

(12) United States Patent Carpentier

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(54) FLEXIBLE HEART VALVE LEAFLETS

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patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

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Related U.S. Application Data

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(51) **Int. Cl.**⁷ **A61F 2/06**; A61F 9/00

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623/2.12, 2.13, 2.14, 2.17, 2.18, 904, 910,

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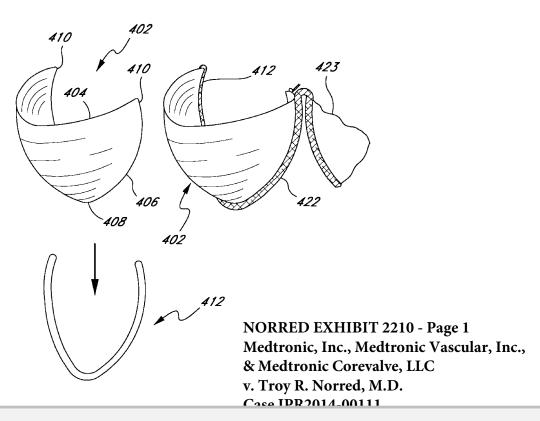
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ABSTRACT (57)

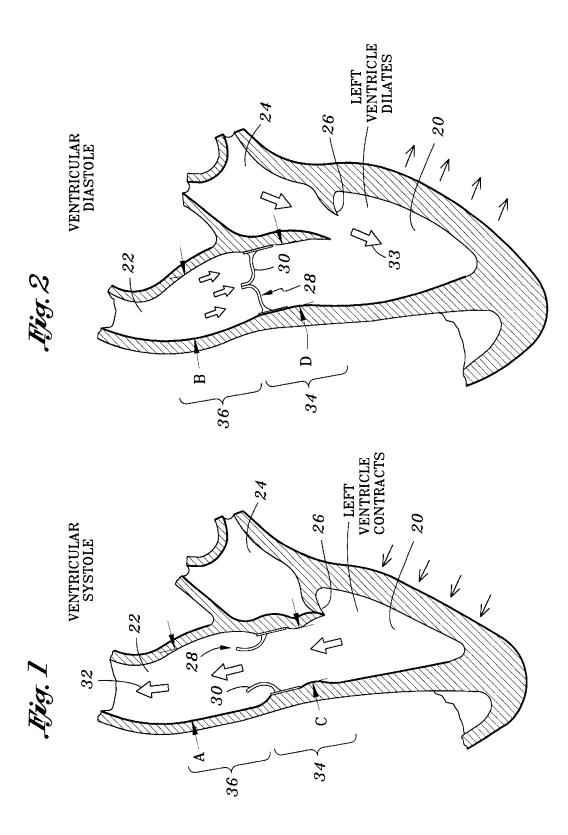
A heart valve with a structural stent and radially moveable cusps and commissures. The stent may be of three separate elements, each having a cusp portion and two commissure portions. The commissures may be pivotally or flexibly coupled, and may separate into independent leaflets. A connecting band may be provided that follows the cusps and commissures and extend outwardly. The valve may be connected to the natural tissue along the undulating connecting band. A multi-legged holder having legs alternating between each cusp and commissure may be used for implantation. A method of implantation is also disclosed, as is a system for implanting independent valve leaflets in the native annulus.

25 Claims, 18 Drawing Sheets

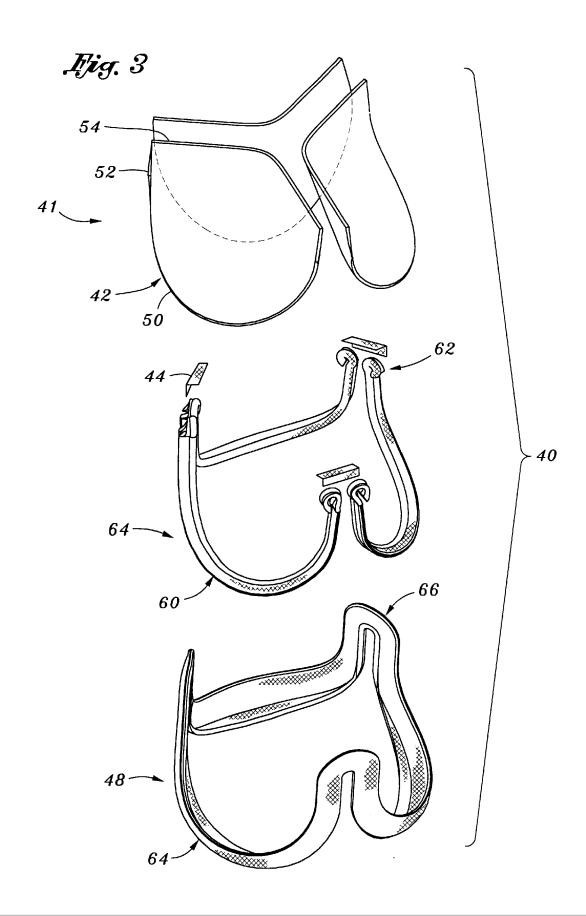




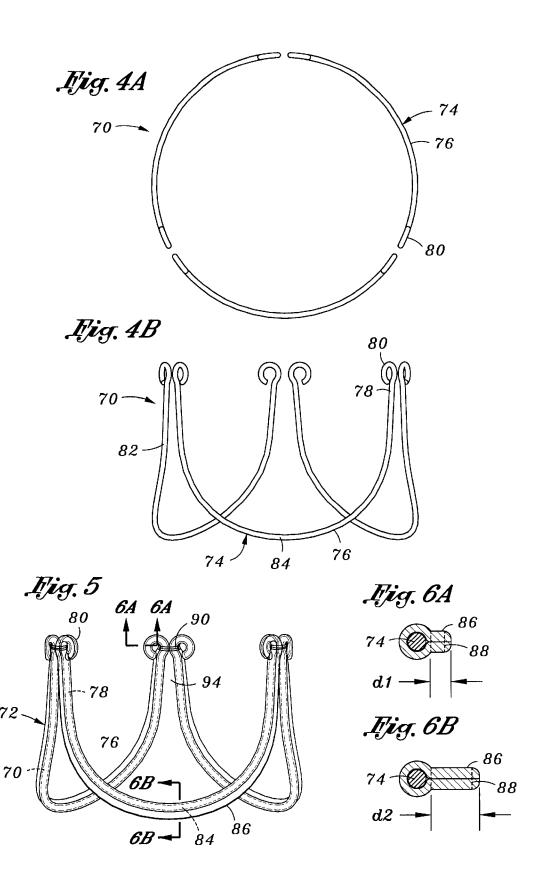
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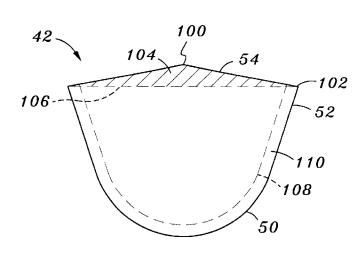


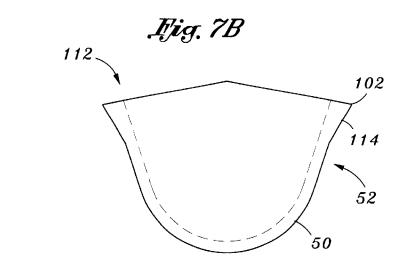


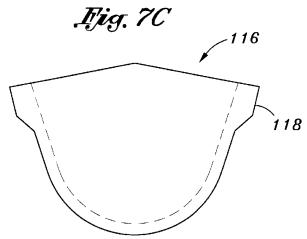












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