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(54) Ultrasound catheter housing with electromagnetic shielding properties and methods of manufacture

(57) An ultrasound catheter housing (10) with electromagnetic shielding properties and methods of manufacturing is provided. The ultrasound catheter housing (10) comprises a an inner thin wall polymer tube (12) extruded using an ultrasonically transparent polymer, a thin metalized layer (14) deposited on the outer surface of the inner tube, and an outer thin wall polymer tube (16), which may be the same or a different ultrasonically transparent material. In another embodiment an ultrasound catheter (18) comprising the ultrasound catheter housing (10) is provided.

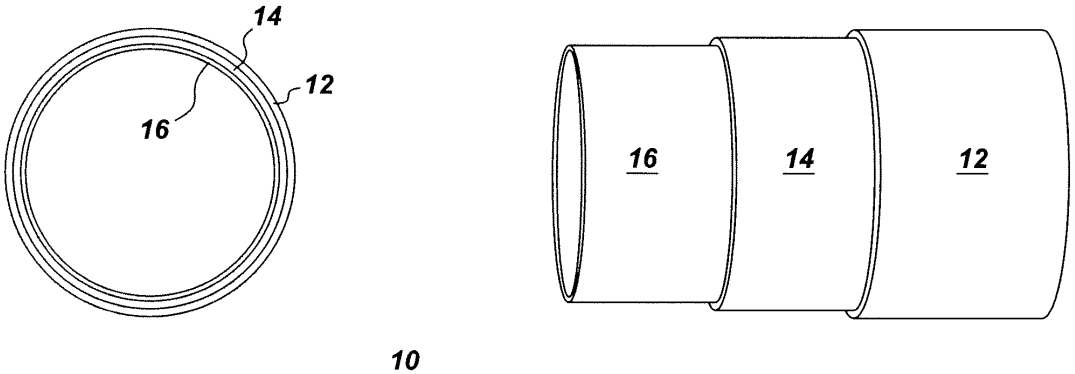

Fig. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 10 15 7122

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	EP 0 940 123 A2 (BOSTON SCIENT CORP [US] BOSTON SCIENT CORP BOSTON SCIENT LTD [BB]) 8 September 1999 (1999-09-08) * paragraphs [0024], [0047]; figure 1a *	1-4	INV. A61B8/12 H05K9/00 A61L29/10 C23C14/20 A61M25/00
Y		5,6	
Y	US 2005/043624 A1 (OLIVER NELSON H [US]) 24 February 2005 (2005-02-24) * paragraph [0035] *	5	
Y	US 2007/135712 A1 (MASCHKE MICHAEL [DE]) 14 June 2007 (2007-06-14) * paragraphs [0063] - [0065] *	6	

TECHNICAL FIELDS SEARCHED (IPC)

A61B
H05K
A61L
C23C
A61M

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

Place of search	Date of completion of the search	Examiner
Munich	10 June 2010	Anscombe, Marcel

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

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Application Number
EP 10 15 7122

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:

1-6

☐ 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
EP 10 15 7122

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: 1-6

   directed to an ultrasound catheter housing with electromagnetic shielding properties whose contribution to the art appears to reside in (i) the tube acoustic properties, solving the problem of improving the impedance matching with tissue to be imaged, or (ii) an adhesion layer as further specified by the description, solving the problem of improving the mechanical stability of layered catheters, or (iii) a high permeability magnetic shielding alloy, solving the problem of providing magnetic shielding properties.

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2. claims: 7-9

   directed to an ultrasound catheter with a housing whose contribution to the art appears to reside in a tracking element disposed immediately adjacent the distal end, solving the problem of tracking a catheter position.

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3. claim: 10

   directed to a method of manufacturing an ultrasound catheter, whose contribution to the art appears to reside in the coating of layers supported by a mandrel, solving the problem of providing an alternative manner of making multi-layer catheter housings.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 10 15 7122

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.

10-06-2010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0940123 A2	08-09-1999	DK 940123 T3	17-05-2004
US 2005043624 A1	24-02-2005	NONE	
US 2007135712 A1	14-06-2007	DE 102005059262 A1	14-06-2007

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

专利名称(译)	超声导管外壳具有电磁屏蔽特性和制造方法		
公开(公告)号	EP2233079A3	公开(公告)日	2011-02-16
申请号	EP2010157122	申请日	2010-03-19
[标]申请(专利权)人(译)	通用电气公司		
申请(专利权)人(译)	通用电气公司		
当前申请(专利权)人(译)	通用电气公司		
[标]发明人	BUCKLEY DONALD JOSEPH WILDES DOUGLAS GLENN LEE WARREN GRIFFIN WESTON BLAINE		
发明人	BUCKLEY, DONALD JOSEPH WILDES, DOUGLAS GLENN LEE, WARREN GRIFFIN, WESTON BLAINE		
IPC分类号	A61B8/12 H05K9/00 A61L29/10 C23C14/20 A61M25/00		
CPC分类号	A61B8/4461 A61B8/12 A61B8/4254 A61B8/445 A61B2562/182 A61L29/106 C23C14/025 C23C14/20		
优先权	12/410916 2009-03-25 US		
其他公开文献	EP2233079A2		
外部链接	Espacenet		

摘要(译)

提供了一种具有电磁屏蔽特性的超声导管壳体（10）和制造方法。超声导管壳体（10）包括使用超声透明聚合物挤出的内薄壁聚合物管（12），沉积在内管外表面上的薄金属化层（14）和外薄壁聚合物管（16），其可以是相同或不同的超声透明材料。在另一个实施例中，提供了包括超声导管壳体（10）的超声导管（18）。

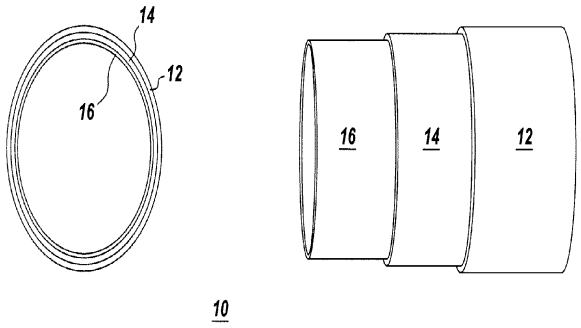

Fig. 1