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English

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English

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

(88) Date of publication of the international search report:
20 November 2008

(54) Title: SPINAL STABILIZATION SYSTEMS AND METHODS OF USE

(57) Abstract: Devices and methods are adapted to permit fixation and stabilization of the bony elements of the skeleton. The devices permit adjustment and maintenance of the spatial relationship between neighboring bones. The motion between adjacent skeletal segments may be maintained, limited or completely eliminated.
# INTERNATIONAL SEARCH REPORT

<table>
<thead>
<tr>
<th>International application No.</th>
<th>PCT/US 08/02543</th>
</tr>
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</table>

## A. CLASSIFICATION OF SUBJECT MATTER

**IPPC** - A61B 17/70 (2008.04)

**USPC** - 506/249

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)**

IPPC(8) - A61B 17/70 (2008.04)

USPC - 606/249

**Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched**

606/53, 60, 246, 247, 248

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubMed, USPTO, PGPB, EPOAB, JPAB, Google Scholar;

Search Terms Used: vertebral, spine, compress process, fixation, fusion, pedicle screw, BMP, distraction screw, fastener, posterior process, spacer

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 2006/0015181 A1 (ELBERG) 19 January 2006 (19.01.2006) Entire document, especially para [0014], [0034], [0036], [0043], [0053], [0060] and FIGS. 1, 9 &amp; 10.</td>
<td>12 1-11 and 13-15</td>
</tr>
<tr>
<td>Y</td>
<td>US 2006/0085646 A1 (BONUTTI) 27 April 2006 (27.04.2006) para [0002] and [0075].</td>
<td>3</td>
</tr>
<tr>
<td>Y</td>
<td>US 2006/0241614 A1 (BRUNAEU et al.) 26 October 2006 (26.10.2006) para [0004], [0015] and FIG. 4.</td>
<td>4</td>
</tr>
<tr>
<td>Y</td>
<td>US 2006/0149278 A1 (ABDOU) 06 July 2006 (06.06.2006) para [0013], [0074], [0075] and FIG. 1, 3, 4.</td>
<td>7-9</td>
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</table>

Further documents are listed in the continuation of Box C.

<table>
<thead>
<tr>
<th>Special categories of cited documents:</th>
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<tbody>
<tr>
<td>&quot;A&quot; Document defining the general state of the art which is not considered to be of particular relevance</td>
</tr>
<tr>
<td>&quot;E&quot; Earlier application or patent but published on or after the international filing date</td>
</tr>
<tr>
<td>&quot;L&quot; 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)</td>
</tr>
<tr>
<td>&quot;O&quot; Document referring to an oral disclosure, use, exhibition or other means</td>
</tr>
<tr>
<td>&quot;P&quot; Document published prior to the international filing date but later than the priority date claimed</td>
</tr>
<tr>
<td>&quot;T&quot; 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</td>
</tr>
<tr>
<td>&quot;X&quot; 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</td>
</tr>
<tr>
<td>&quot;Y&quot; 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</td>
</tr>
</tbody>
</table>

* Date of the actual completion of the international search: 08 September 2008 (08.09.2008)

* Date of mailing of the international search report: 15 SEP 2008

* Name and mailing address of the ISA/US:
  Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
  P.O. Box 1450, Alexandria, Virginia 22313-1450
  Facsimile No. 871-273-3201

* Authorized officer: Lee W. Young
  PCT Helpdesk: 571-272-4300
  PCT OSP: 571-272-7774

* Form PCT/ISA/210 (second sheet) (April 2007)
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.: because they relate to subject matter not required to be searched by this Authority, namely:

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).

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:

Group I: Claims 1-15, directed to at least two bone engagement members with a connection member wherein the connection is capable of reversibly transitioning between a first state and a second state.

Group II: Claims 16-17, directed to a device housing a bone mass, capable of connecting the lamina of two vertebrae.

-- See extra 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 additional fees, this Authority did not invite payment of additional fees.

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.: 1-15

Remark on Protest

□ The additional search fees were accompanied by the applicant’s protest and, where applicable, the payment of a protest fee.

□ The additional search fees were accompanied by the applicant’s protest but the applicable protest fee was not paid within the time limit specified in the invitation.

□ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet (2)) (April 2007)
Continuation of Box No. 3:

The inventions listed as Groups I - II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical feature of Group I is at least two bone engagement members with a connection member wherein the connection is capable of reversibly transitioning between a first state where the orientation between the engagement member and the cross member is changeable in at least one plane and a second state where the orientation between the at least two members is rigidly affixed, which is not present in Group II that has a special technical feature of connection of the lamina of two vertebrae by a device housing a bone mass.

The sole element of commonality between the groups is that of contacting and connecting two vertebrae, which is known in the prior art (ref: US 5,607,425 A to Rogozinski, Abstract).

Accordingly, unity of invention is lacking under PCT Rule 13.1 because the groups do not share a same or corresponding special technical feature.