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# United States Patent [19]

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Andersen et al.

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[54] **VALVE PROTHESIS FOR IMPLANTATION IN THE BODY AND A CATHETER FOR IMPLANTING SUCH VALVE PROTHESIS**

[76] Inventors: **Henning R. Andersen, Dalvangen 37A, DK-8270 Hoejbjerg; John M. Hasenkam, Aprilvej 8, DK-8210 Aarhus V; Lars L. Knudsen, RudolfWulffsgade 6,4.mf., DK-8000 Aarhus C, all of Denmark**

[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.<sup>6</sup> ..... **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**

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Primary Examiner—David H. Willse  
Attorney, Agent, or Firm—Watson, Cole, Grindle & Watson

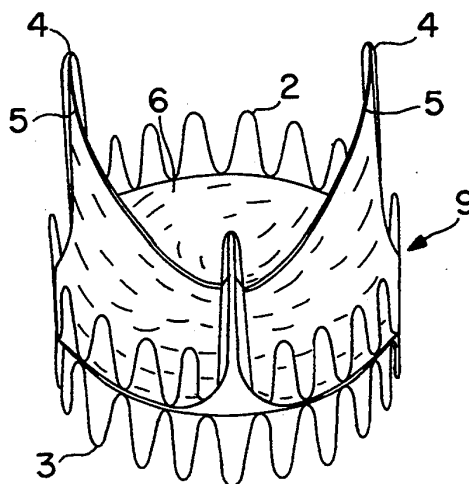
### [57] ABSTRACT

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**



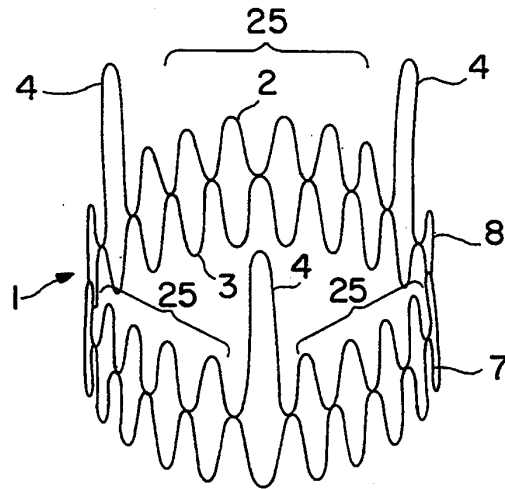


FIG. 1

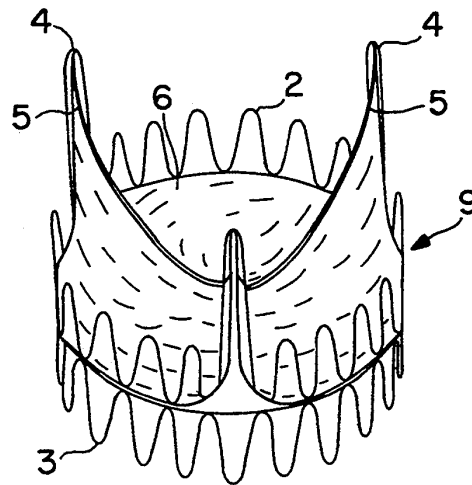


FIG. 2

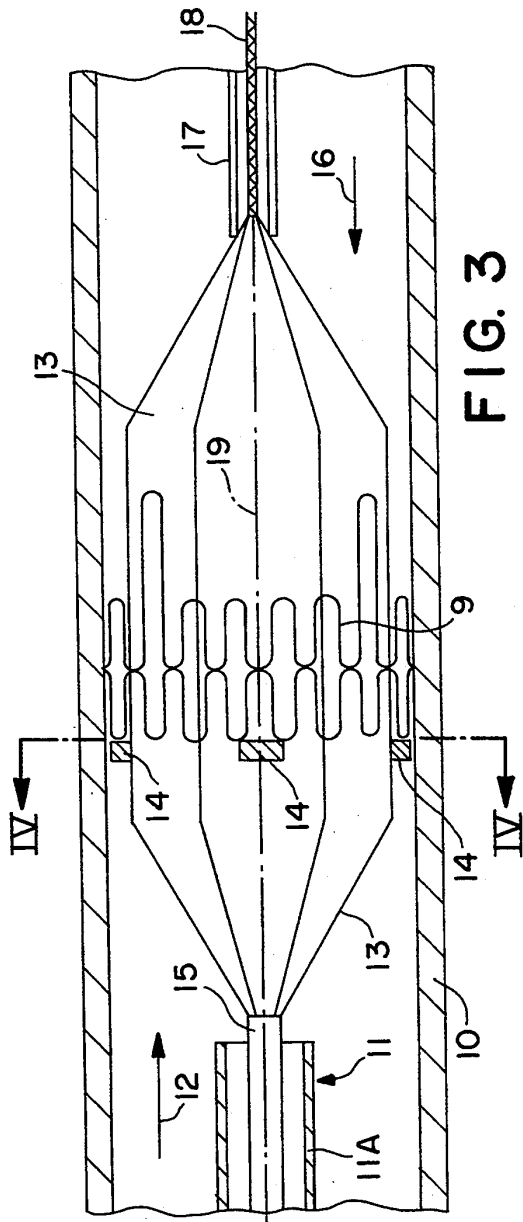


FIG. 3

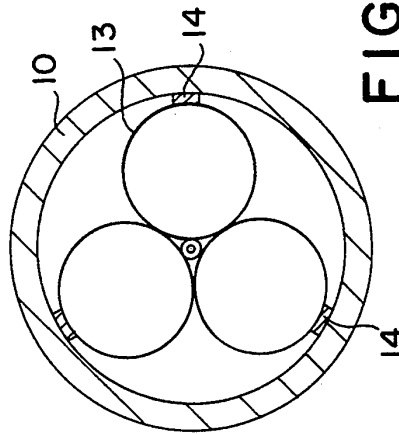


FIG. 4

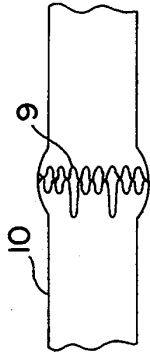


FIG. 5

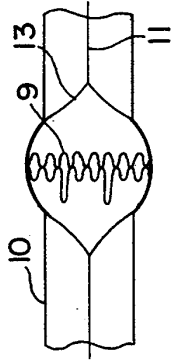


FIG. 6

FIG. 7

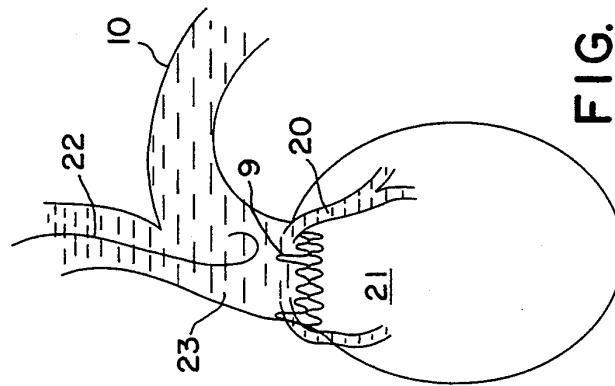


FIG. 8

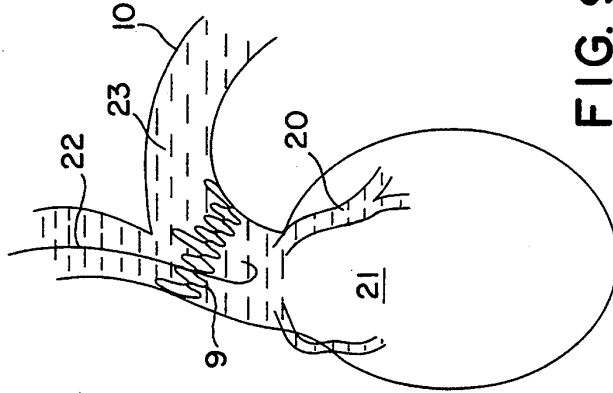


FIG. 9

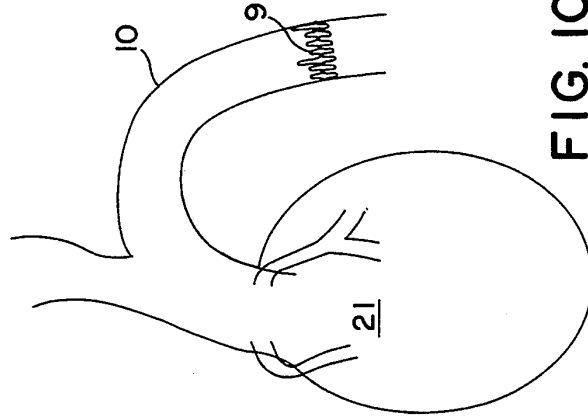


FIG. 10

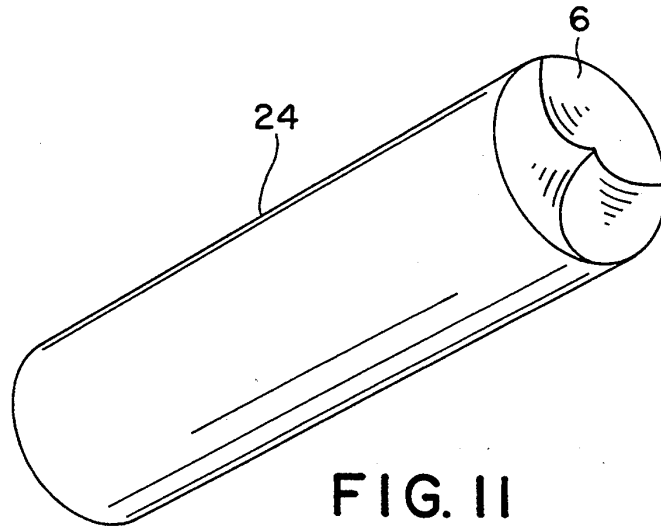


FIG. 11

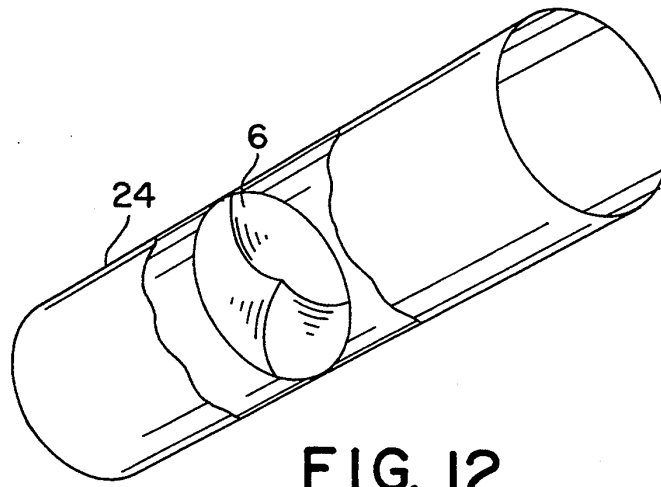


FIG. 12

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