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(12) United States Patent

Bailey et al.

(54) ENDOLUMINAL CARDIAC AND VENOUS VALVE PROSTHESES AND METHODS OF MANUFACTURE AND DELIVERY THEREOF

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Related U.S. Application Data

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- (51) Int. Cl.⁷ A61F 2/06
- (52) U.S. Cl. 623/1.24; 623/1.26

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,222,126 A	9/1980	Boretos et al 3/1.5
4,994,077 A	2/1991	Dobben 623/2
5,078,720 A	* 1/1992	Burton et al 606/108
5,108,420 A	4/1992	Marks 606/213
5,163,953 A	11/1992	Vince 623/2
5,332,402 A	7/1994	Teitelbaum 623/2
5,334,217 A	8/1994	Das 606/213
5,370,685 A	12/1994	Stevens 623/2

5,397,351 A 3/1995 Pavcnik et al. 623/11

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

EP	0 850 607	7/1998	A61F/2/24
EP	0850607	* 7/1998	623/1.26
EP	0 808 614	11/1998	A61F/2/24
WO	WO-00/47139	* 8/2000	623/1.26

OTHER PUBLICATIONS

"MASA Heart Valves", http://www.heart-surgeons.com/valvedesign.htm, pp. 1-3.

"Aortic Valve Replacement", STS Patient Information, http://www.sts.org/doc/3620, pp. 1-5.

"Minimally Invasive Aortic Valve Surgery" *CTSNET Experts' Techniques*, http://www.ctsnet.org/doc.3358, pp. 1–4.

"Heartport Annouces Launch of Heartport InSite AVR System for Less Invasive Aortic Valve Replacement" *Heartport, Inc. Company Press Release*, pp 1–2.

"ATS Medical Inc. Annual Report", pp. 1-7.

"St. Jude Medical Heart Valve Division Expanding the Focus", www.sum.com/stjde/world.htm/expand.htm.

"St. Jude Medical Heart Valve Division The Mechical Heart Valve Evolution", www.sjm.com/stjude/world/htm.evolut.htm.

"Heartport Announces Launch of Heartport InSite AVR System for Less Invasive Aortic Valve Replacement", *Heartport, Inc. What's New Release*, www.pddnet.com/ Pddnews/08oct9903.htm, pp. 1–2.

Primary Examiner-David H. Willse

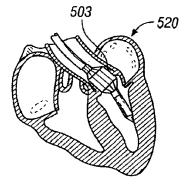
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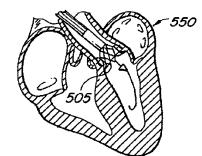
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(57) ABSTRACT

This invention relates to prosthetic cardiac and venous valves and a single catheter device and minimally invasive techniques for percutaneous and transluminal valvuloplasty and prosthetic valve implantation.

7 Claims, 6 Drawing Sheets



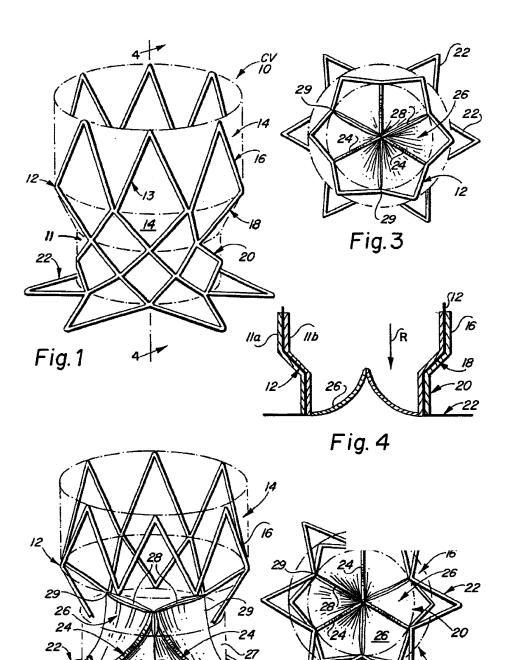


(10) Patent No.: US 6,652,578 B2 (45) Date of Patent: Nov. 25, 2003

U.S. PATENT DOCUMENTS

5,545,214 A	8	/1996	Stevens 623/2
5,639,274 A	* 6	/1997	Fischell et al 604/96
5,662,703 A	* 9,	/1997	Yurek et al 623/1
5,713,953 A	2	/1998	Vallana et al 623/2
5,725,552 A	3,	/1998	Kotula et al 606/213
5,741,297 A	4	/1998	Simon 606/213
5,824,063 A	10	/1998	Cox 623/2
5,824,064 A	10	/1998	Taheri 623/2
5,840,081 A	11,	/1998	Andersen 623/2
5,843,090 A	* 12	/1998	Schetz 606/108
5,846,261 A	12	/1998	Kotula 606/213
5,855,597 A	1,	/1999	Jayaraman 623/1

* cited by examiner



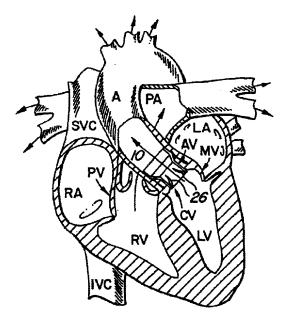
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Fig. 5

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Fig. 2





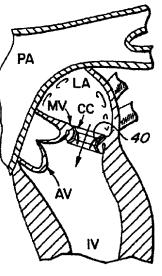


Fig. 12A

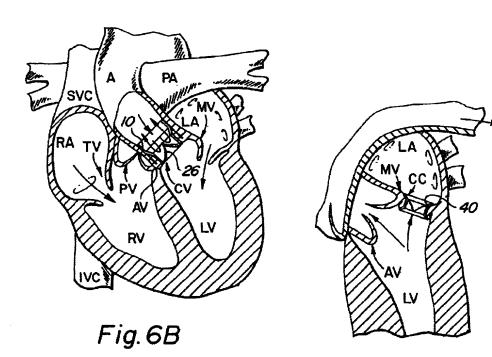
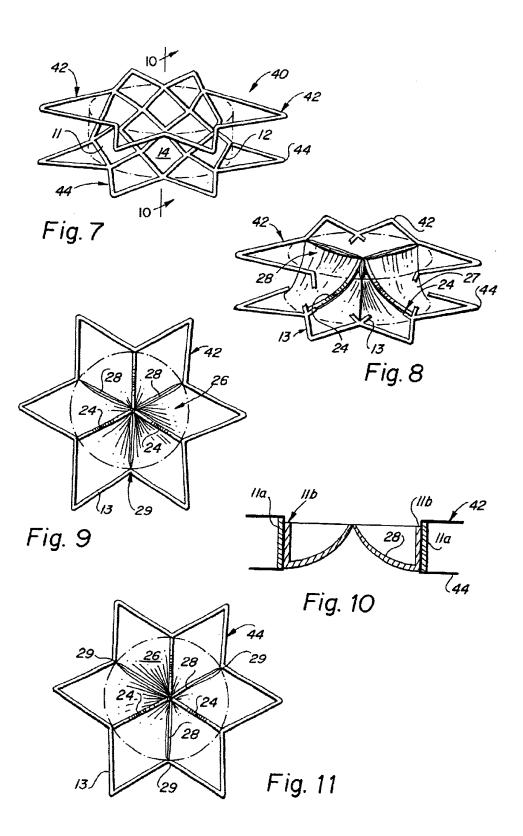


Fig. 12B

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