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# United States Patent [19]

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Lazarus

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- [54] **ARTIFICIAL GRAFT AND IMPLANTATION METHOD**
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- [73] Assignee: **Endovascular Technologies, Inc.**, Menlo Park, Calif.
- [21] Appl. No.: **166,093**
- [22] Filed: **Mar. 9, 1988**

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### [57] ABSTRACT

An intraluminal grafting system includes a hollow graft which has a proximal staple positioned proximate its proximal end and a distal staple adapted proximate its distal end. The system includes a capsule for transporting the graft through the lumen and for positioning the proximal end of the graft upstream in a lumen which may be a blood vessel or artery. A tube is connected to the capsule and extends to exterior the vessel for manipulation by the user. A catheter is positioned within the tube to extend from the cavity and through the graft to exterior the body. The catheter has an inflatable membrane or balloon proximate the distal end thereof which is in communication via a channel with inflation and deflation means located exterior the vessel. With the inflatable membrane deflated, the capsule is positioned in the lumen and manipulated to a desired location. The inflatable membrane is manipulated by the rod away from the graft. The force exerted by the inflatable membrane and the structure of the staples urges the staples in the vessel wall, retaining the graft in position. The remainder of the intraluminal grafting system is then removed from the corporeal vessel.

### Related U.S. Application Data

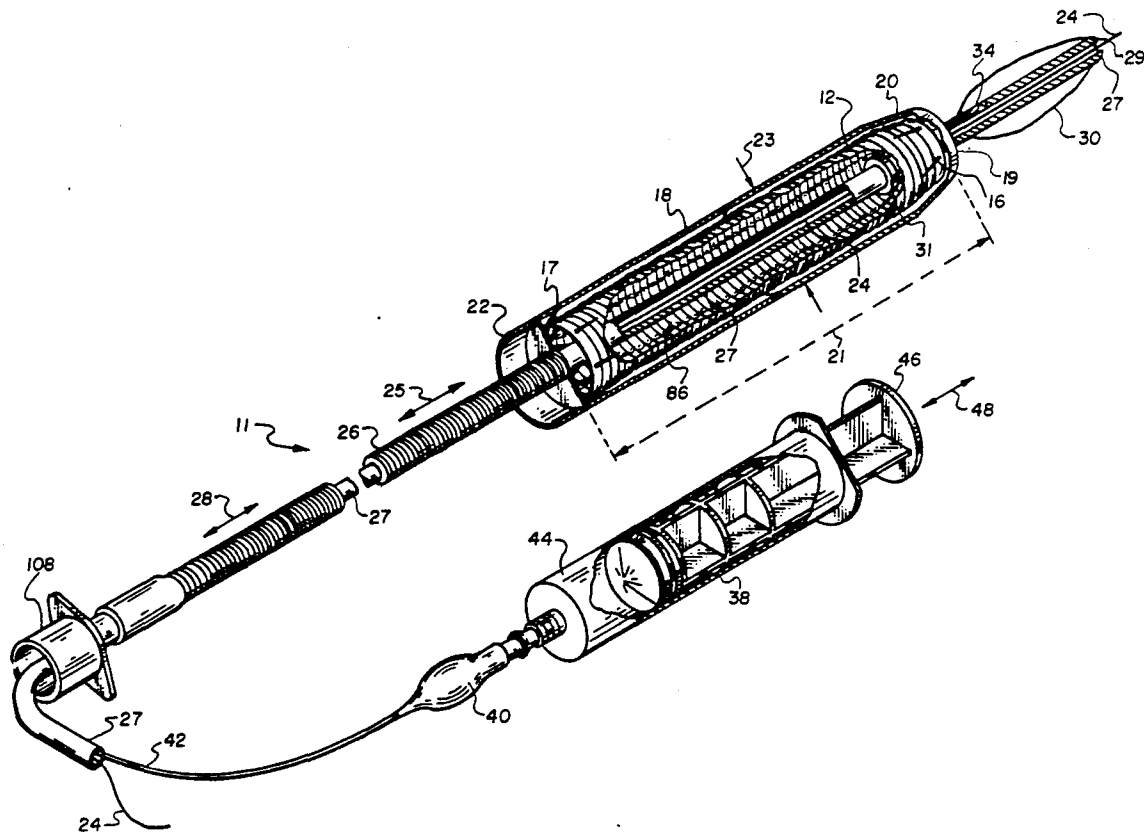
- [63] Continuation-in-part of Ser. No. 940,907, Dec. 10, 1986, Pat. No. 4,787,899, which is a continuation of Ser. No. 559,935, Dec. 9, 1983, abandoned.
- [51] Int. Cl.<sup>5</sup> ..... **A61F 2/06**
- [52] U.S. Cl. .... **623/1; 606/153; 604/96**
- [58] Field of Search ..... 623/1, 2, 66, 901; 128/334 R, 334 C; 604/96; 606/153

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10 Claims, 5 Drawing Sheets



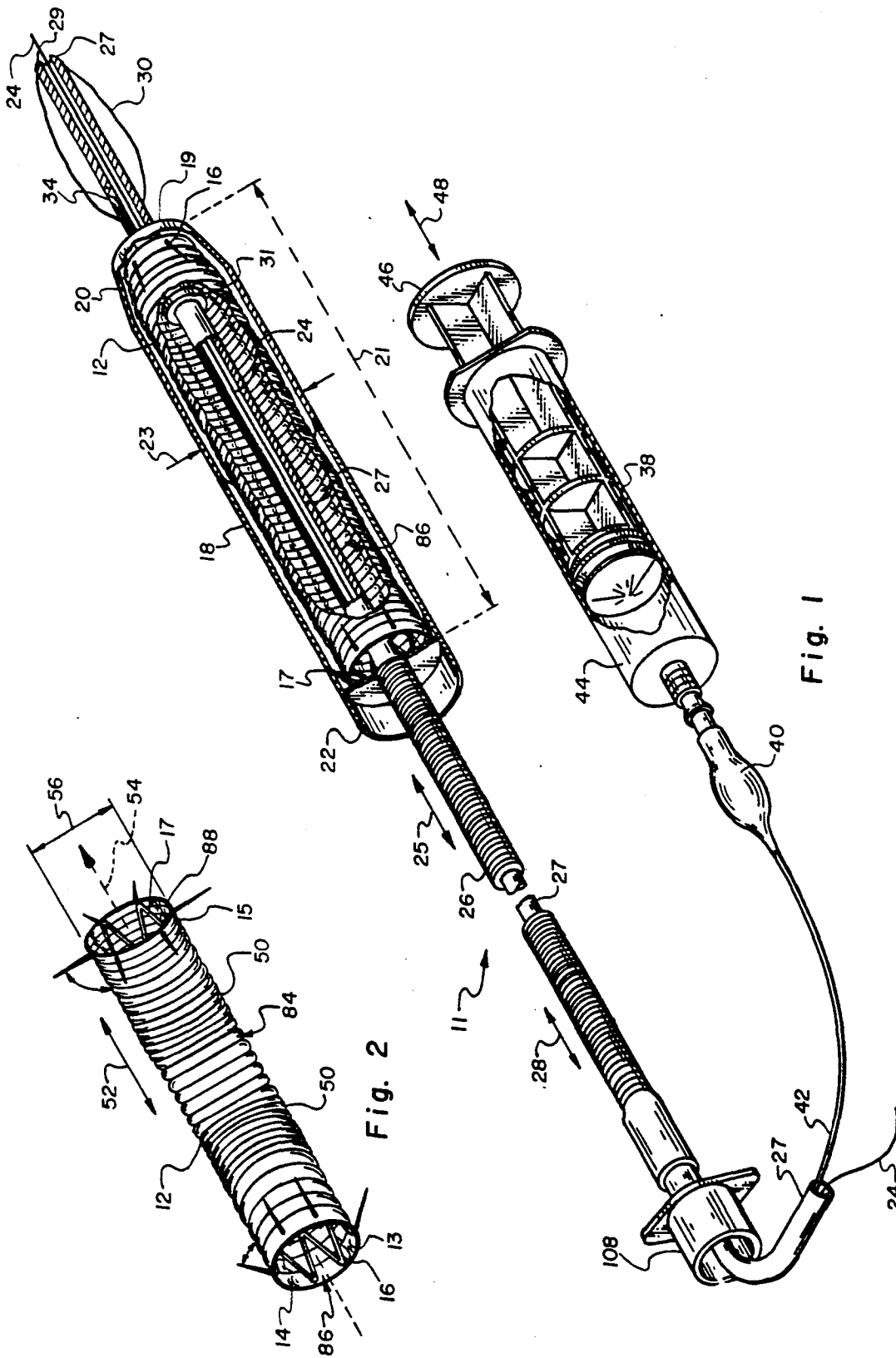


Fig. 1

Fig. 2

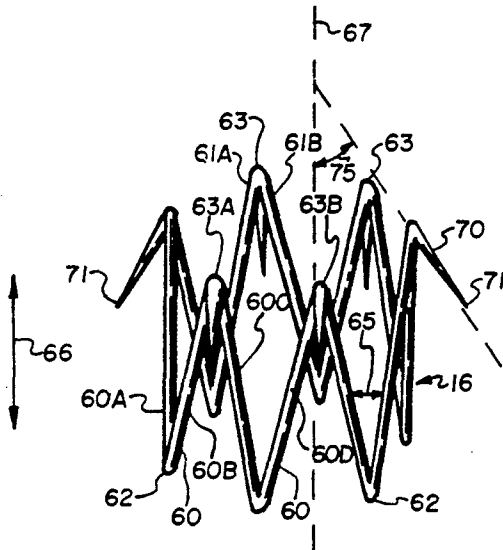


Fig. 3

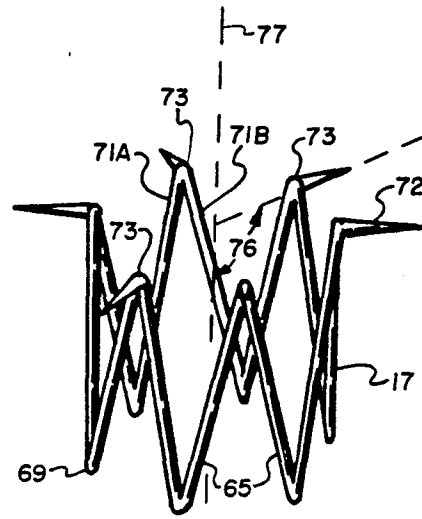


Fig. 4

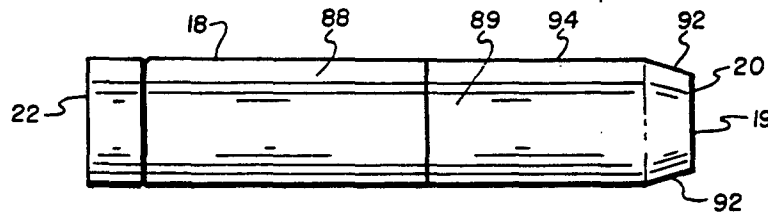


Fig. 5

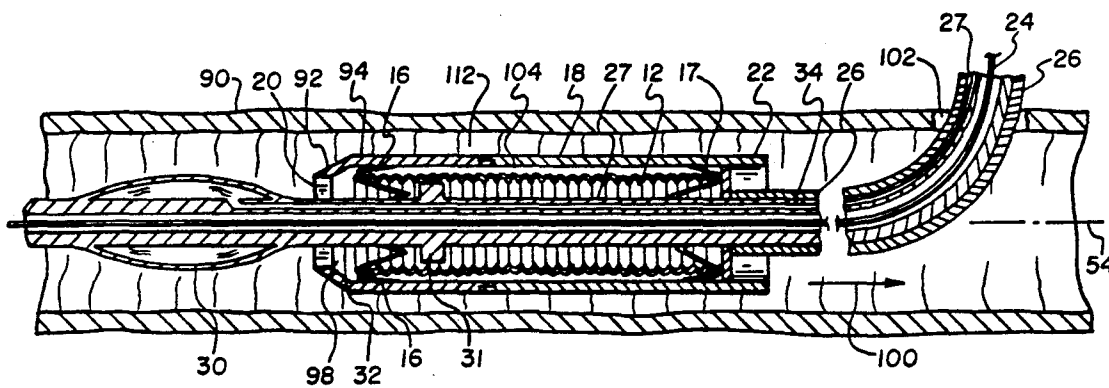


Fig. 6

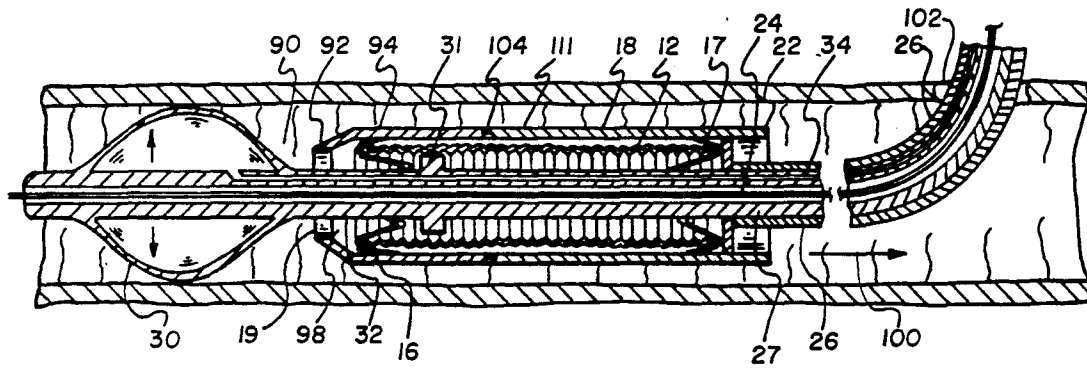


Fig. 6a

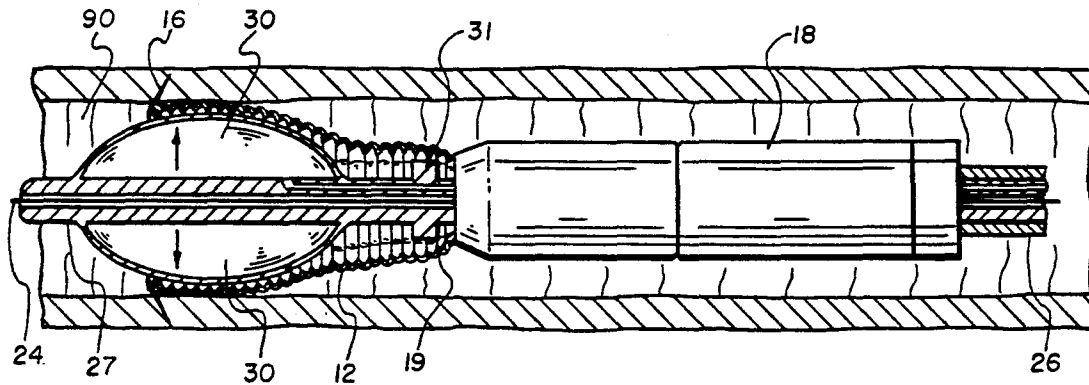


Fig. 7

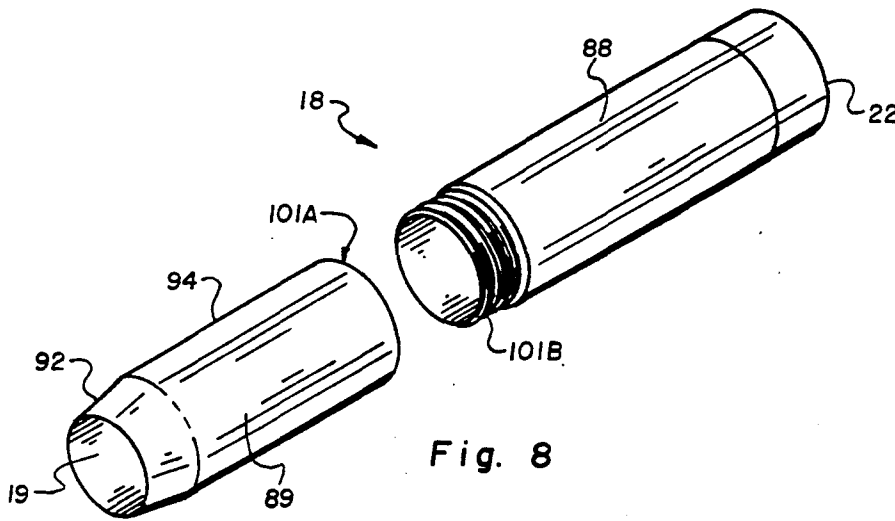


Fig. 8

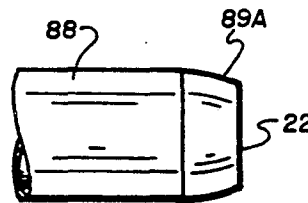


Fig. 8a

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