



United States Patent [19]

Girard et al.

[11] Patent Number: **5,716,417**

[45] Date of Patent: **Feb. 10, 1998**

[54] **INTEGRAL SUPPORTING STRUCTURE FOR BIOPROSTHETIC HEART VALVE**

4,851,000	7/1989	Gupta	623/2
5,258,023	11/1993	Reger	623/900
5,411,552	5/1995	Andersen et al.	623/900

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FOREIGN PATENT DOCUMENTS

1264471	2/1972	United Kingdom	623/2
2279134	12/1994	United Kingdom	623/2

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[21] Appl. No.: **472,744**

[22] Filed: **Jun. 7, 1995**

[57] ABSTRACT

[51] Int. Cl.⁶ **A61F 2/24**

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

[58] Field of Search **623/900, 2, 3, 623/66**

A stent for receiving and supporting a tissue heart valve for ultimate implantation into a human, the heart valve including tissue leaflets joined at circumferentially spaced commissures, wherein the stent includes at least one commissure support post and at least one sinus support structure each sinus support structure being disposed between but not functionally connected to an adjacent commissure support post.

[56] References Cited

U.S. PATENT DOCUMENTS

3,570,014	3/1971	Hancock	623/900
4,626,255	12/1986	Reichart et al.	623/900

3 Claims, 4 Drawing Sheets

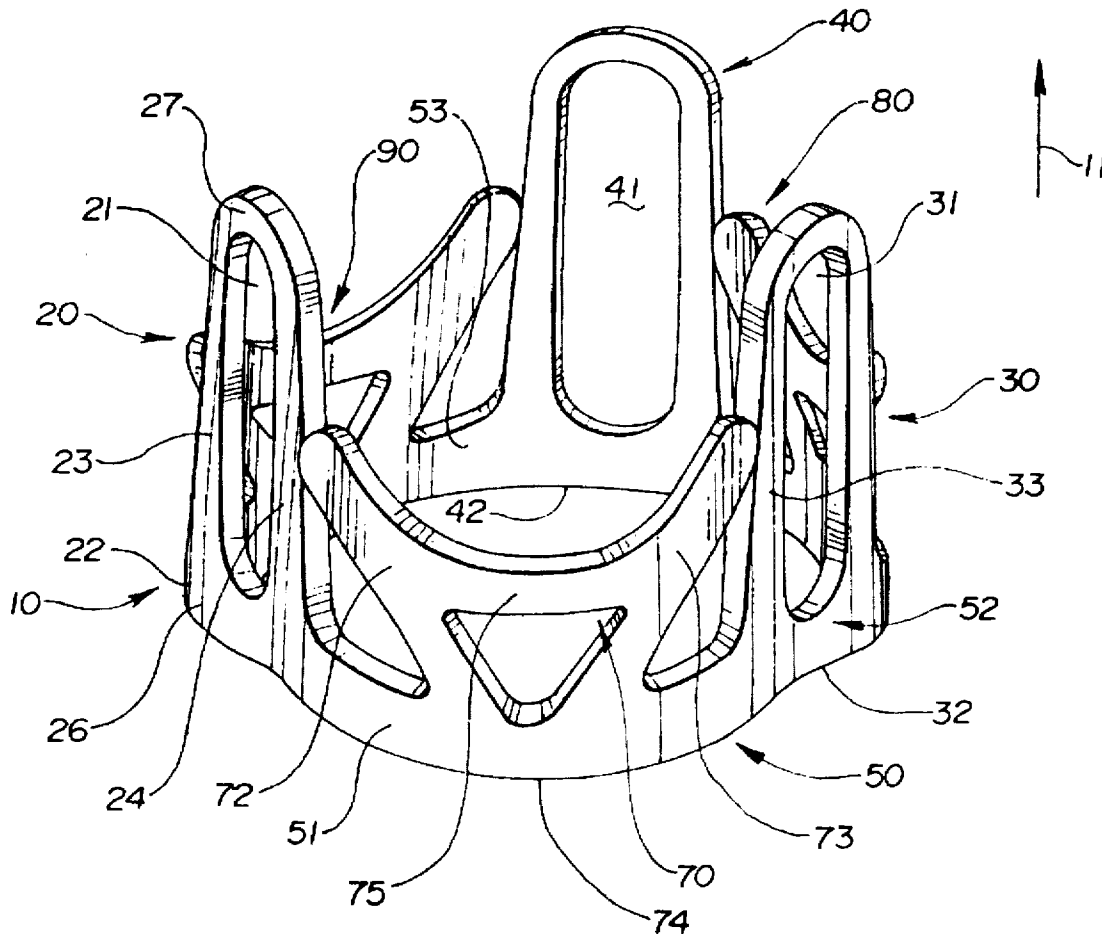


Fig. 1

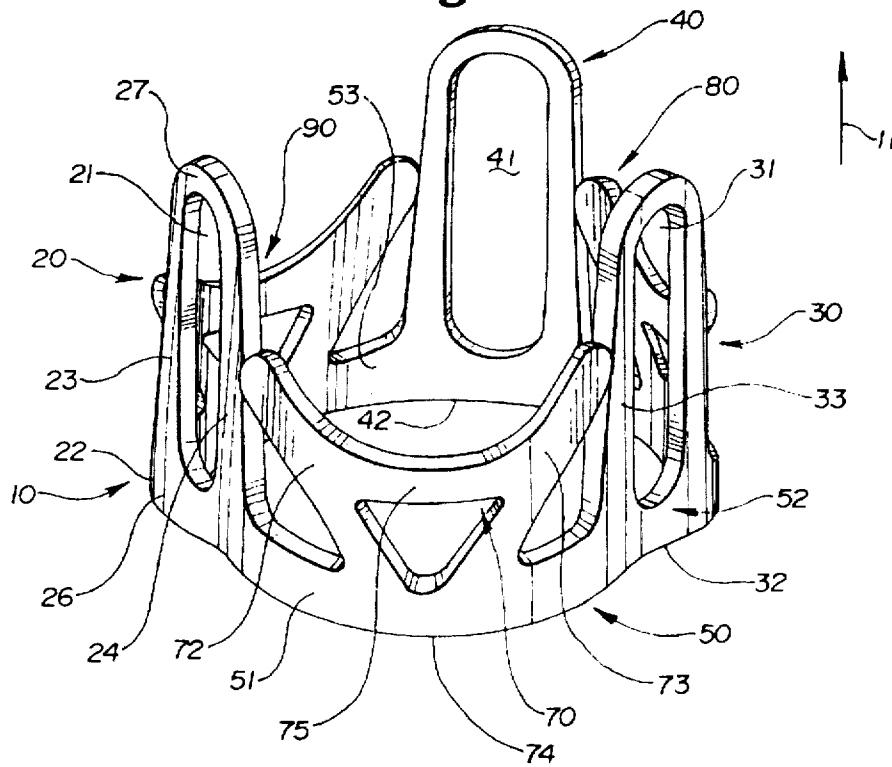


Fig. 2

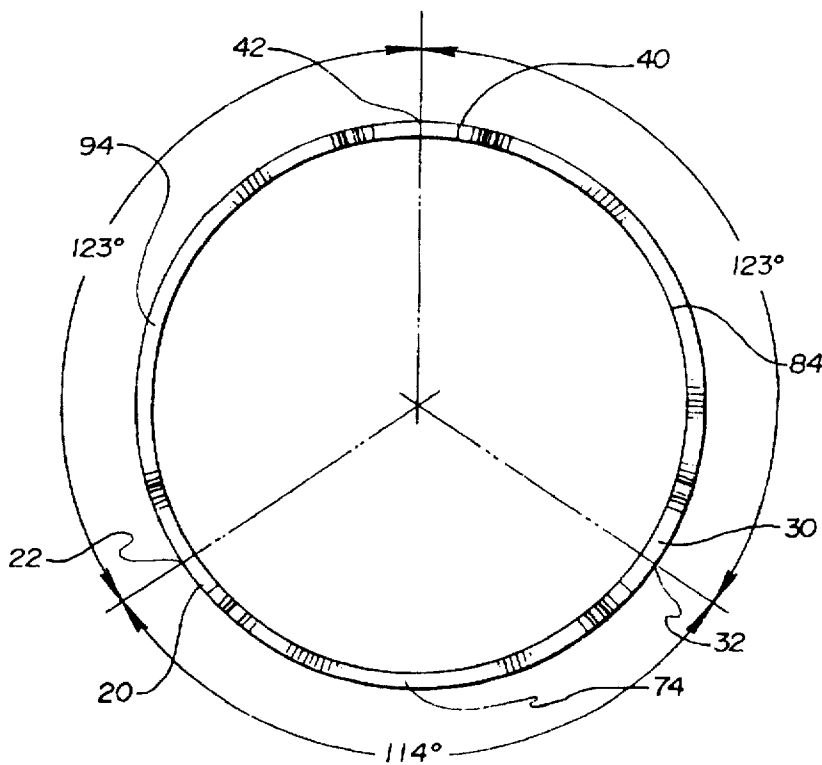


Fig. 3

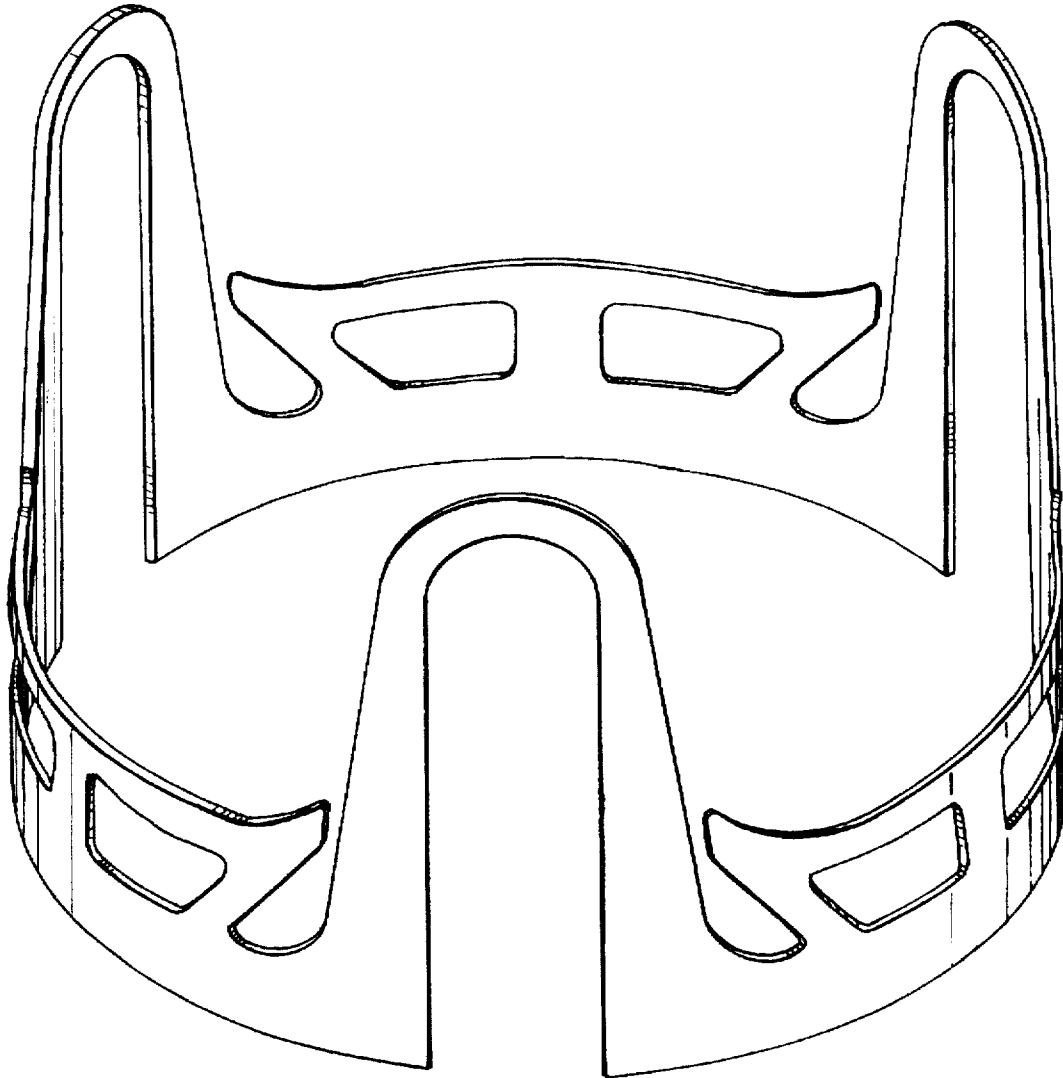


Fig. 4

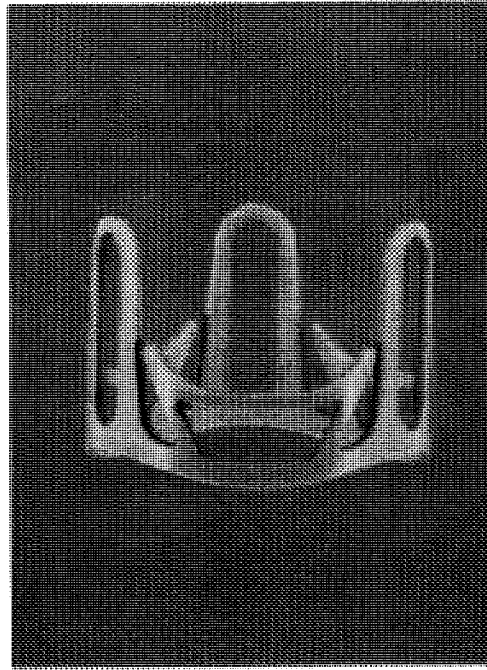


Fig. 5

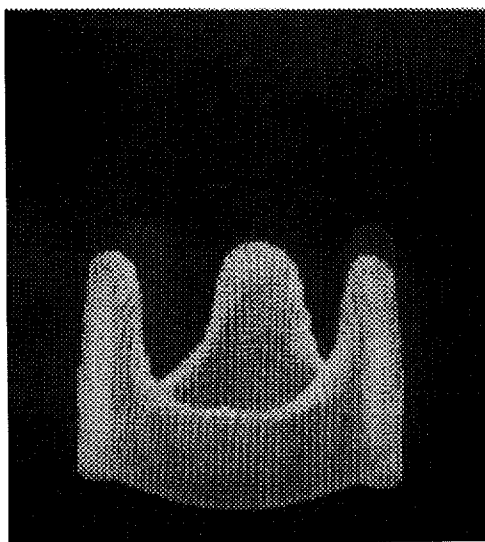
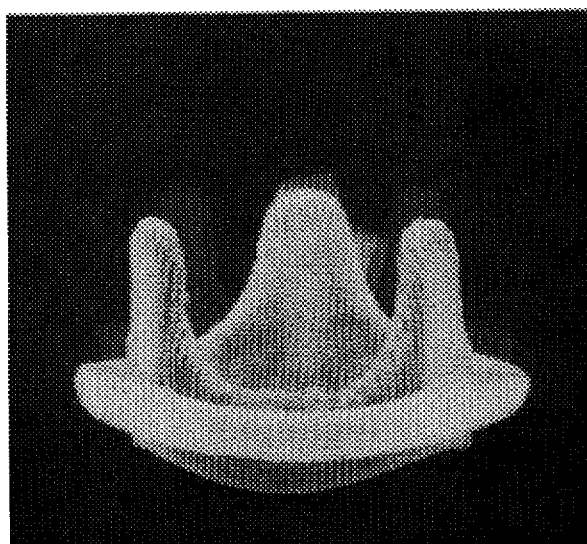


Fig. 6



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