

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 September 2001 (20.09.2001)

PCT

(10) International Publication Number
WO 01/068005 A3

(51) International Patent Classification⁷: **A61F 2/44**

(21) International Application Number: PCT/US01/08073

(22) International Filing Date: 14 March 2001 (14.03.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
200 04 693.4 14 March 2000 (14.03.2000) DE

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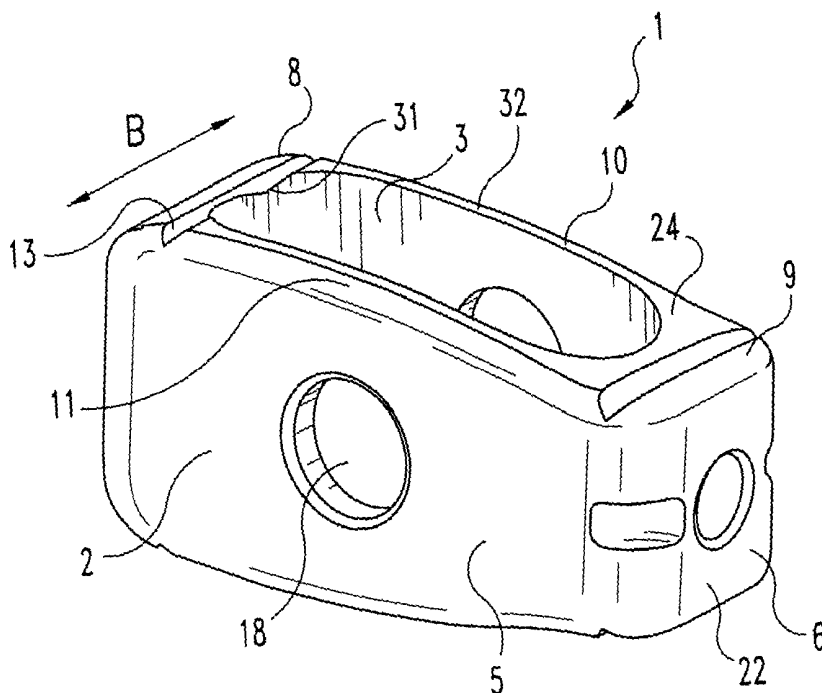
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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian

[Continued on next page]

(54) Title: VERTEBRAL IMPLANT FOR PROMOTING ARTHRODESIS OF THE SPINE



(57) Abstract: This invention provides a vertebral spacer (1, 80) for impaction in a disc space to restore and/or maintain desired disc space height and spinal orientation. The spacer has an elongated basis body (2, 82) having a generally lens-shape provided by convex upper and lower surfaces (24, 26, 86, and 87). Bearing surfaces (8, 8', 9, 9', 98 and 100) are provided on the cross-edge surfaces of the endwalls (6, 7, 94 and 96). Grooves (16, 16' and 104) are provided in the upper and lower surfaces positioned between the bearing surfaces. The spacer (1, 80) can be prepared from a wide variety of materials including metallic materials, synthetic materials, polymeric materials, ceramic materials, and composite materials including reinforced materials i.e. glass, fiber, and/or carbon fiber reinforced materials (CFRP). These preferred materials for fabricating spacers in the

present invention reduce costs, increase service life and provide excellent physiological compatibility. The non-metallic material can be selected to be either a substantially permanent material, a biodegradable material or a bioerodable material. Further, the spacer material can be provided to be radio opaque to facilitate monitoring of bone in growth both into the spacer and between the opposing endplates of the adjacent vertebrae.



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patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

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

29 August 2002

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 01/08073

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 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)

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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 776 199 A (MICHELSON GARY KARLIN) 7 July 1998 (1998-07-07) column 7, line 50 - line 60; figure 3 ----	47
A	EP 0 834 295 A (LUCET ALAIN ;MEDINOV AMP (FR); KERBOUL BERNARD (FR); PERE CHRISTIA) 8 April 1998 (1998-04-08) abstract column 5, line 52 column 6, line 16; figure 1 ----	1-10
A	FR 2 767 675 A (MATERIEL ORTHOPEDIQUE EN ABREG) 5 March 1999 (1999-03-05) the whole document ----- -/--	1-10

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

8 April 2002

Date of mailing of the international search report

17 04 2002

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INTERNATIONAL SEARCH REPORT

Inter
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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.
A	WO 98 09586 A (KNOTHE INGA MAREN ;BENOIT ALFRED (CH); HAEFELI THOMAS (CH); SYNTHÉ) 12 March 1998 (1998-03-12). claims 5,6	11-46
A	WO 97 14378 A (DANEK MEDICAL INC) 24 April 1997 (1997-04-24) page 10, line 13 -page 11, line 7; figure 6	1-46
A	US 4 834 757 A (BRANTIGAN JOHN W) 30 May 1989 (1989-05-30) cited in the application column 3, last paragraph column 6, line 40 - line 50	1,11,28

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 01/08073

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.: 51-60
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.:

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

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

1. Claims: 1-10

2. Claims: 11-46

3. Claims: 47-50

INTERNATIONAL SEARCH REPORT

Information on patent family members

 International Application No
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