

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
24 February 2005 (24.02.2005)

PCT

(10) International Publication Number
WO 2005/016388 A3

(51) International Patent Classification⁷: A61C 19/04, 8/00

(21) International Application Number:
PCT/US2004/018839

(22) International Filing Date: 14 June 2004 (14.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/478,705 13 June 2003 (13.06.2003) US

(71) Applicant (for all designated States except US): UNIVER-
SITY OF CONNECTICUT [US/US]; 263 Farmington
Avenue, Farmington, CT 06030 (US).

(72) Inventors: FREILICH, Martin, Allen; 36 Fernwood
Road, West Hartford, CT 06119 (US). KELLY, John,
Robert; 135 Westmont, West Hartford, CT 06117 (US).
COCHRANE, Rebecca, Lee; 1115 Boulevard, West
Hartford, CT 06119 (US).

(74) Agents: HATFIELD, Thomas, A. et al.; Alix, Yale &
Ristas, LLP, 750 Main Street, Suite 1400, Hartford, CT
06103-2721 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,
SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

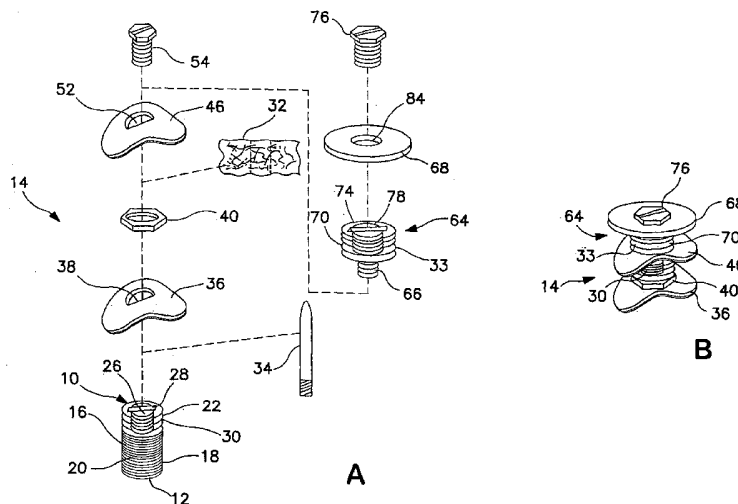
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
30 March 2006

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.

(54) Title: STRUCTURAL/BIOLOGICAL IMPLANT SYSTEM



(57) Abstract: A structural/biological implant and method of use. The implant being utilized as a single or multiple staged system that is designed to encourage new alveolar bone growth with or without the need to obtain autologous bone. The implant has an apical portion that is fastened into existing bone, with the remainder of the implant left outside of existing bone. The exposed portion of the implant may have an external shape or configuration with a variety of attached and/or integrally formed mechanical retention and stability elements. Osteotropic/angiotropic material may be associated with the implant to induce and/or conduct new bone growth and possible vascularization, thus, rather than fitting the implant into the bone, the bone is grown integratively with the implant. The osteotropic/angiotropic materials may be simultaneously placed with the staged implant to provide consistent stabilization for the materials and to provide an immediately available surface for bone cell adhesion and growth. The invention thus allows implants to be used in location where the volume and/or shape of the bone would not be adequate for existing implant systems.

WO 2005/016388 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/18839

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : A61C 19/04; A61C 8/00
 US CL : 433/174-178; 378/163, 170, 204, 205; 623/23.5.
 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. : 433/174-178; 378/163, 170, 204, 205; 623/23.5.

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.
X --- Y	US 5,538,424 A (Gelb) 23 July 1996; Figs. 1-6.	1-5, 7-9, 11, 26-27 ----- 6, 10, 12-25, 28-30
A	US 6,547,564 B1 (Hanson) 15 April 2003; whole document.	

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

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
---	---

Date of the actual completion of the international search 08 December 2005 (08.12.2005)	Date of mailing of the international search report <div style="text-align: center; font-weight: bold; font-size: 1.2em;">24 JAN 2006</div>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Vy Q. Bui Telephone No. 703-308-0858