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Chuter

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[54] **EXPANDABLE TRANSLUMINAL GRAFT PROSTHESIS FOR REPAIRS OF ANEURYSM AND METHOD FOR IMPLANTING**

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Related U.S. Application Data

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[52] **U.S. Cl.** **623/1**; 606/194; 606/195

[58] **Field of Search** 623/1, 11, 12; 606/191, 192, 193, 194, 195–198; 604/96, 8; 600/36

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,657,744	4/1972	Ersek	3/1
4,140,126	2/1979	Chaudhury	128/325
4,512,338	4/1985	Balko et al.	128/1
4,562,596	1/1986	Kornberg .	
4,577,631	3/1986	Kreamer	623/1
4,580,568	4/1986	Gianturco	128/345
4,655,771	4/1987	Wallsten	623/1
4,733,665	3/1988	Palmaz	128/343
4,739,762	4/1988	Palmaz	128/343
4,740,207	4/1988	Kreamer	623/1
4,776,337	10/1988	Palmaz	128/343
4,787,899	11/1988	Lazarus	623/1
4,830,003	5/1989	Wolff et al.	128/343
5,104,399	4/1992	Lazarus .	

FOREIGN PATENT DOCUMENTS

0423916	4/1991	European Pat. Off. .	
0461791	12/1991	European Pat. Off. .	
0508473	of 1992	European Pat. Off. .	
0472731	3/1992	European Pat. Off.	606/194
9112047	8/1991	WIPO	606/194

OTHER PUBLICATIONS

Mirich, D. et al., "Percutaneously Placed Endovascular Grafts for Aortic Aneurysms: Feasibility Study," Radiology, vol. 170, No. 3, Part 2, Mar. 1989, pp. 1033–1037.

Lawrence, David D. Jr. et al., "Percutaneous Endovascular Graft: Experimental Evaluation," *Radiology,* vol. 163, No. 2, pp. 357–360, May 1987.

Palmaz, Julio C. et al., "Expandable Intraluminal Vascular Graft: A Feasibility Study," *Surgery,* vol. 99, No. 2, pp. 199–205, Feb. 1986.

Dotter, Charles T. et al., "Transluminal Expandable Nitinol Coil Stent Grafting: Preliminary Report," *Radiology,* vol. 147, pp. 259–260, Apr. 1983.

Cragg, Andrew et al., "Nonsurgical Placement of Arterial Endoprostheses: A New Technique Using Nitinol Wire," *Radiology,* vol. 147, pp. 261–263, Apr. 1983.

Dotter, Charles T., "Transluminally–placed Coilspring Endarterial Tube Grafts," *Investigative Radiology,* vol. 4, No. 5, pp. 329–332, Sep.–Oct. 1969.

(List continued on next page.)

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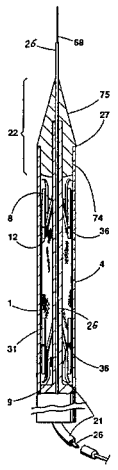
[57] **ABSTRACT**

A transluminal grafting system for grafting a prosthesis to the wall of a lumen includes a tubular graft provided with spring assemblies and anchoring barbs. The prothesis is mounted on an apertured tubular carrier and a central control means is inserted into the bore of the apertured carrier. Mooring loops are attached to the prothesis, pass through the apertures of the tubular carrier, and engage the central control means. An introducer sheath covers the system for smooth insertion into a lumen. When the graft has been positioned, the central control means maintains the axial position of the prosthesis. When the introducer sheath is pulled, the prostheis is exposed and the spring assemblies return to an expanded state and anchor the graft against the internal wall of the lumen.

24 Claims, 9 Drawing Sheets