



(51) International Patent Classification:  
A61F 5/01 (2006.01)

(21) International Application Number:  
PCT/IB2011/053342

(22) International Filing Date:  
27 July 2011 (27.07.2011)

(25) Filing Language: Italian

(26) Publication Language: English

(30) Priority Data:  
MI2010A001390 28 July 2010 (28.07.2010) IT

(71) Applicant (for all designated States except US): **INDACO S.R.L.** [IT/IT]; Contrada Iscalunga snc, I-85020 Filiano PZ (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FRANGI, Roberta** [IT/IT]; Via Gradisca 17, I-21020 Buguggiate VA (IT).  
**FRANGI, Massimo** [IT/IT]; Loc. Il Ghiaccio 72, I-57028 Suvereto LI (IT).

(74) Agents: **PERANI, Aurelio** et al.; c/o Perani & Partners, Piazza San Babila 5, I-20122 Milan (IT).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

— of inventorship (Rule 4.17(iv))

**Published:**

— with international search report (Art. 21(3))

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:  
12 April 2012

(54) Title: SUPPORT FOR HUMAN JOINTS

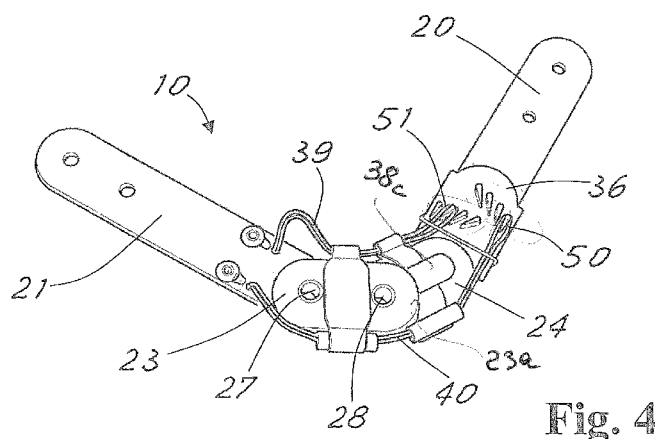


Fig. 4

(57) Abstract: The present invention concerns a support (10) for human joints comprising a first rod (20) intended to be attached substantially solidly to a first human body part and a second rod (21) intended to be attached substantially solidly to a second human body part, the first and the second rod being connected to each other via articulation means (22) suitable for permitting reciprocal rotation of the two rods (20, 21) about at least one rotation pin (27), the support comprising locking means for limiting the rotation between the two rods in at least one angular direction. The locking means comprise at least one flexible cable (40), the support (10) comprising first fixing means (44) for fixing a first end of the cable (40) to the first rod (20) or to the articulation means (22), and second fixing means (35) for fixing a second end of the cable (40) to the second rod (21) or to the articulation means (22), the cable (40) being under tension when the two rods (20, 21) reach a maximum reciprocal inclination permitted by the locking means.

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/IB2011/053342

A. CLASSIFICATION OF SUBJECT MATTER  
INV. A61F5/01  
ADD.

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)  
A61F

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 practical, search terms used)

EP0-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                           | Relevant to claim No. |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X         | EP 0 522 484 A1 (TECHNOFIN S R L [IT])<br>13 January 1993 (1993-01-13)                                                                       | 1,2,6,8,<br>10        |
| Y         | the whole document                                                                                                                           | 3,7,9                 |
| Y         | US 2006/106328 A1 (SIELLER RICHARD T [US]<br>ET AL) 18 May 2006 (2006-05-18)<br>abstract; figures 1,2<br>paragraph [0027] - paragraph [0030] | 3                     |
| Y         | US 4 844 057 A (HOY DAVID [US])<br>4 July 1989 (1989-07-04)<br>abstract; figures 3,4                                                         | 7                     |
| Y         | US 5 456 268 A (BONUTTI PETER M [US])<br>10 October 1995 (1995-10-10)<br>abstract; figure 5                                                  | 9                     |
|           | -----<br>-/-                                                                                                                                 |                       |



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"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)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search

24 January 2012

Date of mailing of the international search report

14/02/2012

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040,  
Fax: (+31-70) 340-3016

Authorized officer

Sánchez y Sánchez, J

## INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2011/053342

| C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |                                                                                                                                           |                       |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Category*                                            | Citation of document, with indication, where appropriate, of the relevant passages                                                        | Relevant to claim No. |
| X                                                    | US 5 683 353 A (HAMERSLY GREG A [US])<br>4 November 1997 (1997-11-04)<br>abstract; figures 3,4<br>-----                                   | 1,2                   |
| X                                                    | US 2002/107462 A1 (FREEMAN BRAD [US] ET<br>AL) 8 August 2002 (2002-08-08)<br>paragraph [0019] - paragraph [0020];<br>figures 3-6<br>----- | 1,2,4                 |
| A                                                    | US 4 361 142 A (LEWIS JACK L ET AL)<br>30 November 1982 (1982-11-30)<br>column 6, line 21 - line 47; figures 1-10<br>-----                | 4,5                   |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2011/053342

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date         |
|-------------------------------------------|---------------------|----------------------------|-----------------------------|
| EP 0522484                                | A1                  | 13-01-1993                 | EP 0522484 A1 13-01-1993    |
|                                           |                     | IT PN910021 U1             | 11-01-1993                  |
| -----                                     |                     |                            |                             |
| US 2006106328                             | A1                  | 18-05-2006                 | NONE                        |
| -----                                     |                     |                            |                             |
| US 4844057                                | A                   | 04-07-1989                 | NONE                        |
| -----                                     |                     |                            |                             |
| US 5456268                                | A                   | 10-10-1995                 | NONE                        |
| -----                                     |                     |                            |                             |
| US 5683353                                | A                   | 04-11-1997                 | US 5472410 A 05-12-1995     |
|                                           |                     | US 5683353 A               | 04-11-1997                  |
| -----                                     |                     |                            |                             |
| US 2002107462                             | A1                  | 08-08-2002                 | US 2002107462 A1 08-08-2002 |
|                                           |                     | US 2002107463 A1           | 08-08-2002                  |
| -----                                     |                     |                            |                             |
| US 4361142                                | A                   | 30-11-1982                 | DE 3277566 D1 10-12-1987    |
|                                           |                     | EP 0085716 A1              | 17-08-1983                  |
|                                           |                     | JP 4003973 B               | 24-01-1992                  |
|                                           |                     | JP S58501266 A             | 04-08-1983                  |
|                                           |                     | US 4361142 A               | 30-11-1982                  |
|                                           |                     | WO 8300618 A1              | 03-03-1983                  |
| -----                                     |                     |                            |                             |