fixed to the inside of the side walls of the cupboard, **characterized in that** the system further comprises at least one intermediate support element (4) comprising in turn a support (5) and at least two support pieces (6), the support (5) of which has a fixing base (7) for fixing to the upper wall of the cupboard and a connecting element (8) for the connection with the support pieces (6) and each of the support pieces (6) of which have a receiving area for receiving the corresponding end opposite to the one supported by the end support elements (1), said support (5) and support pieces (6) being configured such that the support pieces (6) are connected to the support (5) with the possibility of independent rotation between





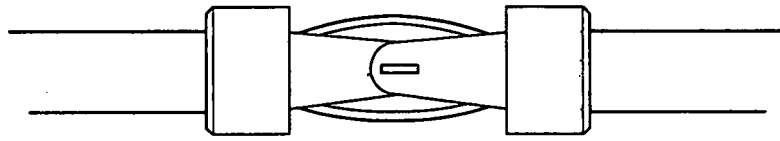


FIG. 5

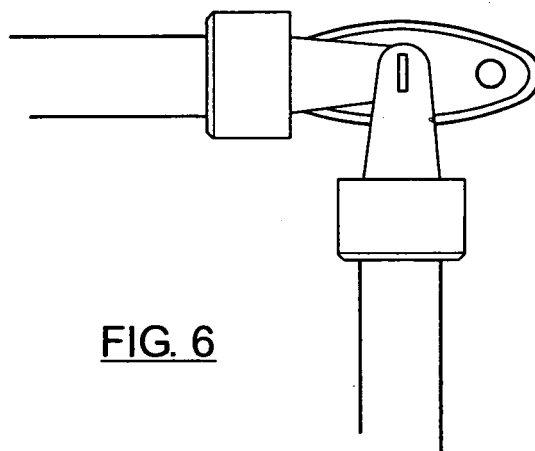


FIG. 6

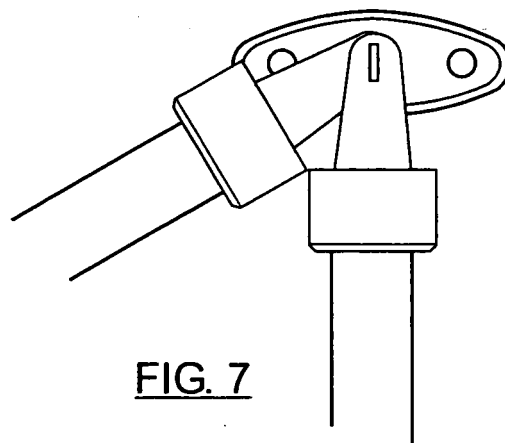


FIG. 7

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/ ES 2005/000189

| A. CLASSIFICATION OF SUBJECT MATTER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                |                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| IPC 7 : A47F7/19, A47B61/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                |                                                                               |
| 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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                |                                                                               |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                |                                                                               |
| Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                |                                                                               |
| <u>CIBEPAT, EPODOC, WPI, PAJ</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                |                                                                               |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                |                                                                               |
| Category*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Citation of document, with indication, where appropriate, of the relevant passages             | Relevant to claim No.                                                         |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | GB 168493 A (FRANK HENRY MILES) 08.09.1921;<br>The whole document                              | 1,2                                                                           |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | GB 190308218 A ( WILLIAM DODDS) 21.01.1904;<br>The whole document                              | 1,2                                                                           |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ES 0277163 Y (NEIL BERNARD MCDONAGH) 16.11.1984;<br>page 10, lines 3-12; figures 9,15,21 y 22. | 1,2                                                                           |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ES 221372 Y (INDALO IBÉRICA, S.A.) 16.10.1976; page 3,<br>line 28- page 5, line 10; figures.   | 1,3                                                                           |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ES 1039514 U (SISTEMAS Y MECANISMOS, S.L); 16.12.1998;<br>The whole document                   | 1                                                                             |
| <input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                |                                                                               |
| * Special categories of cited documents:<br>"A" document defining the general state of the art which is not considered to be of particular relevance<br>"E" earlier document but published on or after the international filing date<br>"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)<br>"O" document referring to an oral disclosure, use, exhibition or other means<br>"P" document published prior to the international filing date but later than the priority date claimed<br>"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<br>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone<br>"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<br>"&" document member of the same patent family |                                                                                                |                                                                               |
| Date of the actual completion of the international search<br>30 June 2005 (30.06.05)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                | Date of mailing of the international search report<br>12 July 2005 (12.07.05) |
| Name and mailing address of the ISA/<br>S.P.T.O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                | Authorized officer                                                            |
| Facsimile No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                | Telephone No.                                                                 |

Form PCT/ISA/210 (second sheet) (July 1992)



**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/ ES 2005/000189

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|---------------------|----------------------------|---------------------|
| GB168493 A                                | 08.09.1921          | NONE                       | -----               |
| GB189312773 A                             | 24.02.1894          | NONE                       | -----               |
| ES0277163 Y                               | 16.11.1984          | NONE                       | -----               |
| ES221372 Y                                | 16.10.1976          | NONE                       | -----               |
| ES1039514 U                               | 16.12.1998          | NONE                       | -----               |

Form PCT/ISA/210 (patent family annex) (July 1992)

**REFERENCES CITED IN THE DESCRIPTION**

*This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.*

**Patent documents cited in the description**

- ES 1039514 U [0005]
- ES 221372 U [0006]