



United States Patent [19]
Huynh et al.

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[54] **TISSUE HEART VALVES**
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[51] **Int. Cl.⁶** **A61F 2/24**
[52] **U.S. Cl.** **623/2; 623/900**
[58] **Field of Search** **623/2, 900**

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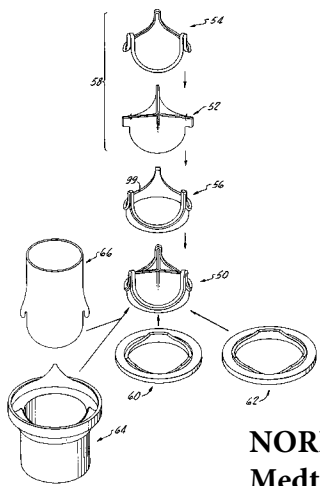
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[57] **ABSTRACT**

Improved, adaptable tissue-type heart valves and methods for their manufacture are disclosed wherein a dimensionally stable, pre-aligned tissue leaflet subassembly is formed and its peripheral edge clamped between and attached to an upper shaped wireform and a lower support stent. A variety of adaptable structural interfaces including suture rings, flanges, and conduits may be attached to the support stent with or without an outlet conduit disposed about the wireform to provide a tissue-type heart valve adaptable for use in either a natural heart or in mechanical pumping devices.

47 Claims, 16 Drawing Sheets



NORRED EXHIBIT 2309 - Page 1
Medtronic, Inc., Medtronic Vascular, Inc.,

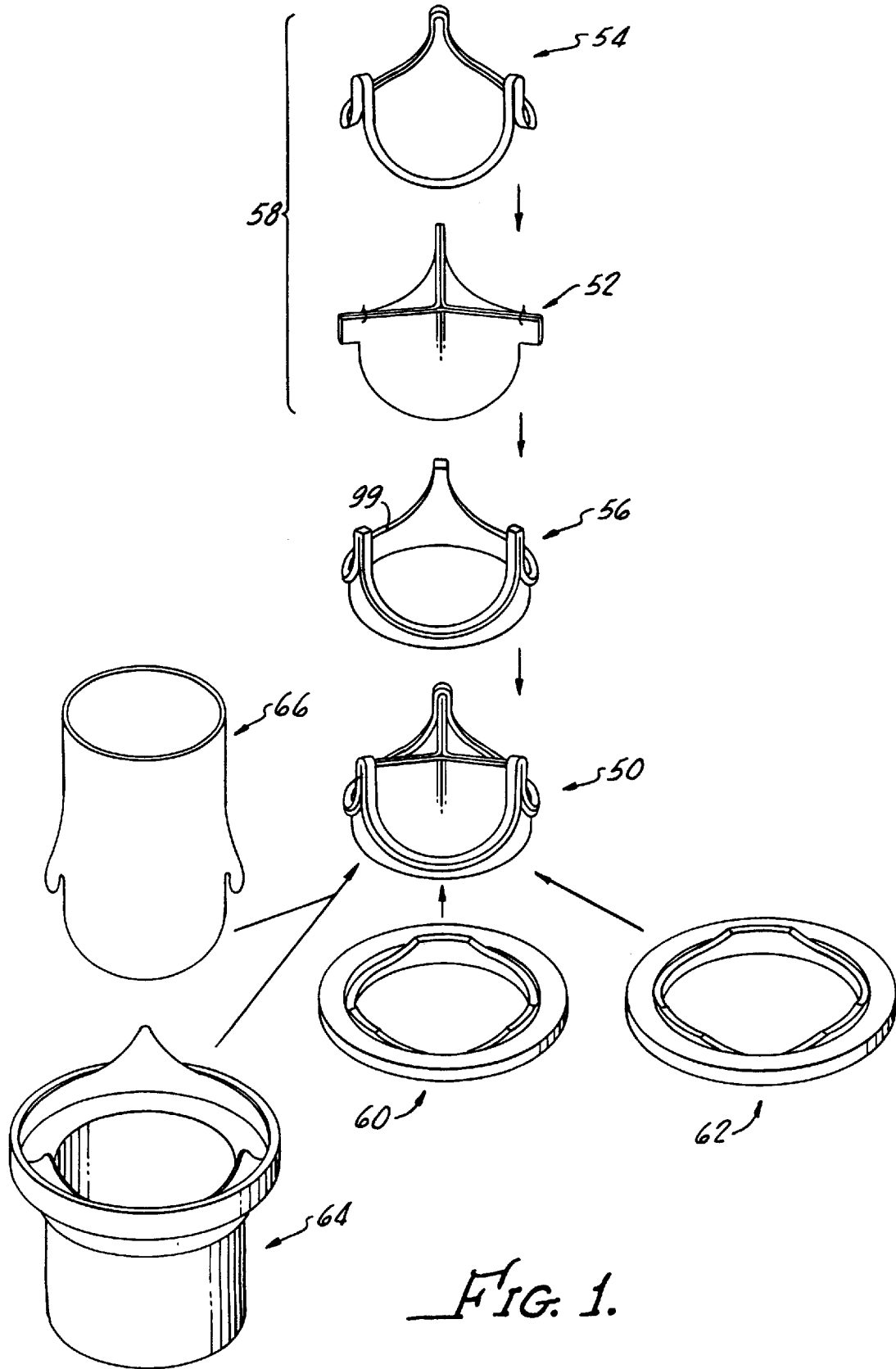


FIG. 1.

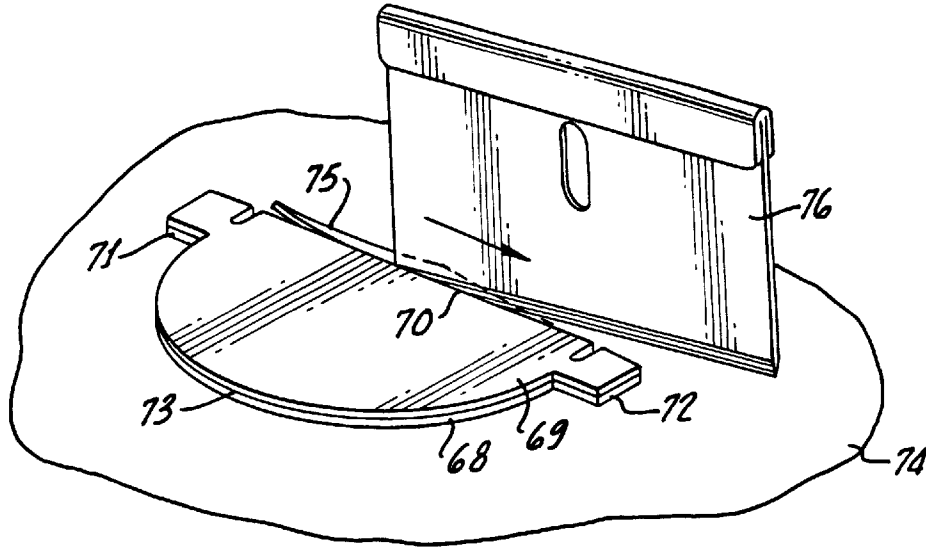


FIG. 2.

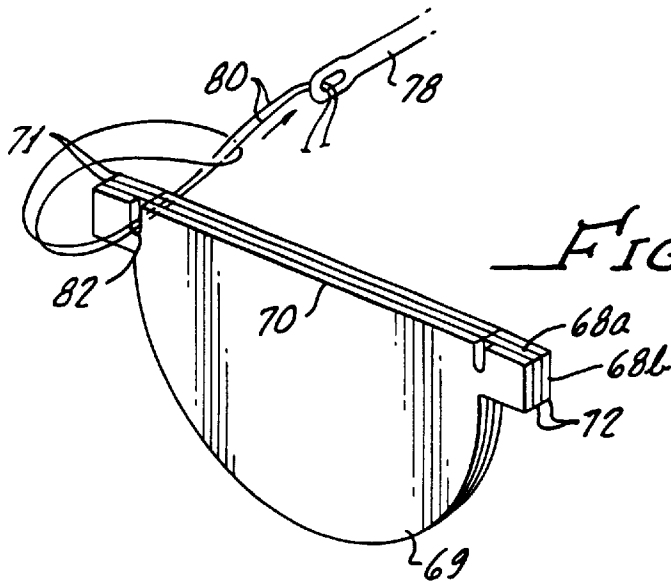


FIG. 3.

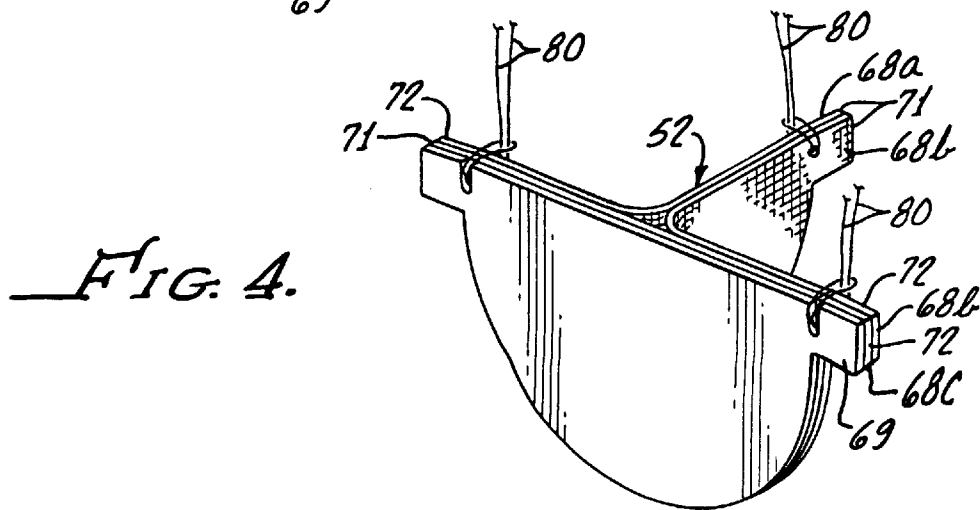


FIG. 4.

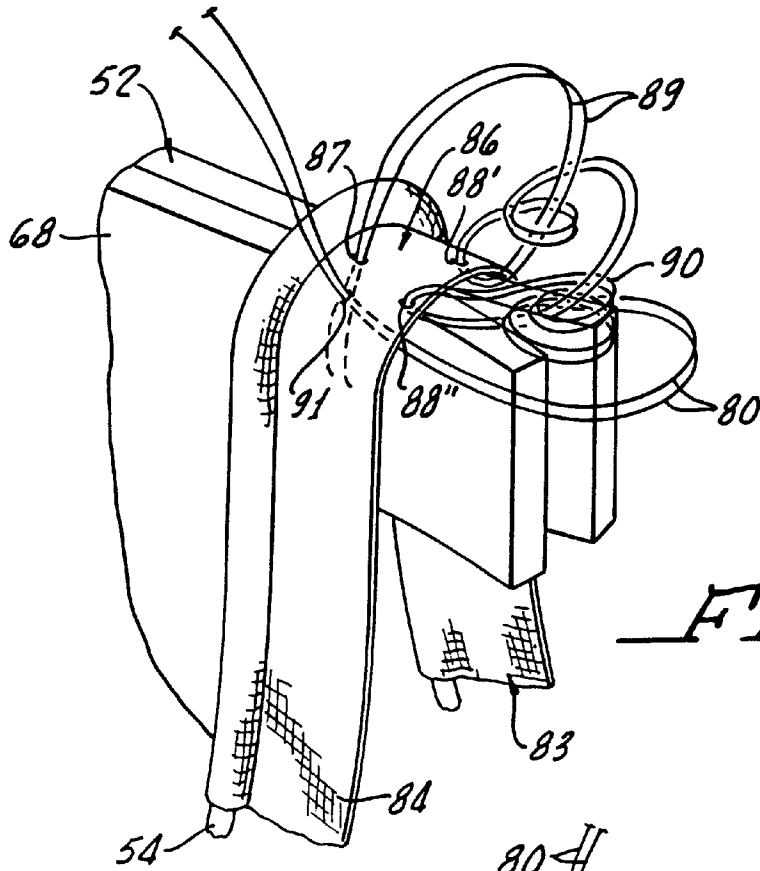


FIG. 5.

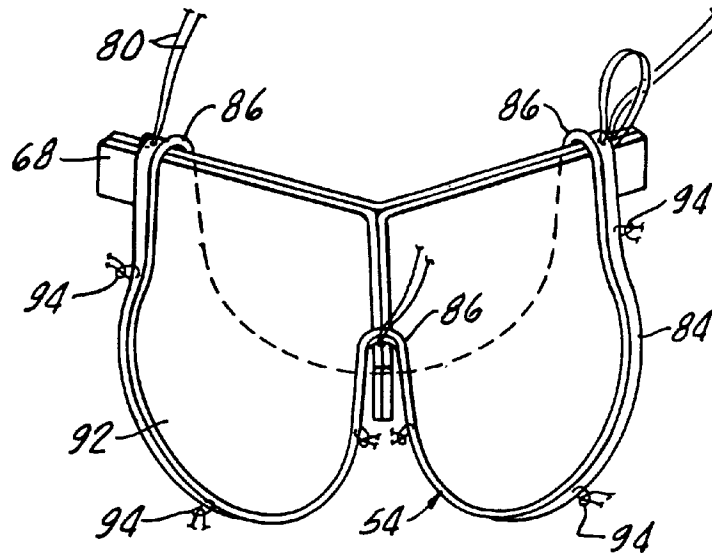


FIG. 6.

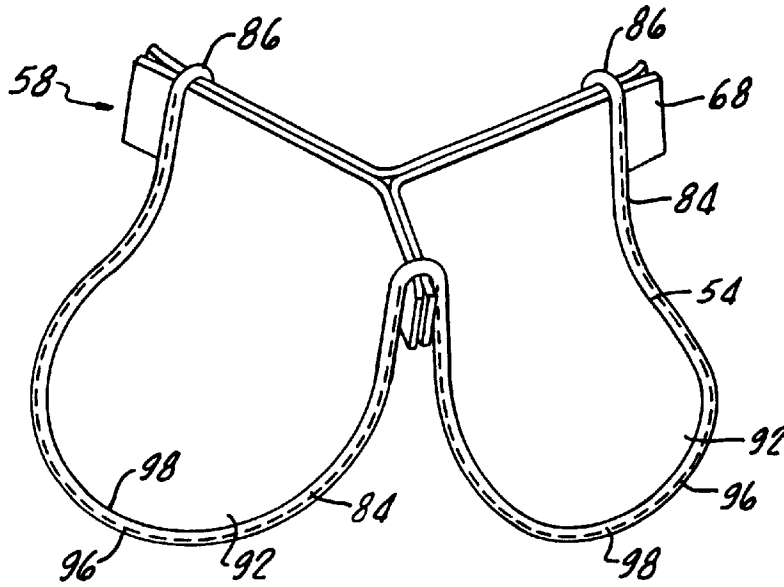


FIG. 7.

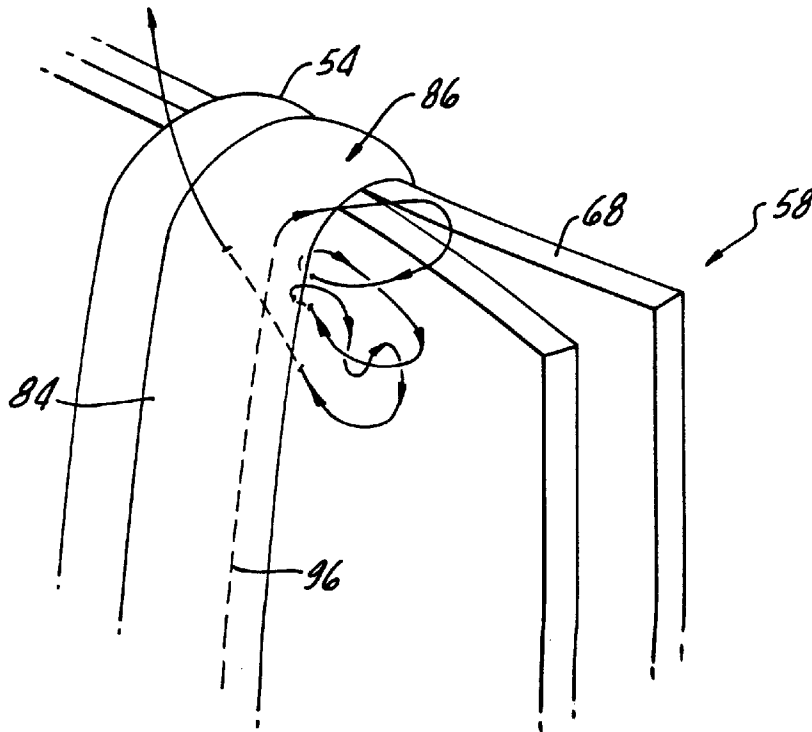


FIG. 8.

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