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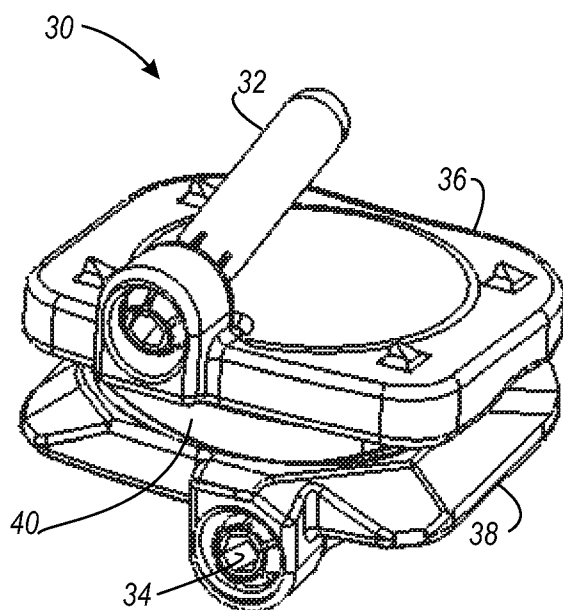


FIG. 44

(57) Abstract: An apparatus and method is provided relating to artificial discs. An artificial disc (30) is provided that facilitates simultaneous and independent articulation of flexion/extension, lateral bending, anterior/posterior translation, and axial rotation, the artificial disc (30) provided these four simultaneous and independent articulations by independently addressing each type of articulation in the design of the artificial disc (30). In one example, an artificial disc (30) is comprised of a bearing (40) disposed between first and second end plates (36, 38). The bearing (40) is movable relative to each end plate (36, 38), independent of the other end plate. The end plates (36, 38) are affixed to adjacent vertebrae by pegs (32) extending through holes in the end plates and being fixed in the holes.



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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2008/054295

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61F2/44

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)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 0 560 141 A (LINK WALDEMAR GMBH CO [DE]) 15 September 1993 (1993-09-15) column 4, line 54 - column 5, line 43 -----	1-6, 23-31 7, 32
X	US 2004/143332 A1 (KRUEGER DAVID J [US] ET AL) 22 July 2004 (2004-07-22) paragraphs [0098] - [0104], [0108] - [0116] -----	1-6, 23-25, 29-31
X Y	US 2005/113926 A1 (ZUCHERMAN JAMES F [US] ET AL) 26 May 2005 (2005-05-26) paragraphs [0017] - [0036] ----- -/--	1, 4-6, 23, 29-31 2, 3, 24, 25

Further documents are listed in the continuation of Box C. See patent family annex.

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|---|---|
| <p>* Special categories of cited documents:</p> <ul style="list-style-type: none"> *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 | <ul style="list-style-type: none"> *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 14 July 2008	Date of mailing of the international search report 09/12/2008
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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 Buchmann, Gerhard
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INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2004/002291 A (NUVASIVE INC [US]; BLAIN JASON [US]; VALANTINE KEITH [US]) 8 January 2004 (2004-01-08) page 6, line 18 - page 8, line 33 -----	1, 4-6, 23, 29-31
X	EP 1 712 207 A (FLEXISMED SA [CH]) 18 October 2006 (2006-10-18) paragraphs [0022] - [0026] -----	1-6
Y	US 2006/041314 A1 (MILLARD THIERRY [FR]) 23 February 2006 (2006-02-23). paragraphs [0021] - [0044] -----	2, 3, 24, 25
Y	WO 03/005939 A (LDR MEDICAL [FR]; LOUIS CHRISTIAN [FR]; HUPPERT JEAN [FR]; TROPIANO PA) 23 January 2003 (2003-01-23) figures 3b, 3c -----	7, 32
A	WO 2004/039241 A (ST FRANCIS MEDICAL TECH INC [US]) 13 May 2004 (2004-05-13) paragraph [0023] -----	1-22

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/054295

Box No. 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.:
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).

Box No. 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 allsearchable claims.

2. As all searchable claims could be searched without effort justifying an 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 - 7, 23 - 32

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.

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, 23-32

An intervertebral disc comprising a first member, a second member and a third member in between wherein the members allow independent articulation of flexion/extension, lateral bending, anterior/posterior translation and axial rotation.

2. claims: 8-22, 33-37

An intervertebral implant comprising a first member having a concave surface, a second member having a concave surface and a third member having two convex surfaces in between, the first convex surface allowing flexion/extension, the second convex surface allowing lateral bending, the implant also allowing anterior/posterior translation and axial rotation.

3. claims: 38-44

An intervertebral disc comprising a first member, a second member and a third member in between wherein a protrusion extends from the second member into the third member to restrict the relative movement.

4. claims: 45-57

An intervertebral disc comprising a first member having a recess, a second member having a post, and a collar disposed between the post and the recess.

5. claims: 58-79

An implantable device having a hole and a peg extending through the hole into the bone to minimise migration of the implant.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2008/054295
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