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(54) **Thermal and electrical conductivity probes and methods of making the same**

(57) According to the present disclosure, a system for sensing attributes of tissue in at least one direction is provided. The system includes a thermal conductivity probe having a sensor configured to measure thermal conductivity in the target tissue in at least one direction, and an electrical conductivity probe having a sensor configured to measure electrical conductivity in the target tissue in at least one direction, a power supply operatively coupled to the thermal conductivity probe and being configured to supply power to the thermal conductivity probe, an impedance analyzer operatively coupled to the electrical conductivity probe, and a computer operatively coupled to at least one of the power supply, the multimeter and the impedance analyzer.

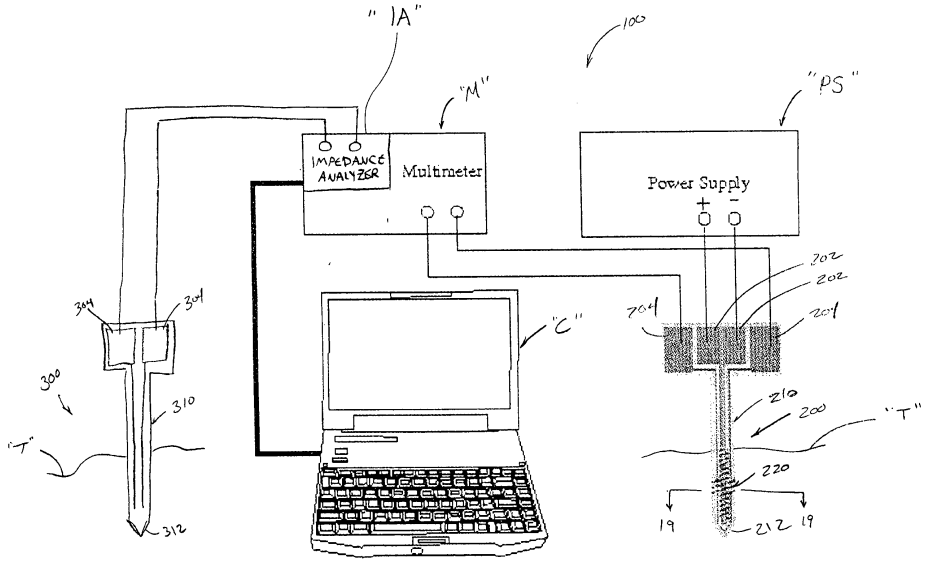

Fig. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 08 00 1019

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	8 September 2008	Savage, 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
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& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

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EUROPEAN SEARCH REPORT

Application Number
EP 08 00 1019

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	8 September 2008	Savage, John

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P04C01)

European Patent Office

Application Number
EP 08 00 1019

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:

☐ 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).

European Patent Office

LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 08 00 1019

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 system for sensing both the thermal conductivity and electrical conductivity

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2. claims: 4-15

A thermal conductivity probe

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3. claims: 16-27

An electrical conductivity probe

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 08 00 1019

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.

08-09-2008

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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)	导热和导电探针及其制造方法		
公开(公告)号	EP1946700A3	公开(公告)日	2008-10-22
申请号	EP2008001019	申请日	2008-01-21
[标]申请(专利权)人(译)	柯惠有限合伙公司		
申请(专利权)人(译)	泰科医疗集团，LP		
当前申请(专利权)人(译)	泰科医疗集团，LP		
[标]发明人	PODHAJSKY RONALD J		
发明人	PODHAJSKY, RONALD J.		
IPC分类号	A61B5/053 A61B5/00 G01N27/04 G01N25/18 G01N27/18		
CPC分类号	A61B5/01 A61B5/053 A61B18/12 A61B34/10 A61B2017/00026 A61B2018/00875 G01N25/18 G01N27/045 G01N27/18 Y10T29/49 Y10T29/49002 Y10T29/49007 A61B5/0538 A61B5/055 A61B6/032 A61B6/487 A61B6/5211 A61B8/5215 A61B18/02 A61B18/1815 A61B18/20		
优先权	60/881238 2007-01-19 US		
其他公开文献	EP1946700A2 EP1946700B1		
外部链接	Espacenet		

摘要(译)

根据本公开，提供了一种用于在至少一个方向上感测组织属性的系统。该系统包括导热探针，该导热探针具有被配置为在至少一个方向上测量目标组织中的导热率的传感器，以及具有传感器的导电探针，该传感器被配置为在至少一个方向上测量目标组织中的导电率，功率供应可操作地耦合到导热探针并被配置为向导热探针供电，阻抗分析器可操作地耦合到导电探针，以及计算机可操作地耦合到电源，万用表和阻抗中的至少一个分析仪。

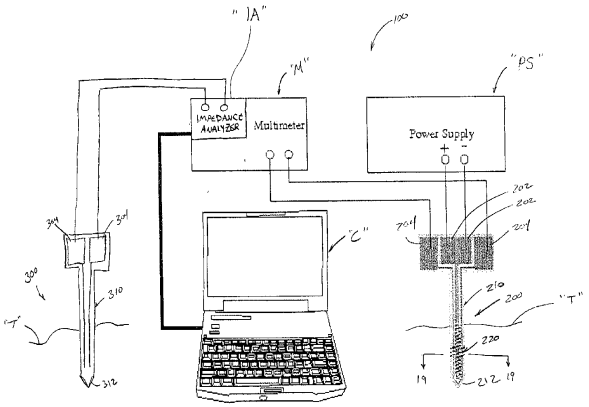

Fig. 1