



# United States Patent [19]

Bessler et al.

[11] Patent Number: **5,855,601**

[45] Date of Patent: **Jan. 5, 1999**

[54] **ARTIFICIAL HEART VALVE AND METHOD AND DEVICE FOR IMPLANTING THE SAME**

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[21] Appl. No.: **668,376**

[22] Filed: **Jun. 21, 1996**

[51] Int. Cl.<sup>6</sup> ..... **A61F 2/24**

[52] U.S. Cl. .... **623/2; 623/900**

[58] Field of Search ..... **623/2, 1, 900**

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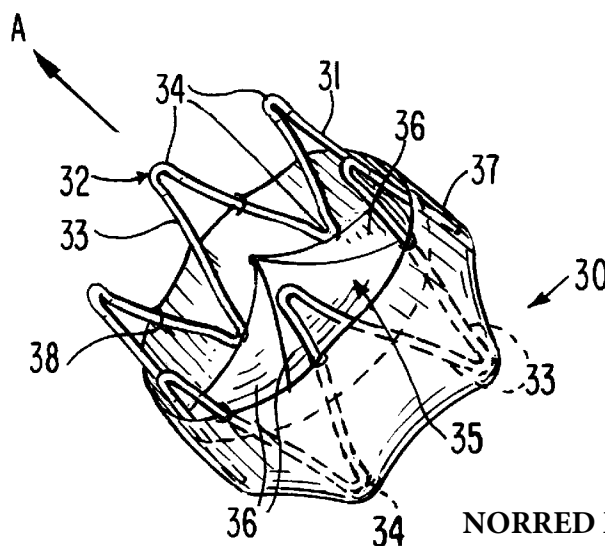
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*Attorney, Agent, or Firm*—Cowan, Liebowitz & Latman, P.C.; William H. Dippert

[57] **ABSTRACT**

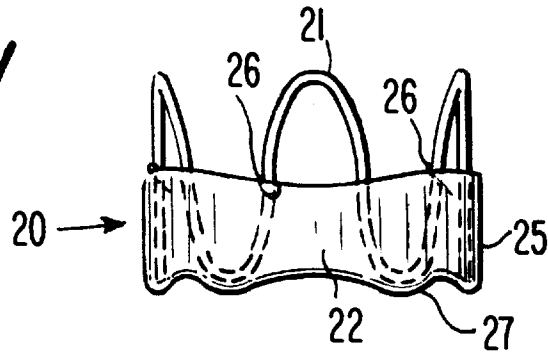
An artificial heart valve comprises a relatively rigid stent member having a first cylindrical shape and a flexible valve member disposed in the stent member, the stent member being self-expandable to a second cylindrical shape and collapsible to its first cylindrical shape. The valve comprises a circular portion comprising a plurality of leaflets extending from the periphery of the circular portion towards the center thereof, the leaflets being configured to allow for flow of blood through the valve in one direction only. The diameter of the circular portion is substantially the same as the inside diameter of the stent member when the stent member is in its second cylindrical shape, the valve member being attached to the stent member.

**20 Claims, 8 Drawing Sheets**

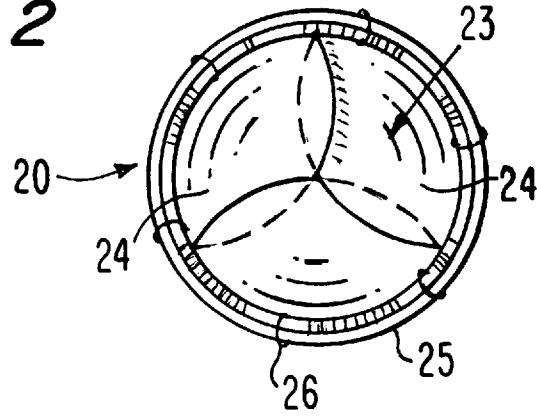


**NORRED EXHIBIT 2220 - Page 1**  
**Medtronic, Inc., Medtronic Vascular, Inc.,**

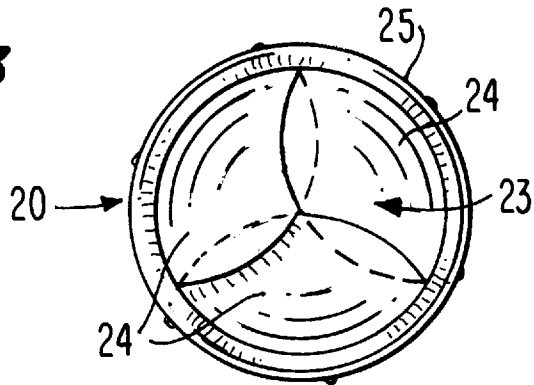
**FIG. 1**

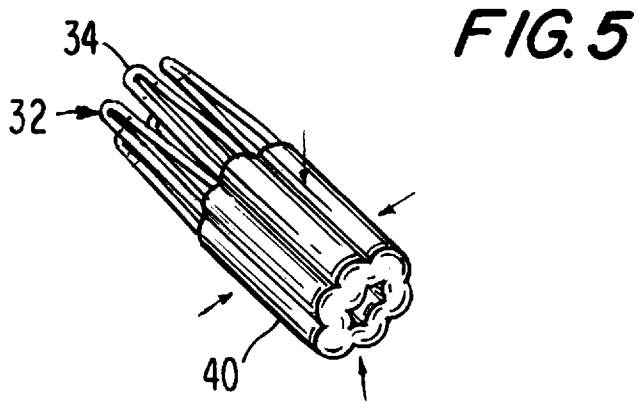
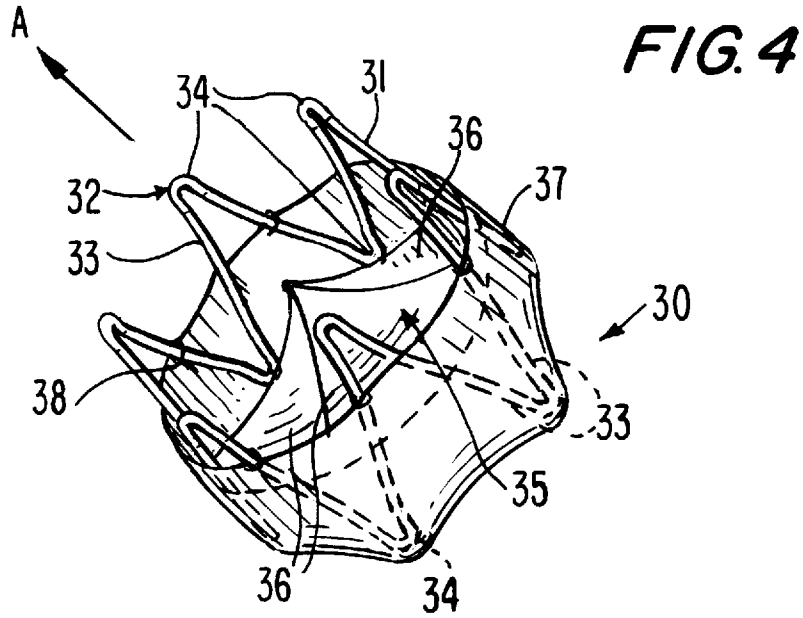


**FIG. 2**

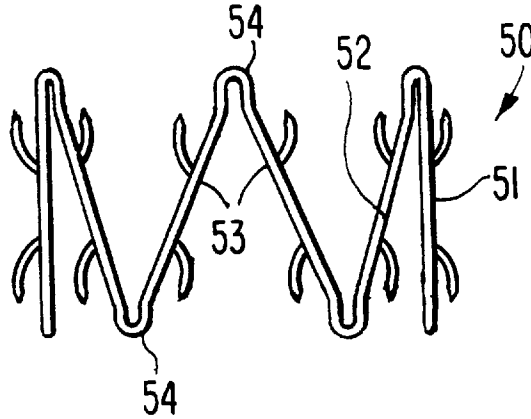


**FIG. 3**

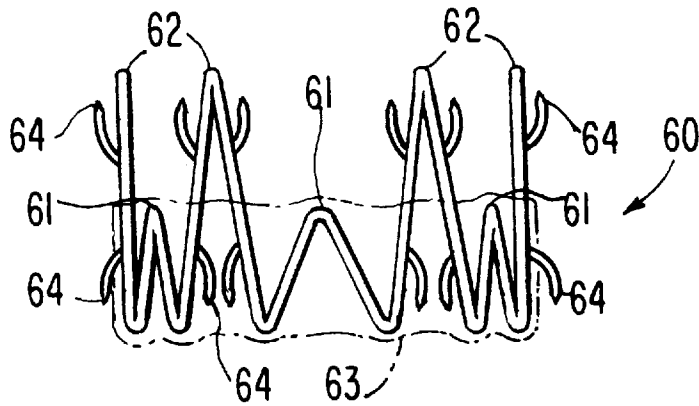




**FIG. 6**



**FIG. 7**



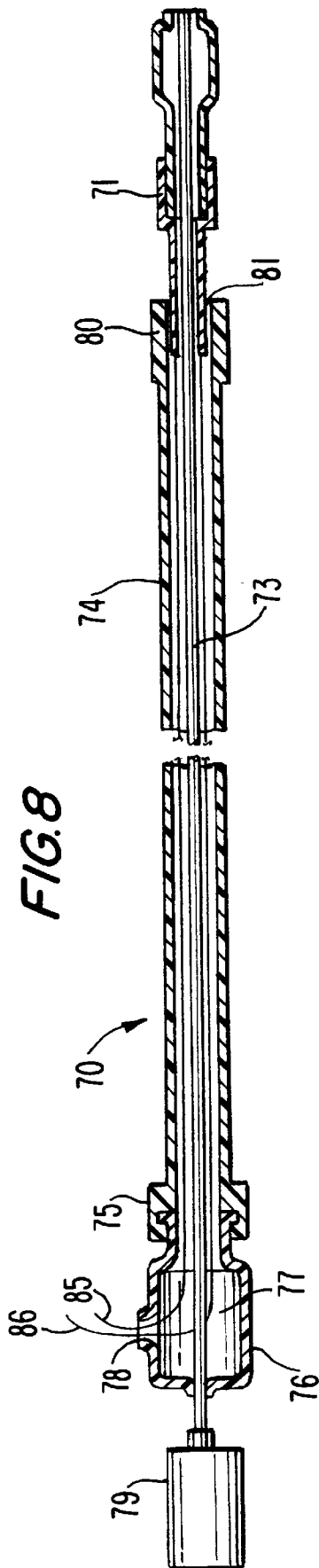


FIG. 8

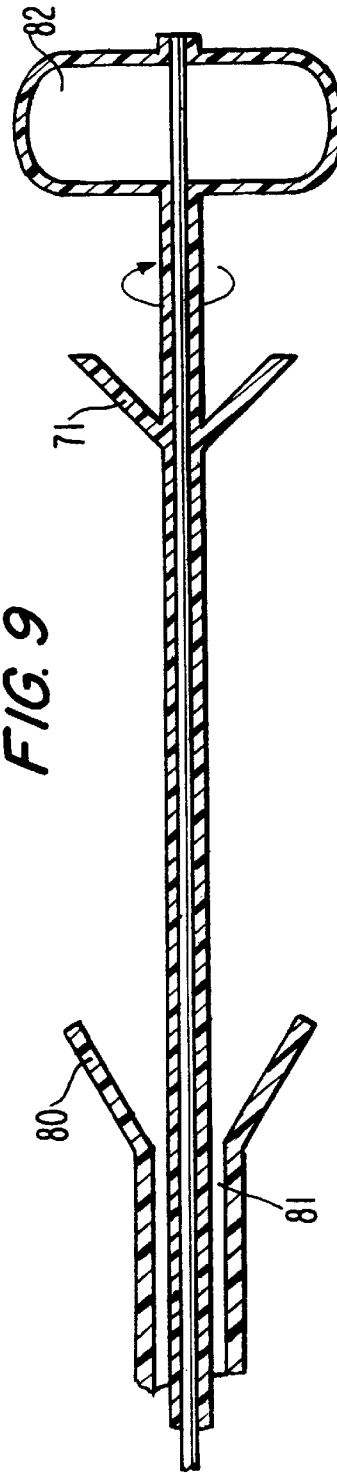


FIG. 9

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