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(54) Smart joint implant sensors

(57) A prosthesis (12) for implantation into a mammalian body, the device comprising: (a) a prosthesis for implantation into a mammalian body that includes a sensor array (20) comprising a plurality of sensors mounted to the prosthesis; and (b) an electronics structure (22, 28) for receiving signals from the sensor array and wirelessly transmitting representative signals to a remote receiver.

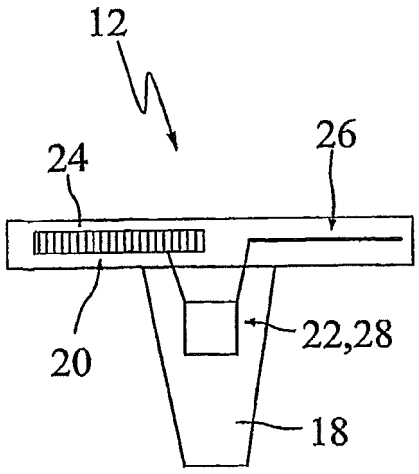

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 14 15 4980

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 6 073 484 A (MILLER SCOTT A [US] ET AL) 13 June 2000 (2000-06-13) * column 14, line 59 - column 16, line 9 * * figures 18,19 *	1 2,3	INV. A61L27/50 A61B5/03 A61F2/38 A61F2/46
Y	US 2004/011137 A1 (HNAT WILLIAM P [US] ET AL) 22 January 2004 (2004-01-22) * paragraph [0023] *	2,3	A61B5/00 A61B5/07 G06F19/00
A	WO 03/036612 A1 (PRESSURE PROFILE SYSTEMS INC [US]; PEINE WILLIAM [US]; PRATICO ROBERT) 1 May 2003 (2003-05-01) * claims 1,2 *	1-3	
A	US 5 656 785 A (TRAINOR CHRISTOPHER V [US] ET AL) 12 August 1997 (1997-08-12) * column 3, line 56 - column 4, line 14 *	1-3	

TECHNICAL FIELDS SEARCHED (IPC)

G01L
A61B
G01P

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
Munich	18 November 2014	Storer, John

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

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Application Number
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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-3

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-3

A sensor array comprising: a first capacitive sensor comprising conductive plates separated by a dielectric material, the capacitive plates of the first capacitive sensor lying along a first X-Y and operative to detect pressure along the X axis; a second capacitive sensor comprising conductive plates separated from one another, the capacitive plates of the second capacitive sensor lying along the first X-Y plane and operative to detect pressure along the Y axis; and a third capacitive sensor comprising conductive plates separated from one another, the capacitive plates of the third capacitive sensor lying along the first X-Y plane and operative to detect pressure along a Z plane orthogonal to the first X-Y plane.

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2. claims: 4, 5, 7-15

A prosthetic implant having a microcantilevered sensor array integral to the prosthetic implant and operatively coupled to a transmitter to communicate sensed data to a remote transmitter, where the sensed data is indicative of current conditions of a fluid in communication with at least one sensor of the sensor array.

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3. claim: 6

A prosthesis for implantation into a mammalian body, the device comprising: a prosthesis for implantation into a mammalian body that includes a sensor array comprising a plurality of sensors mounted to the prosthesis; and an electronics structure for receiving signals from the sensor array and wirelessly transmitting representative signals to a remote receiver.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 14 15 4980

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

18-11-2014

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	智能关节植入传感器		
公开(公告)号	EP2818187A3	公开(公告)日	2015-04-15
申请号	EP2014154980	申请日	2006-02-18
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发明人	KOMISTEK, RICHARD D. MAHFOUZ, MOHAMEDD R.		
IPC分类号	A61L27/50 A61B5/03 A61F2/38 A61F2/46 A61B5/00 A61B5/07 G06F19/00		
CPC分类号	A61B5/03 A61B5/076 A61B5/145 A61B5/14532 A61B5/14539 A61B5/4528 A61B2562/028 A61F2/38 A61F2/3859 A61F2/389 A61F2/4657 A61F2/4684 A61F2002/30133 A61F2002/3067 A61F2002/30673 A61F2002/30878 A61F2002/4632 A61F2002/4666 A61F2002/488 A61F2230/0015 A61F2250/0002 A61L27/50 G06F19/3418 G16H40/20 G16H40/67 A61B5/0002 A61B5/01 A61B5/14507 A61B5/4851 A61B5/742 G16H40/63		
审查员(译)	斯托勒，JOHN		
优先权	60/654650 2005-02-18 US		
其他公开文献	EP2818187A2		
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摘要(译)

一种用于植入哺乳动物体内的假体（12），该装置包括：（a）用于植入哺乳动物体内的假体，其包括传感器阵列（20），传感器阵列（20）包括安装在假体上的多个传感器；（b）电子结构（22,28），用于接收来自传感器阵列的信号并将代表信号无线传输到远程接收器。

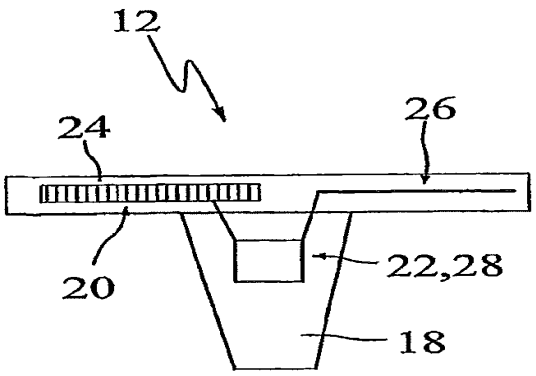

FIG. 1