

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
21 May 2004 (21.05.2004)

PCT

(10) International Publication Number  
**WO 2004/041131 A3**

(51) International Patent Classification<sup>7</sup>: **A61F 2/46**, 2/44

(21) International Application Number:  
PCT/US2003/034641

(22) International Filing Date: 31 October 2003 (31.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/422,764 31 October 2002 (31.10.2002) US

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,  
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,  
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,  
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,  
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH,  
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,  
SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

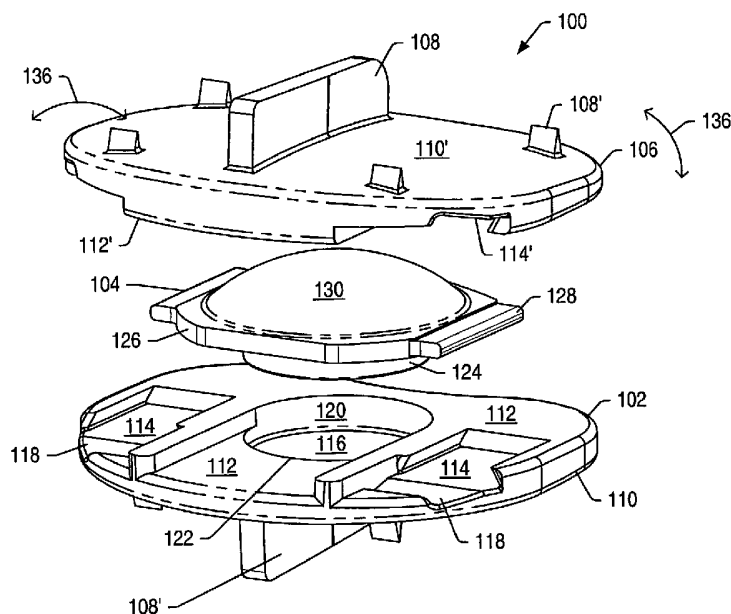
**Published:**

- 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:  
2 September 2004

[Continued on next page]

(54) Title: MOVABLE DISC IMPLANT



(57) Abstract: A disc implant is provided which maintains intervertebral spacing and stability within the spine. In an embodiment, a disc implant may include three or more components. Components of the implant may imitate certain physiological movements associated with a healthy spine. In certain embodiments, the components of the implant may limit physiological movements to within certain ranges, imitating normal spinal movements.



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*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/US 03/34641

| <b>A. CLASSIFICATION OF SUBJECT MATTER</b><br>IPC 7 A61F2/46 A61F2/44   |   |  |
|---|---|--|
| According to International Patent Classification (IPC) or to both national classification and IPC   |   |  |
| <b>B. FIELDS SEARCHED</b><br>Minimum documentation searched (classification system followed by classification symbols)<br>IPC 7 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)<br>EPO-Internal  |   |  |
| <b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>   |   |  |
| Category *  | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No.  |
| Y   | WO 01/01893 A (BEYERSDORFF BORIS ;MARNAY THIERRY (FR); SPINE SOLUTIONS INC (US))<br>11 January 2001 (2001-01-11)<br>page 8, paragraph 1 - page 12, paragraph 3<br>-----               | 1,3,4  |
| Y   | US 6 146 421 A (THOMAS JR JAMES C ET AL)<br>14 November 2000 (2000-11-14)<br>column 3, line 35 - column 7, line 28<br>-----   | 1,2,4,6  |
| Y   | US 6 368 350 B1 (GRIFFITH STEVEN L ET AL)<br>9 April 2002 (2002-04-09)<br>column 5, line 9 - line 30<br>column 6, line 51 - column 7, line 36<br>column 10, line 9 - line 11<br>----- | 1,4-6  |
| Y   | US 5 314 477 A (MARNAY THIERRY)<br>24 May 1994 (1994-05-24)<br>column 4, line 63 - column 5, line 23<br>-----<br>-/--   | 1,2,4,7  |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in 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><br>19 March 2004  |   | Date of mailing of the international search report<br><br>09.07.2004 |
| Name and mailing address of the ISA<br>European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,<br>Fax: (+31-70) 340-3016  |   | Authorized officer<br><br>Buchmann, G                                |

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/34641

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|------------|--|-----------------------|
| Y          | US 2002/087212 A1 (NAUGHTON RONALD J ET AL) 4 July 2002 (2002-07-04)<br>paragraph [0037]<br>paragraph [0040]<br>-----  | 1-7                   |
| Y          | WO 01/62191 A (DERIDDER STEVEN D ;SDGI HOLDINGS INC (US); BUSKIRK DAYNA (US); LAN) 30 August 2001 (2001-08-30)<br>page 13, line 20 - page 14, line 10<br>----- | 1-7                   |

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 03/34641

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 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.: 15-20, 38-44  
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 II Observations where unity of invention is lacking (Continuation of item 2 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.:

1-7

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

Continuation of Box I.1

Claims Nos.: 15-20, 38-44

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-7

An artificial disc implant, comprising two engaging plates each having a recess and slots for engagement of an insertion instrument, and a member between the engaging plates complementing the recess to allow axial, lateral and anteroposterior movement of the engaging plates, wherein the slots are at an angle relative to an anterior-posterior axis fo the engaging plates.

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2. claims: 8-14, 45

A system for inserting an artificial disc implant, comprising  
- an inserter having a body with a passage, and arms for coupling to engaging plates of an implant,  
- a distractor for separation of the arms such that the engaging plates remain parallel.

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3. claims: 21-27

An artificial disc implant, comprising two engaging plates each having a recess, and a member between the engaging plates complementing the recess to allow axial, lateral and anteroposterior movement of the engaging plates, wherein one or more sides of the recess are tapered.

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4. claims: 28-31

A system for inserting an artificial disc implant, comprising  
- an inserter having a body with a passage, and arms for coupling to engaging plates of an implant,  
- a distractor for separation of the arms.

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5. claims: 32-37

A system for inserting an artificial disc implant, comprising  
- an inserter having a body with a passage, and arms for coupling to engaging plates of an implant,  
- a distractor for separation of the arms,  
- a plurality of implant components and  
- trial endplates.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/34641

| Patent document<br>cited in search report |    | Publication<br>date | Patent family<br>member(s)   | Publication<br>date  |
|---|----|---------------------|--|--|
| WO 0101893                                | A  | 11-01-2001          | DE 29911422 U1<br>WO 0101893 A1<br>AU 7224500 A<br>BR 9917397 A<br>CA 2391330 A1<br>EP 1194088 A1<br>JP 2003503154 T   | 12-08-1999<br>11-01-2001<br>22-01-2001<br>05-03-2002<br>11-01-2001<br>10-04-2002<br>28-01-2003   |
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