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# United States Patent [19]

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Lazarus et al.

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[54] **ENDOVASCULAR GRAFTING APPARATUS, SYSTEM AND METHOD AND DEVICES FOR USE THEREWITH**

[75] Inventors: **Harrison M. Lazarus**, Salt Lake City, Utah; **Ronald G. Williams**, Menlo Park; **Wesley D. Sterman**, San Francisco, both of Calif.

[73] Assignee: **Harrison Medical Technologies, Inc.**, Menlo Park, Calif.

[21] Appl. No.: **553,530**

[22] Filed: **Jul. 13, 1990**

### Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 166,093, Mar. 9, 1988, Pat. No. 5,104,399, which is a continuation-in-part of Ser. No. 940,907, Dec. 10, 1986, Pat. No. 4,787,899, which is a continuation of Ser. No. 559,935, Dec. 9, 1983, abandoned.

[51] Int. Cl.<sup>5</sup> ..... **A61F 2/06; A61B 17/00; A61M 29/02; A61M 29/00**

[52] U.S. Cl. .... **623/1; 606/153; 606/194; 604/96**

[58] Field of Search ..... **623/1; 606/151, 153, 606/194; 604/53, 96, 99, 103, 280-**

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Advertising flyer for Greenfield Vena Cava Filter, a product of Medi-Tech Inc. of Watertown, Mass. illustrates a stainless steel device for intraluminal placement configured to prevent pulmonary embolism.

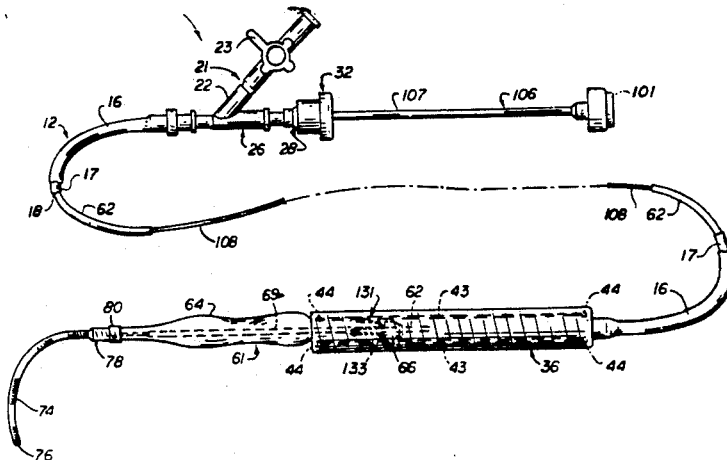
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*Primary Examiner*—David Isabella  
*Assistant Examiner*—Elizabeth M. Burke  
*Attorney, Agent, or Firm*—Fulwider, Patton, Lee & Utech

### [57] ABSTRACT

Endovascular grafting system having a capsule catheter comprising a flexible elongate tubular member having proximal and distal extremities and a capsule mounted on the distal extremity of the tubular member. The capsule is generally cylindrical in shape and is formed of a helical wrap of a metal ribbon. The wraps are bonded into a unitary capsule permitting bending of said unitary capsule. A graft is disposed within the capsule. The graft is comprised of a tubular member having proximal and distal ends. Hooks are secured to the proximal and distal ends of the tubular member and face in a direction outwardly towards the inner wall of the capsule. A push rod is disposed within the capsule catheter and engages the graft whereby upon relative movement between the push rod and the capsule catheter, the graft can be forced out of the capsule.

**15 Claims, 5 Drawing Sheets**



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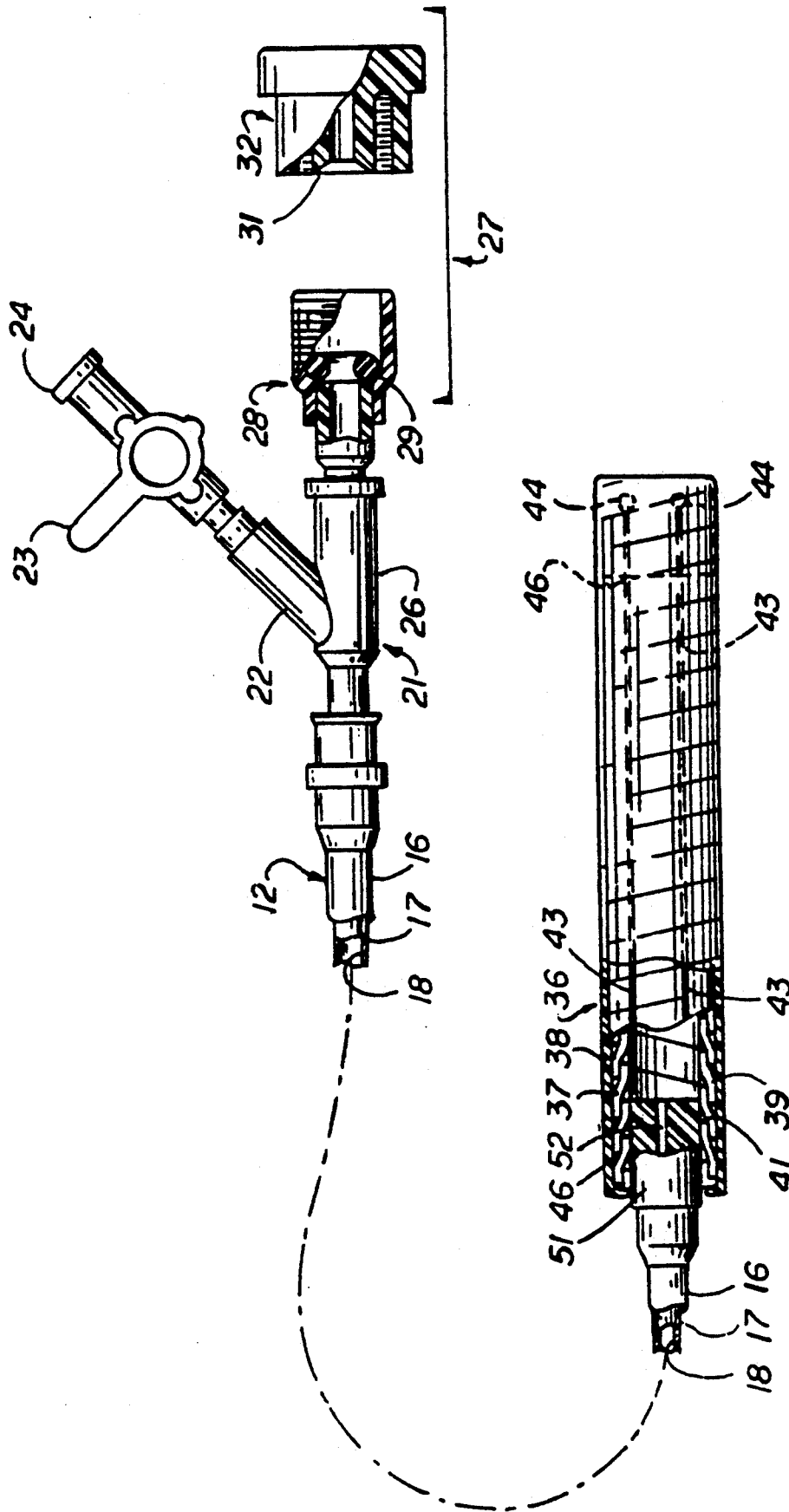


Fig. 2

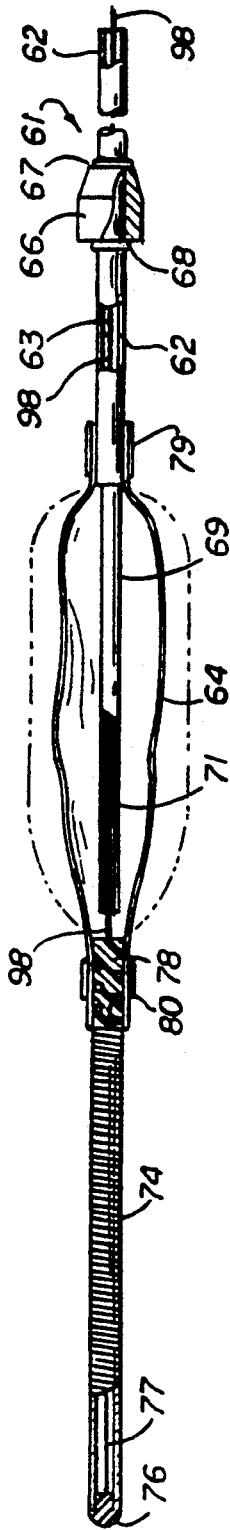


Fig. 3

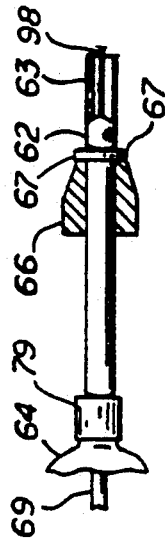


Fig. 4

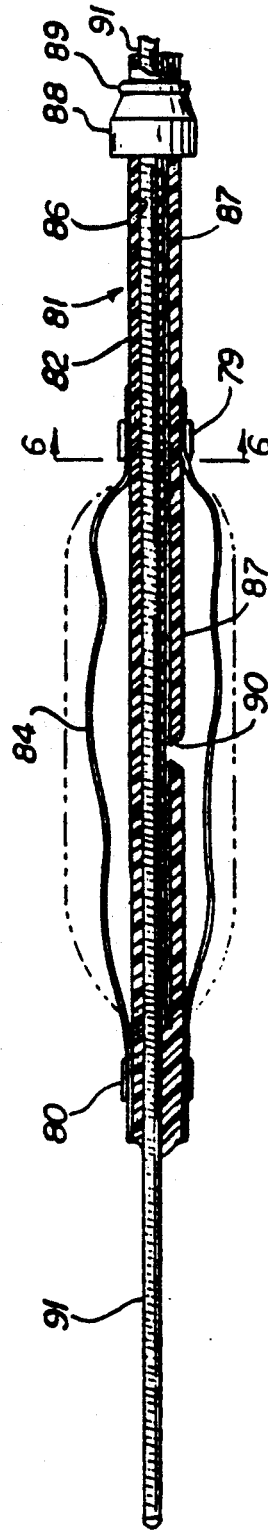


Fig. 5

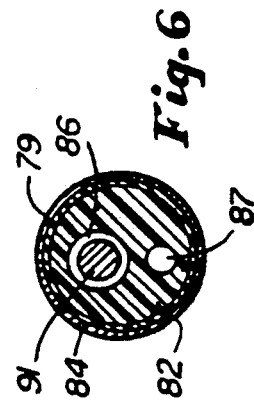


Fig. 6

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