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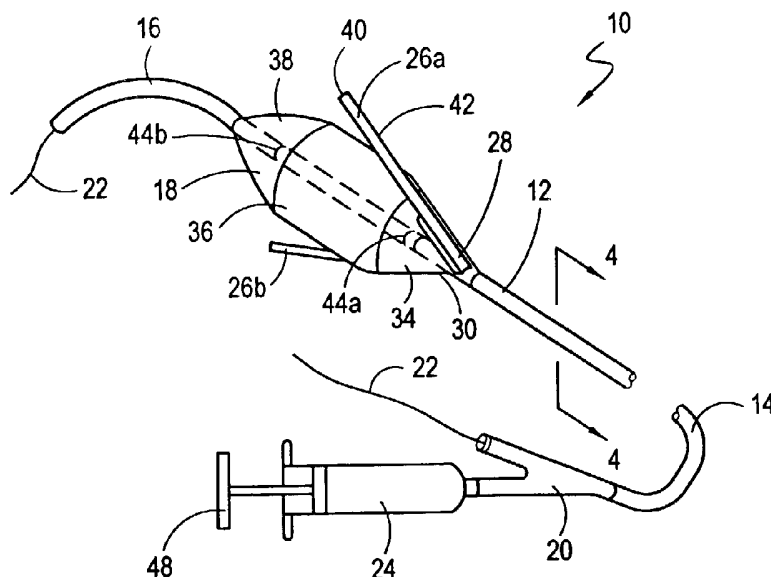
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23 December 2004

[Continued on next page]

(54) Title: A DEVICE FOR PERCUTANEOUS CUTTING AND DILATING A STENOSIS OF THE AORTIC VALVE



(57) Abstract: A device for incising a stenosis in the aortic valve of a patient includes an elongated balloon catheter, with at least one straight blade mounted on the balloon. Specifically, the blade is coplanar with the axis of the catheter, and the distal end of the blade is located adjacent the distal end of the balloon. In operation, the balloon/blade combination is advanced into the vasculature and positioned proximal to the stenosis to be incised. The balloon is then inflated. With this inflation, the blade is inclined relative to the axis of the catheter with an increasing distance between the blade and the axis in a proximal direction. The device is then retracted, distally, to incise the stenosis.

WO 2004/069287 A3



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/001274

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61B17/22

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 7 A61B

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)

EPO-Internal, WPI Data, BIOSIS, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 697 944 A (LARY BANNING GRAY) 16 December 1997 (1997-12-16) A device for incising and dilating a stenosis in a vessel of a patient includes a dilator housing and a plurality of blades. column 2, line 63 - column 3, line 9 column 4, line 46 - column 6, line 13 figures 4,5 <p style="text-align: center;">-----</p>	1-8,10

Further documents are listed in the continuation of box C.
 Patent family members are listed in annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"8" document member of the same patent family</p>
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Date of the actual completion of the international search	Date of mailing of the international search report
29 June 2004	04.11.2004

Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer <p style="text-align: center; font-size: 1.2em;">Filali, S</p>
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/001274

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: 18-20
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-11

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-11

A cutting device comprising a catheter, an elongated balloon, elongated blade and means for inflating.
(Problem: how to provide a percutaneous device for treating aortic valve stenosis)

2. claims: 12-17

A device for incising a stenosis comprising a blade, a means for advancing the blade, a means for inclining the blade and a means for retracting the blade.
(Problem: How to provide a cutting device that can be safely advanced through the vasculature of a patient)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Claims Nos.: 18-20

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/001274

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
US 5697944	A	16-12-1997	US 5792158 A	11-08-1998