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(54) Title: OVERDENTURE RETENTION IMPLANT AND APPARATUS FOR INSTALLING IT

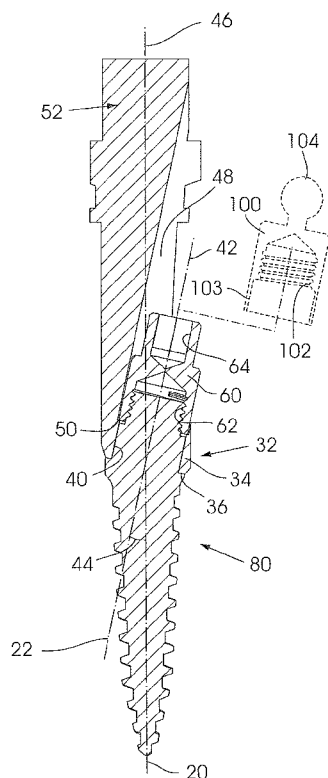


Fig. 5

(57) Abstract: One aspect of the invention concerns an overdenture retention implant (10) comprising an externally threaded implant body (12) to be screwed into a hole formed in a jawbone (70) and an implant end structure (14) at a proximal end of the implant body. The implant end structure includes a tool engagement portion (14.1) that can be engaged by an implant installation apparatus operable to rotate the implant to screw the body into the hole, and a threaded boss (14.2) to be engaged in threaded manner by an overdenture retention cap (100) configured for attachment of an overdenture. The tool engagement portion and boss have a common, central axis (22) which intersects the central axis (20) of the implant body at an acute angle (24). Other aspects of the invention concern the combination of the implant (10) and installation apparatus and the installation apparatus itself.



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INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTER

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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.
X	US 2010/055644 A1 (ARNI URI [IL]) 4 March 2010 (2010-03-04)	1-5
Y	paragraph [0035]; figure 1	6-8
A	paragraph [0041]	9-11

X	DE 196 35 619 A1 (VELTEN PETER [DE]) 5 March 1998 (1998-03-05)	1-4
Y	figure 6	6-8

X	US 5 662 474 A (JOERNEUS LARS [SE] ET AL) 2 September 1997 (1997-09-02)	1-4
Y	figures 1,3	6-8

Y	US 2008/097458 A1 (DONAHOE RYAN M [US] ET AL) 24 April 2008 (2008-04-24)	6-8
	figures 1,3,5,13	

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☒ 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

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"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

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INTERNATIONAL SEARCH REPORT

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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.
Y	US 2007/082320 A1 (FAUS BADIA VICENTE G [ES]) 12 April 2007 (2007-04-12) figures 1,4 -----	6-8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2015/055278

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.:

1-11

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: 1-11

An overdenture retention implant comprising:- an elongate, externally threaded implant body to be screwed into a hole formed in a jawbone, the body having a central axis; and - an implant end structure at a proximal end of the implant body, the implant end structure including a tool engagement portion engagable by an implant installation apparatus operable to rotate the implant to screw the body into the hole and a threaded boss to be engaged in threaded manner by an overdenture retention cap configured for attachment thereto of an overdenture, wherein the tool engagement portion and boss have a common, central axis which intersects the central axis of the implant body at an acute angle to that central axis.
The implant is also claimed in combination with an implant installation apparatus having certain technical characteristics.

2. claims: 12-17

An installation apparatus comprising:
- a fixture mount having a hollow first end defining a fixture mount socket shaped to engage in rotationally fast manner with the tool engagement portion of the implant end structure of the implant and an opposite second end engagable in rotationally fast manner by a rotation tool which can be manipulated to rotate the fixture mount and hence an implant engaged thereby; and
- an anchoring device for releasably anchoring the fixture mount in engagement with the implant, with the central axis of the implant body aligned and coaxial with a central axis of the fixture mount, while the fixture mount and implant are rotated.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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