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(71) Applicant and

(72) Inventor: JANG, G., David [US/US]; 30725 Eastburn Lane, Redlands, CA 92374 (US).

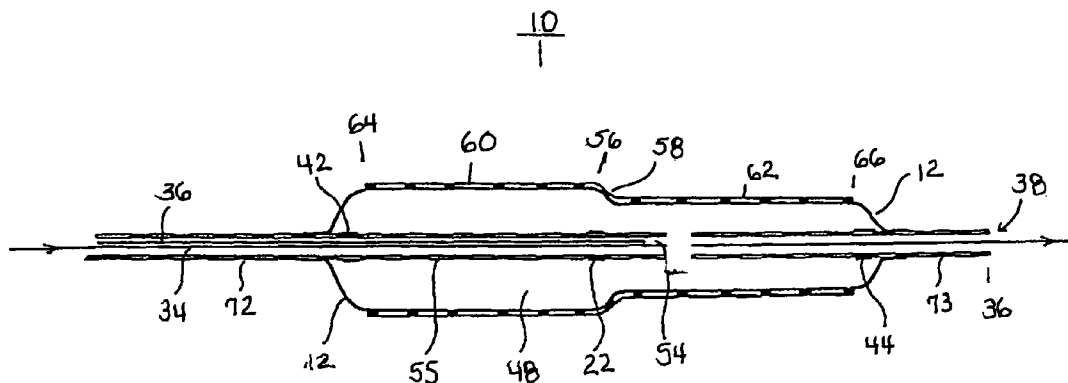
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(74) Agent: DAVIS, Paul; Heller Ehman White & McAuliffe LLP, 275 Middlefield Road, Menlo Park, CA 94025-3506 (US).

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(54) Title: TWO-STEP/DUAL-DIAMETER BALLOON ANGIOPLASTY CATHETER FOR BIFURCATION AND SIDE-BRANCH VASCULAR ANATOMY



(57) Abstract: The present invention tackles the challenging anatomic characteristics of the coronary artery disease in the bifurcation point and the origin of the side-branch. The invention has a specifically designed angioplasty balloon catheter 10, particularly the balloon 12 shap and profile, to be used in the diseased vessels at these difficult anatomic locations. In stent 56 implanting into a coronary artery, a balloon catheter 10 application is an inseparable requirement. A stent 56 is a passive device that cannot be deployed in a diseased or stenosed artery without a pre-stent, with-stent and /or post-stent balloon dilatation. The stent 56 is delivered and expanded in inside vessel lumen by expanding a delivery balloon 12. This is done by crimping a stent 56 over a folded balloon 12 for delivery into a coronary artery. When expanded by balloon inflation, a stent 56 is expanded and shaped passively by the inflation balloon shape an profile. The balloon catheter 10 is designed to do angioplasty in the bifurcation and side-branch anatomy of coronary arteries., while minimizing the side effect. This specially designed balloon catheter 10 is not only for balloon angioplasty dilatation of the bifurcatio and side-branch anatomy, but is also for delivering and deploying specially designed bifurcation or side-branch stents56 into these difficult anatomic locations as a stent delivery systems.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC: A61F 2/06(2006.01);A61M 29/00(2006.01)

USPC: 623/1.11,604/103.07;606/194
 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)
 U.S. : 623/1.11, 604/96.01,101.01,103.06,103.07,103.08,915-916; 606/191,192,194

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 practicable, search terms used)
 Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,099,497 A (ADAMS et al.) 08 August 2000, see abstrat, figures 2A, 6,9 and columns 3--6.	1,6-11,14-23,27-33,36-45,50-55,58-64 ----- 2-5,12-13,24-26,34-35,46-49,56-57
Y	US 6,488,655 B1 (WANTINK et al.) 03 December 2002, see abstract and figure 1, column 5.	5,26,49
Y	US 5,549,551 A (PEACOCK, III et al.) 27 August 1996, see abstracdt, figs. 1, 4 and column 5.	2-4,12-13,24-25,34-35,46-48,56-57

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"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	"&"	document member of the same patent family

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Name and mailing address of the ISA/US
 Mail Stop PCT, Attn: ISA/US
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 Facsimile No. (571) 273-3201

Authorized officer
 Lo An H. Thanh
 Telephone No. (571)272-4966

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Continuation of B. FIELDS SEARCHED Item 3:

EAST search terms: balloon catheter, stent , inflation/deflation, shape, diameter, varying, changing, altering, larger, smaller, diameter