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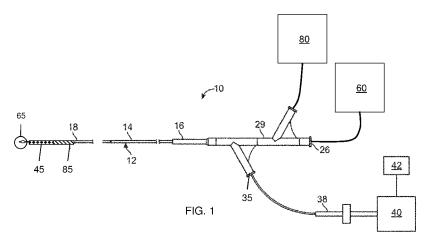
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(54) Title: THERAPEUTIC DELIVERY CATHETER WITH IMAGING AND TISSUE CHARACTERIZATION



(57) Abstract: The invention includes medical devices, such as catheters, that have imaging and therapeutic agent delivery capabilities. The therapeutic catheters of the invention allow a surgeon to image biological tissues, such as thrombus, prior to delivering therapeutic agents to the tissues, and then re-image the tissue after the procedure to gauge the success of the procedure. The invention facilitates detailed characterization of the biological tissues with, e.g., spectral analysis, thereby providing insight into the composition of the tissues and helping to determine the amount of treatment that is appropriate. Because the imaging and therapy delivery are done with a single catheter, the time required for a procedure is decreased.





INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A61B 1/015 (2015.01)			
CPC - A61B 1/015, A61B 8/12, A61M 25/0082, A61M 2205/05, A61B 1/00087 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) IPC(8) - A61B 1/015 (2015.01) CPC - A61B 1/015, A61B 8/12, A61M 25/0082, A61M 2205/05, A61B 1/00087			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched A61M 2205/05*, A61M 25/*, 2025/*, A61B 8/46*; 600/156 (Search term limited; see below)			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWest (PGPB, USPT, EPAB, JPAB); Google; PatBase (All); Search Terms: IVUS, IVPA, intravenous, intravascular, catheter, imaging, therapy, deliver*, inject*, lumen, conduit, drug*, pharma*, agent, thrombolytic, streptokinase, urokinase, alteplase, reteplase, tenecteplase, determin*, character*, identif*, lesion, plaque, thromb*,			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category*	Citation of document, with indication, where		Relevant to claim No.
X	US 2010/0081873 A1 (TANIMURA et al.) 01 April 20- especially Abstract, para[0024], para[0037]- para[003 7.	10 (01.04.2010) Entire document, 9], para[0053]- para[0063] and FIGS. 1, 5-	1-2, 5-6, 8, 10-11, 15-16, 18-20, 26, 28, 30-36
X -	US 2013/0023912 A1 (BROWN et al.) 25 January 2013 (24.01.2013) Entire document, especially Abstract, para[0009]- para[0010], para[0053], para[0063]- para[0067], para[0079], para[0090]- para[0092] and FIGS. 7, 16, 20.		1, 3-4, 9, 11-14, 16-18, 21-23, 26-29
Υ			7, 24-25
Y	US 2011/0166455 A1 (CULLY et al.) 07 July 2011 (07 Abstract, para[0011], para[0326], para[0462].	7.07.2011) Entire document, especially	7, 24-25
A	US 2003/0199747 A1 (MICHLITSCH et al.) 23 October 2003 (23.10.2003) Entire document.		1-36
A	US 2009/0234231 A1 (KNIGHT et al.) 17 September 2009 (17.09.2009) Entire document.		1-36
A .	US 6,246,898 B1 (VESELY et al.) 12 June 2001 (12.06.2001) Entire document.		1-36
A	US 5,924,997 A (CAMPBELL) 20 July 1999 (20.07.1999) Entire document.		1-36
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other "Y" document of particular relevance: the		laimed invention cannot be	
"O" document referring to an oral disclosure, use, exhibition or other means "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than		ocuments, such combination	
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