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# United States Patent [19]

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Evard et al.

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- [54] **COMPOSITE VASCULAR CATHETER**
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- [\*] Notice: The portion of the term of this patent subsequent to Jan. 1, 2008 has been disclaimed.
- [21] Appl. No.: **776,726**
- [22] Filed: **Oct. 15, 1991**

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### [57] ABSTRACT

An improved vascular catheter having a tubular member of composite structure with a tubular substrate and a resin-impregnated fibrous covering extending over a substantial part of the length thereof. The tubular substrate which is longitudinally flexible but relatively inextendible, is preferably polyimide tubing with a lubricious coating on the inner surface thereof defining an inner lumen. The fibrous covering is preferably epoxy-impregnated aramid or polyester (Dacron) multi-filament fibers. The strands are snugly wrapped around the tubular substrate and then impregnated with a suitable resin. One or more of the strands in the distal portion are at an angle with respect to the longitudinal axis of the tubular substrate between about 20° and about 45° greater than the angle of one or more strands in the proximal portion. Individual strand wraps in the distal portion are at an angle of about 60° to about 85° and strand wraps in such as the proximal portion are at an angle of about 30° to about 60°. The composite tubular member is preferably utilized in balloon dilatation catheters used in angioplasty procedures.

### Related U.S. Application Data

- [63] Continuation of Ser. No. 636,538, Dec. 31, 1990, abandoned, which is a continuation of Ser. No. 241,047, Sep. 6, 1988, Pat. No. 4,981,478.
- [51] Int. Cl.<sup>5</sup> ..... **A61M 25/00**
- [52] U.S. Cl. .... **604/282; 128/772; 606/194**
- [58] Field of Search ..... 128/772; 604/282; 606/191-192, 194

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**12 Claims, 2 Drawing Sheets**

