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(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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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))*

[Continued on next page]

(54) **Title:** DENTAL IMPLANT SYSTEM HAVING ENHANCED SOFT-TISSUE GROWTH FEATURES

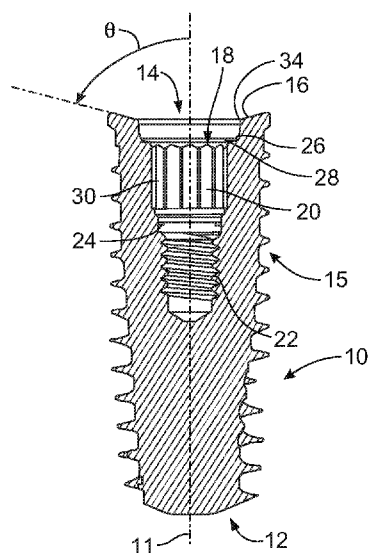


FIG. 1A

(57) **Abstract:** A dental implant system including an implant and an abutment is disclosed. The implant includes a generally cylindrical body, a central axis, a distal end for anchoring in a patient's bone and a proximal end opposing the distal end. The proximal end includes a roughened lateralized surface that surrounds an abutment-engaging region. The lateralized surface is disposed at a negative slope relative to the central axis. The abutment includes an upper portion for supporting a tooth-like prosthesis and a lower portion for engaging the abutment-engaging region of the dental implant. The diameter of the lower portion of the abutment is smaller than the diameter of the implant at its proximal end. The lower portion includes a first surface with a soft-tissue enhancing material. The first surface and the lateralized surface defining a circumferentially extending recess having a V-shaped cross-section for receiving and attachment to the soft tissue.



- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))* — *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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

23 January 2014

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/039250

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61C8/00
ADD.

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)

A61C

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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2010/004605 A2 (CANULLO LUIGI [IT]) 14 January 2010 (2010-01-14) page 2, lines 4-26 page 3, lines 9-34 figures 3, 4	1-21
Y	----- US 2006/246398 A1 (GROLL WERNER [DE] ET AL) 2 November 2006 (2006-11-02) cited in the application paragraphs [0021], [0025], [0026], [0066], [0071], [0072] figures 1-4	1-21
A	----- US 2008/233539 A1 (ROSSLER HANS-DIETER [DE] ET AL) 25 September 2008 (2008-09-25) paragraphs [0020], [0021], [0040] figures 1A, 6 ----- -/-	1-21



Further documents are listed in the continuation of Box C.



See patent family annex.

* 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

"&" document member of the same patent family

Date of the actual completion of the international search

13 September 2013

Date of mailing of the international search report

04/12/2013

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/039250

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009/239195 A1 (WOHRLE PETER [US] ET AL WOEHRLE PETER [US] ET AL) 24 September 2009 (2009-09-24) paragraph [0062] -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/039250

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
WO 2010004605	A2	14-01-2010	CN	102215774 A		12-10-2011
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			US	2009239195 A1		24-09-2009
			WO	2009115296 A1		24-09-2009

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/039250

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:

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 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.:

1-21

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-21

Dental implant system and implant having roughened
lateralized surface to promote soft-tissue attachment

2. claims: 22-28

Dental implant system and implant having a lateralized
surface lacking any sharp edges or corners to prevent
abrading of the soft tissue
