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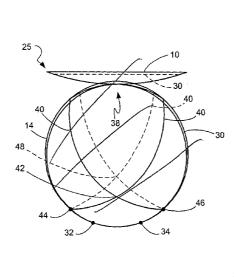
 before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

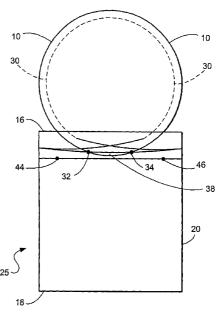
(88) Date of publication of the international search report:

12 December 2002

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.

(54) Title: STENT WITH VALVE





(57) Abstract: A heart valve stent (25) and method for treating a patient with a fluid circulatory system defect is provided. The stent has a metal stent body (14), which is expandable from a compressed state to an expanded state. The stent body in the expanded state has a hollow structure and a leaflet (10) attached thereto with the leaflet movable from an open to a closed position to allow unidirectional fluid circulation and to prevent non-unidirectional fluid circulation through the hollow structure, which is translucent to magnetic resonance imaging signals by not producing eddy currents in response thereto.





A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61F2/24

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) $IPC\ 7\ A61F$

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)

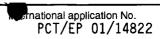
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Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Category	Citation of document, with indication, where appropriate, of the relevant passages	Tiblevant to claim No.
Υ	DE 200 03 874 U (FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWENDTEN FORSCHUNG) 25 May 2000 (2000-05-25) page 6, line 5 -page 7, line 30; figure 1	1,2,4-10
Υ	WO 95 05133 A (COUETIL JEAN PAUL) 23 February 1995 (1995-02-23) abstract page 5, line 3 - line 25 page 6, line 10 - line 12; figures	1,2,4-10
X	EP 1 057 460 A (NUMED INC) 6 December 2000 (2000-12-06) cited in the application	11,12, 15-17, 19-21, 23,24
Y	the whole document	9,10,13, 14,22
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X Further documents are listed in the continuation of box C.	Patent family members are listed in annex.
Special categories of cited documents: 'A' document defining the general state of the art which is not considered to be of particular relevance 'E' earlier document but published on or after the international filing date '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) 'O' document referring to an oral disclosure, use, exhibition or other means 'P' document published prior to the international filing date but later than the priority date claimed	 "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 "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 "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. "&" document member of the same patent family
Date of the actual completion of the international search	Date of mailing of the international search report
30 September 2002	07/10/2002
Name and malling 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 Wolf, C

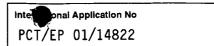
Interponal Application No
PCT/EP 01/14822

C.(Continu	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	WO 98 57599 A (CAMILLI SANTE) 23 December 1998 (1998-12-23) abstract page 6, line 1 - line 13 page 7, line 10 - line 20	13,14,22 2,4,6
X	US 5 957 949 A (GREENAN TREVOR ET AL) 28 September 1999 (1999-09-28) cited in the application	11,12, 15-17, 19-21, 23,24
A	the whole document	23,24
A	US 5 163 953 A (VINCE DENNIS J) 17 November 1992 (1992-11-17) abstract; figures	1,4



Box I	Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)
This Inte	ernational Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. χ	Claims Nos.: 25 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 II	Observations where unity of Invention is lacking (Continuation of item 2 of first sheet)
This Inte	ernational Searching Authority found multiple inventions in this international application, as follows:
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 pald 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.:
Remark	The additional search fees were accompanied by the applicant's protest. No protest accompanied the payment of additional search fees.

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Patent document cited in search report	Publication date		Patent family member(s)	Publication date
DE 20003874	U 25-05-2000	DE	20003874 l	J1 25-05-200
WO 9505133	A 23-02-1995	FR	2708847 <i>l</i>	
		AU	7501994 <i>l</i>	
		BR	9407256 /	
		CA	2169454 /	
		CN	1131384 /	
		EP	0713376 /	
		WO	9505133 /	
		JP	9501341	Г 10-02-199
EP 1057460	A 06-12-2000	EP	1057460 /	A1 06-12-200
		JP	2001000460	A 09-01-200
WO 9857599	A 23-12-1998	AU	8337898	A 04-01-199
		WO	9857599	A2 23-12-199
US 5957949	A 28-09-1999	NONE		
US 5163953	A 17-11-1992	- -	3340493	A 03-09-199
		CA	2129646	
		WO	9315693	
		EP	0676940	