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(71) Applicant (for all designated States except US):  
SPINECORE, INC. [US/US]; 475 Springfield Ave, 4th  
Floor, Summit, NJ 07901 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): DUDASIK, Michael,  
W. [US/US]; 29 Daily Street, Nutley, NJ 07110 (US).

(74) Agents: KOCUN, Kevin, M. et al.; Lerner, David, Lit-  
tenberg, Krumholz & Mentlik, Llp, 600 South Avenue  
West, Westfield, NJ 07090 (US).

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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted  
a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of  
the earlier application (Rule 4.17(iii))

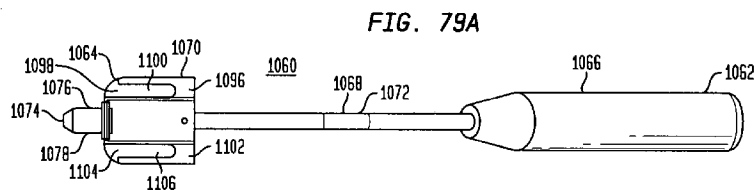
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- with international search report (Art. 21(3))

(88) Date of publication of the international search report:

30 December 2009

(54) Title: INSTRUMENTS AND METHODS FOR INSERTING ARTIFICIAL INTERVERTEBRAL IMPLANTS



(57) Abstract: Apparatus and methods for preparing a disc space and inserting an intervertebral disc implant therein are disclosed. Among the various instruments disclosed are a midline marker (1000), a reference pin drill and insertion guide (1060), a fin drill guide (1314), a chisel guide (1450), a sizer (1508), a serrated broach (1636), an implant dispenser (1756), and an implant insertion tool (1800). Methods of utilizing these tools are also disclosed.



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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 09/00392

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 17/58; A61B 17/60; A61F 2/00 (2009.01)

USPC - 606/102

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)

IPC - A61B 17/58; A61B 17/60; A61F 2/00 (2009.01)

USPC - 606/102

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

USPC - 606/86A, 90

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

PubWEST(USPT, PGPB, EPAB, JPAB); Google Scholar

Search Terms: spine, marker, implant, concave, arm, recess, sized, fitting, notch, slot, groove, opening, pocket, socket, recess

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2007/0123985 A1 (ERRICO, et al.) 31 May 2007 (31.05.2007), entire document, especially, para [0026], [0027], [0108]-[0111], [0144]; Figs. 7A-C, 10A-C	1-20
Y	US 5,312,412 A (WHIPPLE) 17 May 1994 (17.05.1994), col 4, ln 21-35; Fig. 2	1-20
Y	US 2004/0138522 A1 (HAARSTAD, et al.) 15 July 2004 (15.07.2004), para [0107]-[0109]; Figs. 22, 23	1-11, 16-20
Y	US 6,022,356 A (NOYES, et al.) 08 February 2000 (08.02.2000), col 4, ln 7-24; Fig. 1	3, 12-20
Y	US 6,953,431 B2 (BARTHEL) 11 October 2005 (11.10.2005), para [0107]; Fig. 7	10, 11, 19, 20

 Further documents are listed in the continuation of Box C.

\* 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 application or patent 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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

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Name and mailing address of the ISA/US

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Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300  
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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 09/00392

**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:  
 Group I: Claims 1-20 are directed to a marker for determining the midline of a disc space between two vertebrae.  
 Group II: Claims 21-28 are directed to a reference pin drill and insertion guide for use in preparing adjacent first and second vertebral bodies separated by a disc space.  
 Group III: Claims 29-43 are directed to an implant dispenser for holding the top and bottom elements of an intervertebral disc implant.

The inventions listed as Groups I-III 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 a marker for determining the midline of a disc space between two vertebrae, which is not present in Group II that has a special technical feature of a reference pin drill and insertion guide for use in preparing adjacent first and second vertebral bodies separated by a disc space, which is not present in Group III that has a special technical feature of an implant dispenser for holding the top and bottom elements of an intervertebral disc implant. Accordingly, unity of invention is lacking under PCT Rule 13.1.

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.:  
 Claims 1-20

**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.