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[Continued on next page]

(54) Title: BONE SCREW, IN PARTICULAR FOR OSTEOSYNTHESIS

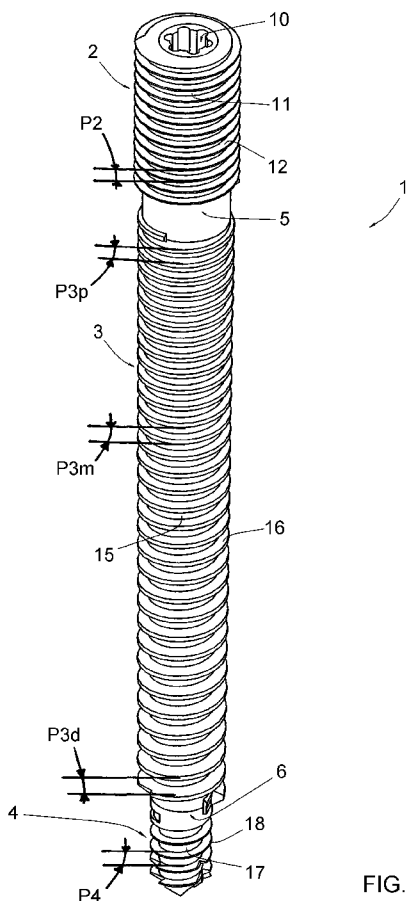


FIG. 1

(57) Abstract: According to the invention, this screw (1) includes: - a threaded proximal portion (2), the core (11) and thread (12) of which have a constant diameter; - a threaded median portion (3), the core (15) of which is conical, having a diameter becoming increasingly larger from the distal end of this threaded median portion (3) to the proximal end of this threaded median portion (3), and the thread (16) of which has a constant diameter, smaller than the diameter of the thread (12) of the proximal threaded portion (2); the pitch of the thread (16) of this threaded median portion (3) becomes increasingly smaller from said distal end towards said proximal end, and, at the proximal end of this threaded median portion (3), this pitch is larger than the pitch of the thread (12) of the proximal threaded portion (2); - a threaded distal portion (4), the core (17) and the thread (18) of which have a constant diameter and the thread (18) of which has a diameter smaller than the diameter of the thread (16), the pitch of the thread (18) of this threaded distal portion (4) being larger than the pitch of the thread (16) at the distal end of this threaded median portion (3).

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Minimum documentation searched (classification system followed by classification symbols)

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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)

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## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 93/00518 A (MATHYS ROBERT [CH]) 7 January 1993 (1993-01-07) abstract; figures 1,4 -----	1
A	US 2005/187552 A1 (MICHELSON GARY K [US]) 25 August 2005 (2005-08-25) abstract; figure 24a -----	1
A	US 5 871 486 A (HUEBNER RANDALL J [US] ET AL) 16 February 1999 (1999-02-16) abstract; figures 15b,19,21b -----	1
A	WO 95/15727 A (BURKE DENNIS W [US]) 15 June 1995 (1995-06-15) abstract; figures 1,6 -----	1
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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 00/32125 A (SYNTHES AG [CH]; SYNTHES USA [US]; SCHLAEPFER FRIDOLIN J [CH]; HESS MA) 8 June 2000 (2000-06-08) pages 9-10; figure 1 -----	1
A	US 6 053 916 A (MOORE MICHAEL R [US]) 25 April 2000 (2000-04-25) abstract; figures 1,3 -----	2

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2008/051994

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9300518	A	07-01-1993	CA 2088102 A1 DE 59203295 D1 EP 0544868 A1 ES 2077423 T3 JP 6503155 T US 5403136 A	27-07-1994 21-09-1995 09-06-1993 16-11-1995 07-04-1994 04-04-1995
US 2005187552	A1	25-08-2005	NONE	
US 5871486	A	16-02-1999	US 5964768 A US 2003014054 A1 US 2006229622 A1 US 6299615 B1	12-10-1999 16-01-2003 12-10-2006 09-10-2001
WO 9515727	A	15-06-1995	AU 1266695 A	27-06-1995
WO 0032125	A	08-06-2000	AT 299672 T AU 742502 B2 AU 1139699 A CA 2352185 A1 DE 59812947 D1 EP 1133263 A1 ES 2245047 T3 HK 1036920 A1 JP 2002531163 T US 2002016594 A1 ZA 9907344 A	15-08-2005 03-01-2002 19-06-2000 08-06-2000 25-08-2005 19-09-2001 16-12-2005 09-09-2005 24-09-2002 07-02-2002 22-06-2000
US 6053916	A	25-04-2000	AU 1753200 A EP 1029519 A2	24-08-2000 23-08-2000