

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
15 February 2007 (15.02.2007)

PCT

(10) International Publication Number  
**WO 2007/019391 A3**

(51) International Patent Classification:

A61B 17/70 (2006.01)

(21) International Application Number:

PCT/US2006/030614

(22) International Filing Date: 3 August 2006 (03.08.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

11/198,393 5 August 2005 (05.08.2005) US

60/795,883 27 April 2006 (27.04.2006) US

(71) Applicant (for CA only): **HFSC COMPANY** [US/US];  
1302 Wrights Lane East, West Chester, PA 19380 (US).

(71) Applicant (for all designated States except CA, US): **SYNTHES GMBH** [CH/CH]; Eimattstrasse 3, 4436 Oberdorf (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ASCHMANN, Felix** [CH/CH]; Zuercherstrasse 127, CH-4052 Basel (CH).

**SENN, Peter** [CH/CH]; Burgmattstrasse 18, CH-4437 Waldenburg (CH). **MAYER, Michael** [DE/DE]; Im Birket 18, D-82166 Graefelfing (DE). **PAVLOV, Paul** [NL/NL]; Louiseweg 5, NL-6523 NA Nijmegen (NL).

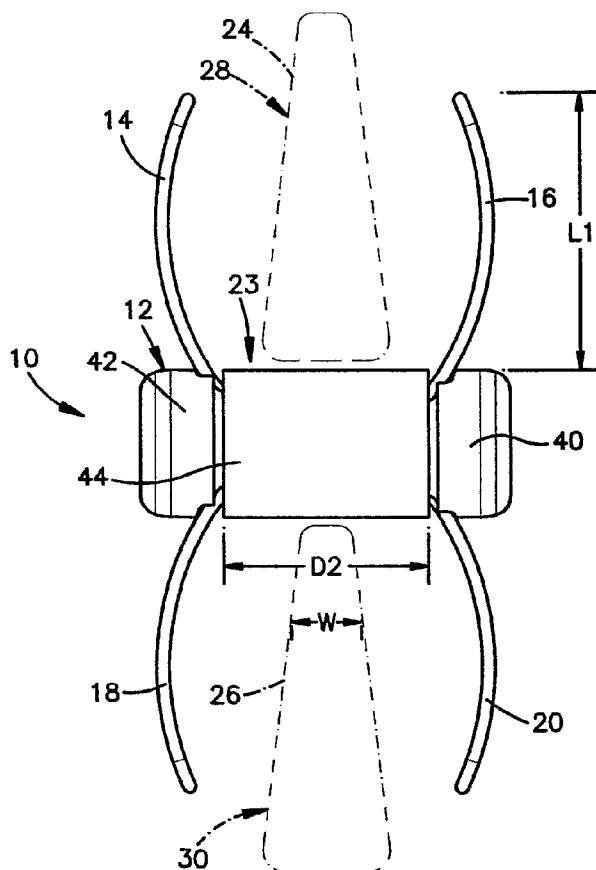
(74) Agents: **ROTHERY, Brian, M.** et al.; Jones Day, 222 East 41st Street, New York, NY 10017-6702 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: APPARATUS FOR TREATING SPINAL STENOSIS



(57) Abstract: A device for treating spinal stenosis having an implant body structure (12) sized and configured to be positioned between the spinous processes of two adjacent vertebrae. The device may have a body portion having a first end portion (40), a second end portion (42) and a sleeve (44) between the first and second end portions. The device may also have at least two retainers (14, 16) positioned in and extendable from the body portion. A mechanism positioned within the body portion may be used to move the retainers between a retracted position and a deployed position. When the retainers are in the deployed position, the retainers may be positioned around the spinous process of at least one of two adjacent vertebrae. A plurality of installation tools which may be used to install the device are also disclosed.



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

**(88) Date of publication of the international search report:**  
7 June 2007

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2006/030614

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. A61B17/70

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)  
A61B

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         | WO 2005/009300 A (CHOI BYUNG-KWAN [KR])<br>3 February 2005 (2005-02-03)<br><br>page 12<br>figures 25,26   | 1-9,<br>12-18,<br>21-29,<br>32,33,41 |
| X,P       | WO 2006/064356 A (DOELLINGER HORST [DE])<br>22 June 2006 (2006-06-22)<br>page 9, line 24 - page 26, line 6  | 1,25                                 |
| X,P       | WO 2006/045094 A2 (UNIV LELAND STANFORD JUNIOR [US]; KIM DANIEL H [US])<br>27 April 2006 (2006-04-27)<br>paragraph [0101] - paragraph [0117]<br>figures 18-25 | 1,25                                 |
|           | -----<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

5 December 2006

Date of mailing of the international search report

30/03/2007

Name and mailing address of the ISA/  
European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Buchmann, Gerhard

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2006/030614

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|-----------|---|-----------------------|
| E         | WO 2006/102269 A (ST FRANCIS MEDICAL TECH<br>INC [US]; ZUCHERMAN JAMES F [US]; HSU KEN<br>Y [U] 28 September 2006 (2006-09-28)<br>figures | 1,25                  |
| A         | US 2005/055031 A1 (LIM ROY [US])<br>10 March 2005 (2005-03-10)<br>figure 17   | 1-33,41               |

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2006/030614

### Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 56-63  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box III Observations where unity of invention is lacking (Continuation of Item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-24, 25-33, 41

#### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-24,25-33,41

An apparatus to be implanted between the spinous processes.

1.1. claims: 1-24,41

An apparatus to be implanted between the spinous processes, comprising an implant body, at least two retainers and a mechanism to move the retainers from a retracted position to a deployed position.

1.2. claims: 25-33

An apparatus to be implanted between the spinous processes, comprising a body structure having a longitudinal axis, at least two retainer members configured to move from a retracted position to a deployed position, and having a peripheral middle portion configured to move under forces applied from the spinous processes.

---

2. claims: 34-40

An apparatus to be implanted between the spinous processes comprising a body structure, at least two retainers projecting outward from the body structure in a deployed position, and a tube configured to receive the body structure, the tube having openings through which the retainers are movable to the deployed position.

---

3. claims: 42-48

A kit comprising a plurality of differently sized tubes configured to distract the spinous processes.

---

4. claims: 49-51

An apparatus for inserting an implant between the spinous processes, comprising a tube and an implant holder to move the implant body through the tube wherein the implant holder engages the tube to limit the movement of the implant.

---

5. claims: 52-55

A device for holding a surgical instrument, comprising a body with a passageway therethrough, an instrument engaging device having two prongs to hold an instrument and a knob to control movement of the prongs.

---

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/030614

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|---------------------|----------------------------|---------------------|
| WO 2005009300 A                           | 03-02-2005          | KR 20050012077 A           | 31-01-2005          |
| WO 2006064356 A                           | 22-06-2006          | NONE                       |                     |
| WO 2006045094 A2                          | 27-04-2006          | US 2006085070 A1           | 20-04-2006          |
| WO 2006102269 A                           | 28-09-2006          | US 2007010813 A1           | 11-01-2007          |
| US 2005055031 A1                          | 10-03-2005          | AU 2004271986 A1           | 24-03-2005          |
|   |                     | CA 2538044 A1              | 24-03-2005          |
|   |                     | CN 1849105 A               | 18-10-2006          |
|   |                     | EP 1667616 A2              | 14-06-2006          |
|   |                     | KR 20060118434 A           | 23-11-2006          |
|   |                     | WO 2005025461 A2           | 24-03-2005          |