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(71) Applicant and

(72) Inventor: **FERREE, Bret, A.** [US/US]; 1238 Cliff Laine Drive, Cincinnati, OH 45208 (US).

(74) Agents: **POSA, John, G.** et al.; Gifford, Krass, Groh, Sprinkle, Anderson & Citkowski, P.C., 280 N. Old Woodward Ave., Suite 400, Birmingham, MI 48009 (US).

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(54) Title: ARTIFICIAL DISC REPLACEMENTS WITH OBLIQUE KEELS

(57) Abstract: Artificial disc replacement (ADR) systems with intradiscal components (800) features non anterior-posterior (AP) or oblique-oriented keels (820) such that the great vessels do not require as much retraction during insertion. The system may further include guides (600) for aligning the ADR prior to insertion, and for cutting an oblique slot into a vertebral endplate to receive the keel. A screw (840) adapted to penetrate a vertebral body may be used in conjunction with the keel. The screw (840) and keel (820) may converge, diverge or intersect. The screw (840) may further include a mechanism providing a locking relationship with the keel (820). The system may further including a guide (600) to direct drill bits and screws through holes in the keel. ADR according to the invention may additionally, independently include a non-symmetrical endplate shaped so as to decrease the risk of injuring the great vessels. By virtue of the invention, a second ADR may be installed at a second level having a keel oriented differently from that of the ADR having an orientation other than anterior-to-posterior.

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US04/17978

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : A61F 2/44  
 US CL : 623/17.16

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)  
 U.S. : 623/17.16

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 practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5314477A (Marnay) 23 May 1994, entire document	1-3,9-11
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A		4-8

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents:

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"E"	earlier application or patent published on or after the international filing date	"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
"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)	"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
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

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Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
 Commissioner of Patents  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450

Authorized officer

CORRINE MCDERMOTT *Corrine McDermott*

Telephone No. 703-308-0858 *for*

Facsimile No. (703) 305-3230