

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 May 2003 (22.05.2003)

PCT

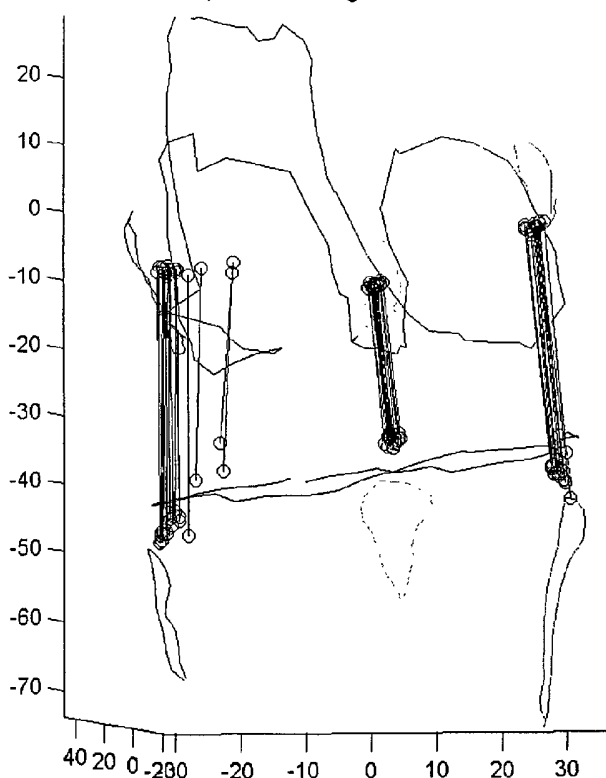
(10) International Publication Number
WO 2003/041566 A3

- (51) International Patent Classification⁷: **A61B 19/00**
- (21) International Application Number: PCT/US2002/036719
- (22) International Filing Date: 14 November 2002 (14.11.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/331,307 14 November 2001 (14.11.2001) US
- (71) Applicant (for all designated States except US): **UNIVERSITY OF BRITISH COLUMBIA** [CA/CA]; Industry Liaison Office, IRC Room 331, 2194 Health Sciences Mall, Vancouver, British Columbia V6T 1Z3 (CA).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **ILLSLEY, Scott, G.** [CA/US]; Z-kat, 2901 Simms Street, Hollywood, FL 33020 (US). **HODGSON, Antony, J.** [CA/CA]; 4248 W. 11th Avenue, Vancouver, British Columbia V6R 2L7 (CA).
- (74) Agents: **ROBERTS, Mark, W.** et al.; Dorsey & Whitney LLP, 1420 Fifth Avenue, Suite 3400, Seattle, WA 98101 (US).
- (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, EC, 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, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

(54) Title: METHODS AND SYSTEMS FOR INTRAOPERATIVE MEASUREMENT OF SOFT TISSUE CONSTRAINTS IN COMPUTER AIDED TOTAL JOINT REPLACEMENT SURGERY

Visualization of Ligament Placement
Operator A - 3 ligament model



(57) Abstract: Methods and systems are described to quantitatively determine the degree of soft tissue constraints on knee ligaments and for properly determining placement parameters for prosthetic components in knee replacement surgery that will minimize strain on the ligaments. In one aspect, a passive kinetic manipulation technique is used in conjunction with a computer aided surgery (CAS) system to accurately and precisely determine the length and attachment sites of ligaments. These manipulations are performed after an initial tibial cut and prior to any other cuts or to placement of any prosthetic component. In a second aspect, a mathematical model of knee kinematics is used with the CAS system to determine optimal placement parameters for the femoral and tibial components of the prosthetic device that minimizes strain on the ligaments.

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

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.

Published:

— *with international search report*

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

26 February 2004

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/36719

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : A61B 19/00
 US CL : 128/898
 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. : 128/898

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)
 EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
/A	US 5,871,018 A (DELP et al) 16 February 1999 (16.02.1999), Entire Document.	1-35
/A	US 5,950,629 A (TAYLOR et al) 14 September 1999 (14.09.1999), Entire Document.	1-35
/A	US 6,205,411 B1 (DIGIOIA, III et al) 20 March 2001 (20.03.2001), Entire Document.	1-35
/A	US 6,285,902 B1 (KIENZLE, III et al) 04 September 2001 (04.09.2001), Entire Document.	1-35

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"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search: 07 February 2003 (07.02.2003)
 Date of mailing of the international search report: 21 MAY 2003

Name and mailing address of the ISA/US: Commissioner of Patents and Trademarks, Box PCT, Washington, D.C. 20231, Facsimile No. (703)305-3230
 Authorized officer: Corrine M. McDermott, Telephone No. (703) 308-0858