



- [54] **VALVE PROTHESIS FOR IMPLANTATION IN THE BODY AND A CATHETER FOR IMPLANTING SUCH VALVE PROTHESIS**
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- [21] **Appl. No.:** **261,235**
- [22] **Filed:** **Jun. 14, 1994**

Related U.S. Application Data

- [63] Continuation of Ser. No. 961,891, Jan. 11, 1993, abandoned.

Foreign Application Priority Data

- May 18, 1990 [DK] Denmark 1246/90
- [51] **Int. Cl.⁶** **A61F 2/24**
- [52] **U.S. Cl.** **623/2; 623/900;**
137/343; 137/844; 251/358
- [58] **Field of Search** **623/2, 900; 137/343,**
137/844, 316; 251/358; 606/108

References Cited

U.S. PATENT DOCUMENTS

3,671,979	6/1972	Moulopoulos .	
4,038,703	8/1977	Bokros	623/2
4,056,854	11/1977	Boretos et al.	623/2
4,106,129	8/1978	Carpentier et al.	623/2
4,297,749	11/1981	Davis et al.	623/2
4,343,048	8/1982	Ross .	
4,733,665	3/1988	Palmaz	606/108
4,856,516	8/1989	Hillstead	604/194
5,037,434	8/1991	Lane	623/2
5,163,953	11/1992	Vince	623/2

FOREIGN PATENT DOCUMENTS

0357003	3/1990	European Pat. Off.	623/900
1271508	11/1986	U.S.S.R.	623/2
1371701	2/1988	U.S.S.R.	623/2

OTHER PUBLICATIONS

Derwent Abstract No. 87-190867/27 (1987), SU 1271508 (Gorkii Kirov Medical Ins.).
Primary Examiner—David H. Willse
Attorney, Agent, or Firm—Watson, Cole, Grindle & Watson

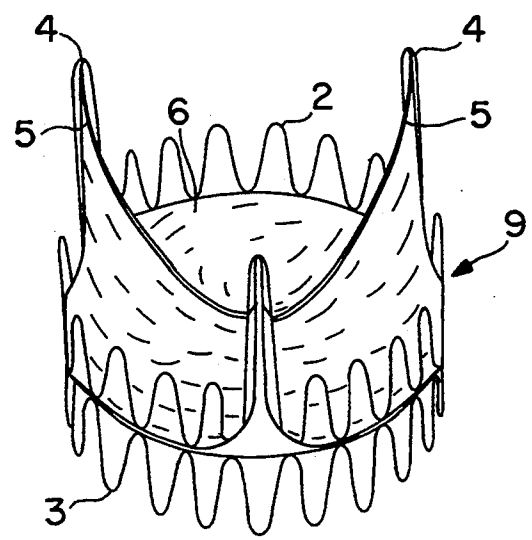
ABSTRACT

A valve prosthesis (9) for implantation in the body by use of catheter (11) comprises a stent made from an expandable cylinder-shaped thread structure (2,3) comprising several spaced apices (4). The elastically collapsible valve (4) is mounted on the stent as the commissural points (5) of the valve (6) are secured to the projecting apices (4).

The valve prosthesis (9) can be compressed around the balloon means (13) of the balloon catheter (11) and be inserted in a channel, for instance in the aorta (10). When the valve prosthesis is placed correctly the balloon means (13) is inflated thereby expanding the stent and wedging it against the wall of aorta. The balloon means is provided with beads (14) to ensure a steady fastening of the valve prosthesis on the balloon means during insertion and expansion.

The valve prosthesis (9) and the balloon catheter (11) make it possible to insert a cardiac valve prosthesis without a surgical operation comprising opening the thoracic cavity.

8 Claims, 4 Drawing Sheets



NORRED EXHIBIT 2116 - Page 1
Medtronic, Inc., Medtronic Vascular, Inc.,
& Medtronic Corevalve, LLC

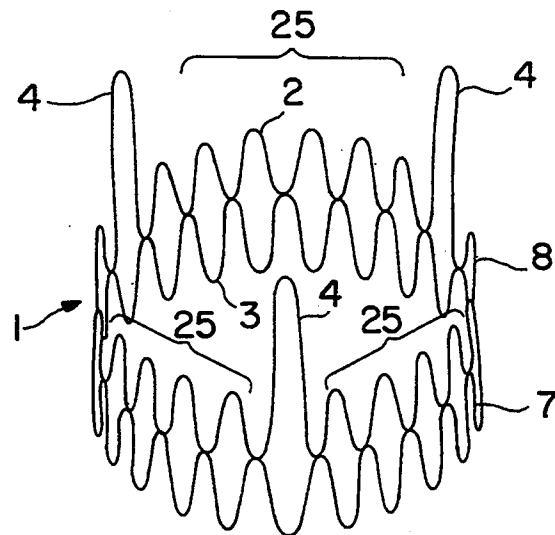


FIG. 1

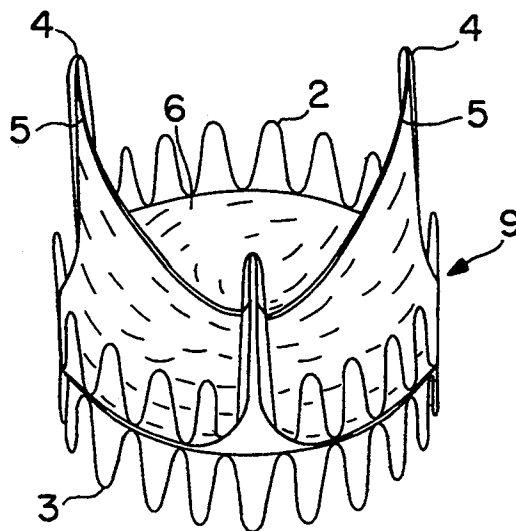


FIG. 2

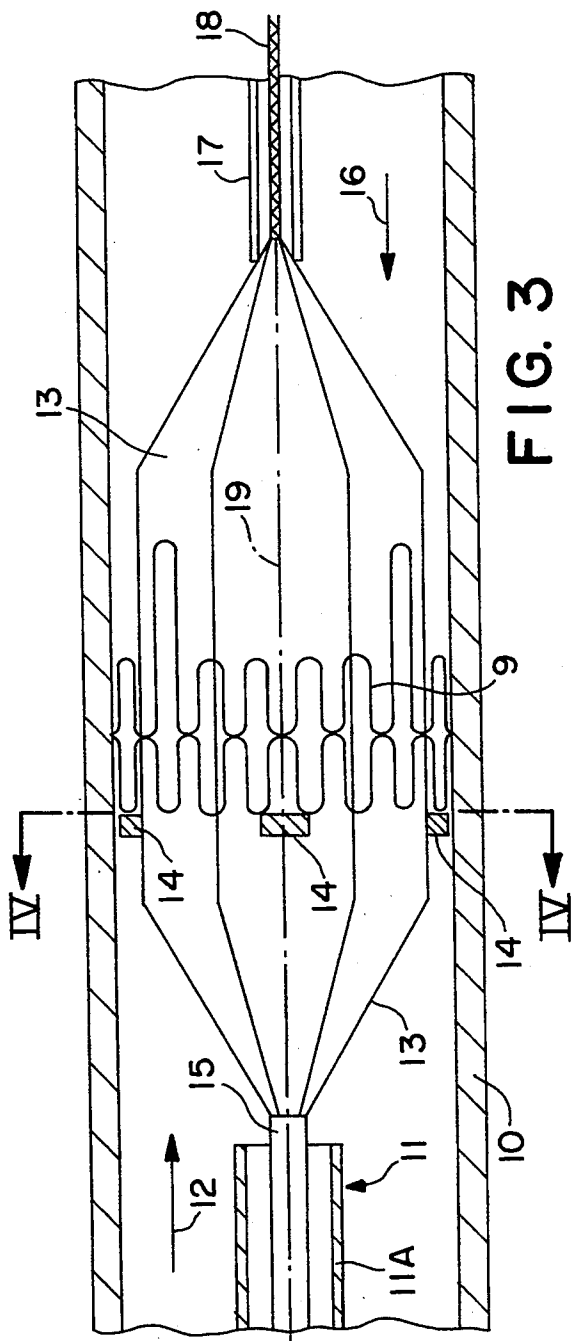


FIG. 3

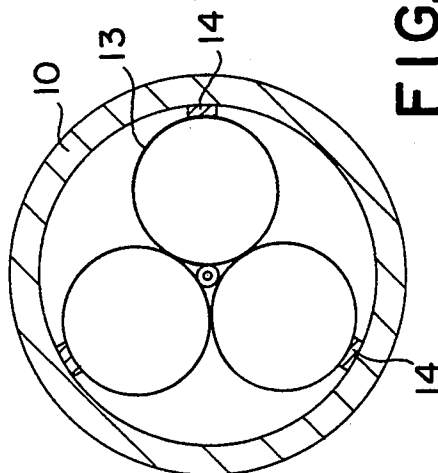


FIG. 4

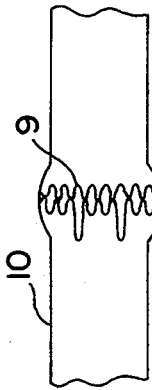


FIG. 5

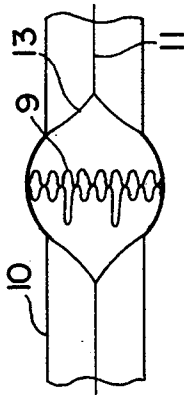


FIG. 6

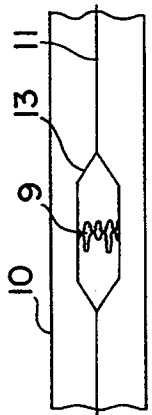


FIG. 7

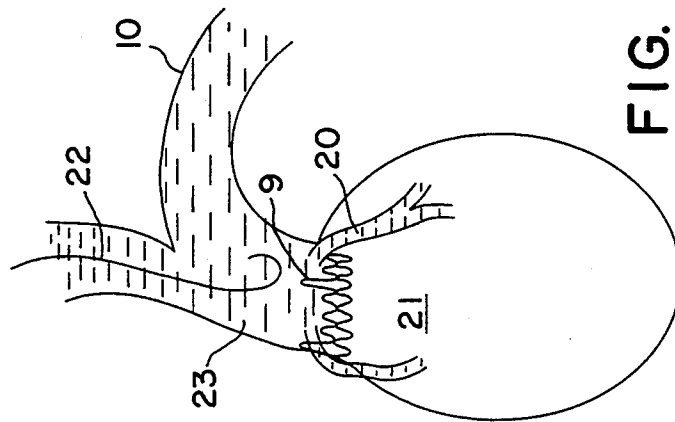


FIG. 8

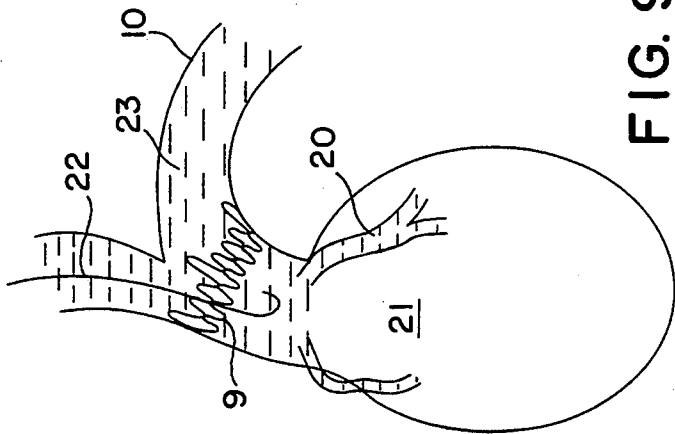


FIG. 9

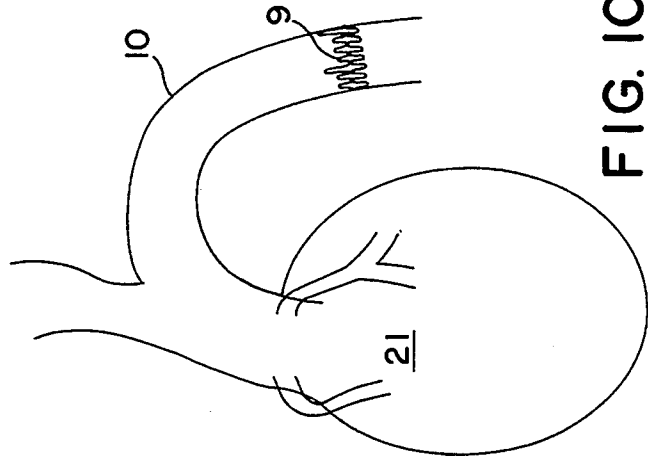


FIG. 10

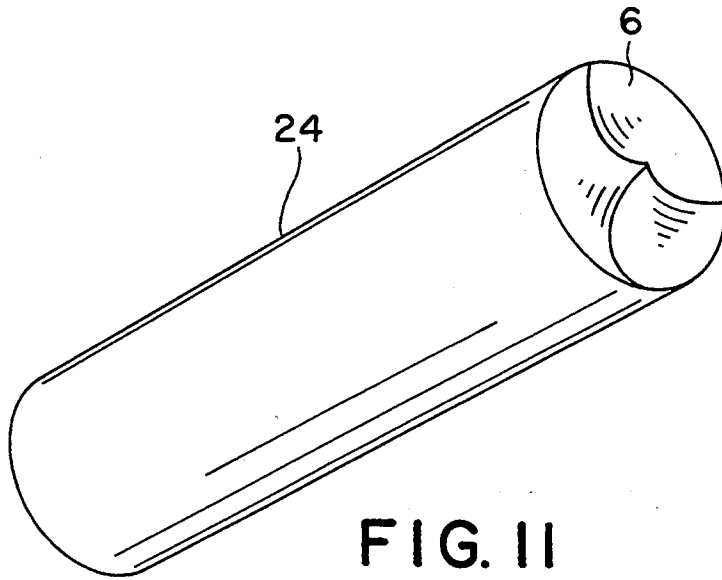


FIG. 11

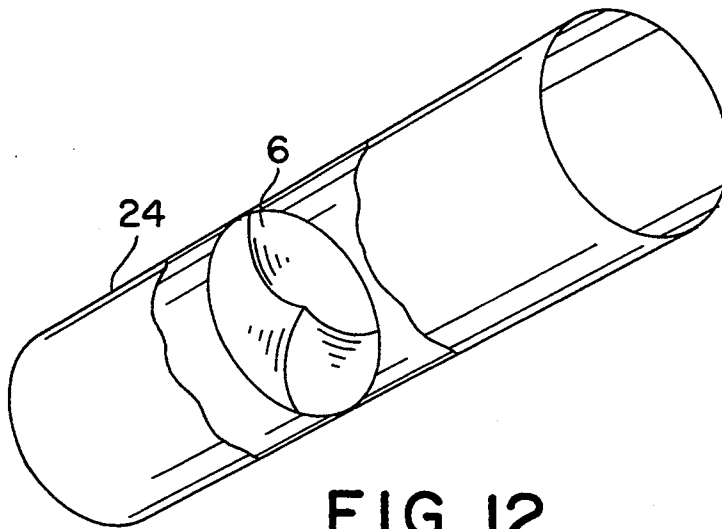


FIG. 12

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