

# United States Patent [19]

[11] Patent Number: **5,746,764**

Green et al.

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## [54] STENT COMPRESSION INSTRUMENT

## [57] ABSTRACT

[75] Inventors: **Nicholas A. Green**, Kinnelon, N.J.;  
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In accordance with the present invention, a fluid compression instrument and method for particular use in pre-surgically securing and conforming a vascular stent upon an angioplasty balloon, includes a housing for containing pressurized fluid and an elastic enclosing diaphragm secured within the housing and having an internal cavity and opening arranged to receive the stent disposed on the balloon catheter for secured compression. A pressure chamber is arranged within the housing as an envelope about the diaphragm to enable pressurized fluid forces within the pressure chamber to be imposed upon the outer surface of the diaphragm and transmitted through the diaphragm enabling circumferential application against the inserted stent in order uniformly to compress the stent with correspondingly secured purchase against the deflated balloon surface, producing complete adhesion of the stent thereon. The subsequent balloon inflation angioplasty and stent expansion is not impaired since the balloon remains in its deflated shape with the compressed stent closely conforming in contour throughout the balloon's 360° periphery. The entire stent mesh is uniformly compressed down including the open stent ends which prevents the many tiny stent mesh edges from protruding out and effectively prevents both vascular abrasion as well as shifting of the stent on the deflated balloon during the angioplasty insertion procedure.

[73] Assignees: **Atrion Medical Products, Inc.**, Arab, Ala.; **Cordis Corporation**, Miami, Fla.; a part interest

[21] Appl. No.: **745,317**

[22] Filed: **Nov. 12, 1996**

### Related U.S. Application Data

[63] Continuation of Ser. No. 567,136, Dec. 4, 1995, abandoned.

[51] Int. Cl.<sup>6</sup> ..... **A61M 29/00**

[52] U.S. Cl. .... **606/194; 606/108**

[58] Field of Search ..... **606/194, 1, 108, 606/192, 195, 198; 604/104, 141**

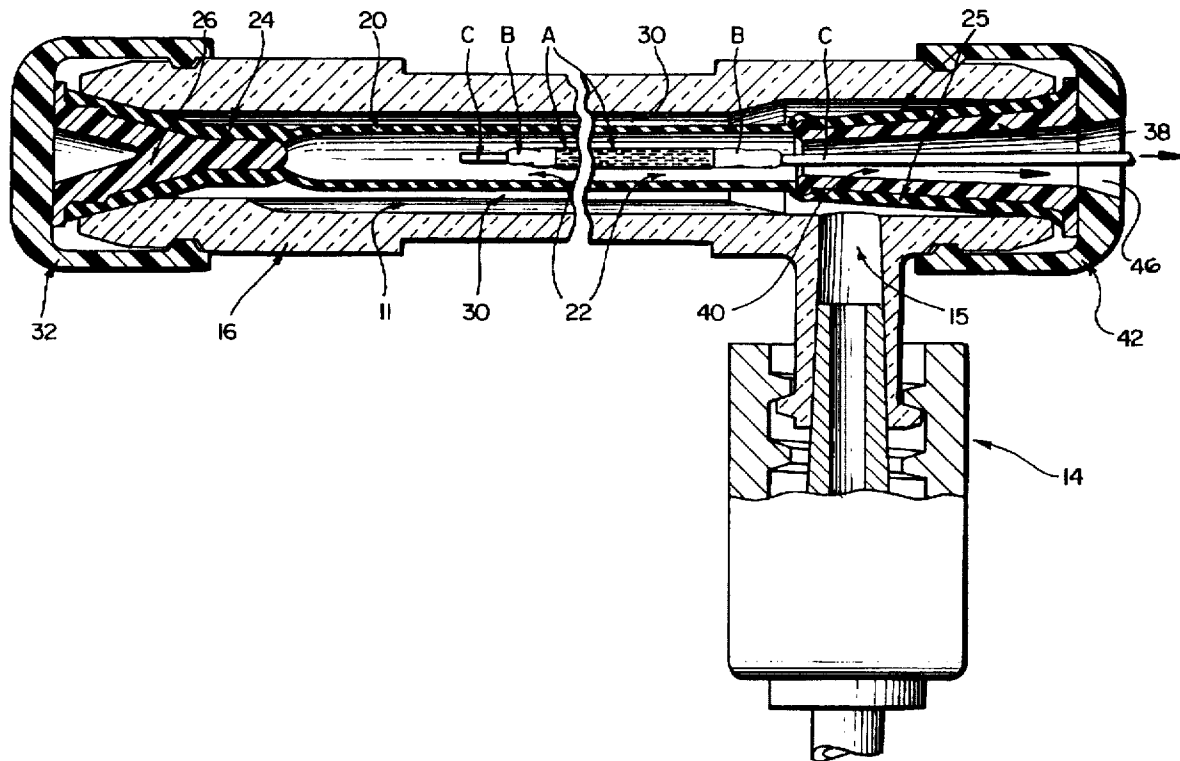
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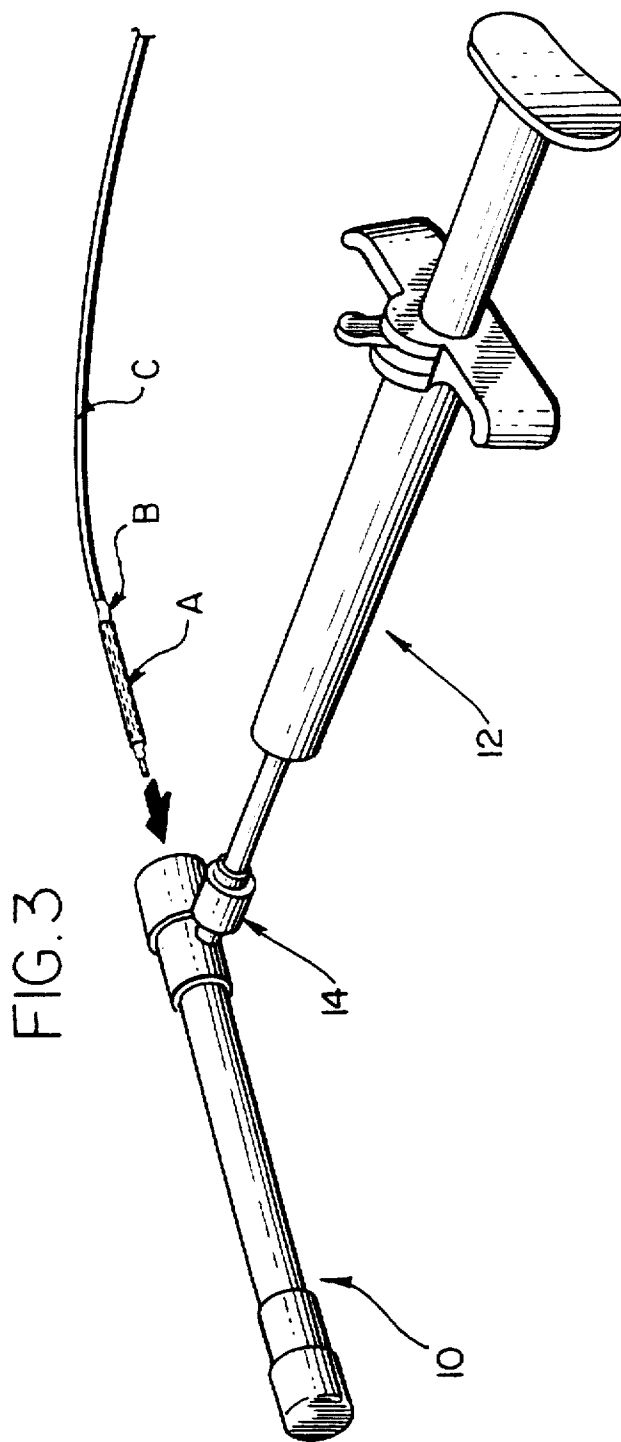
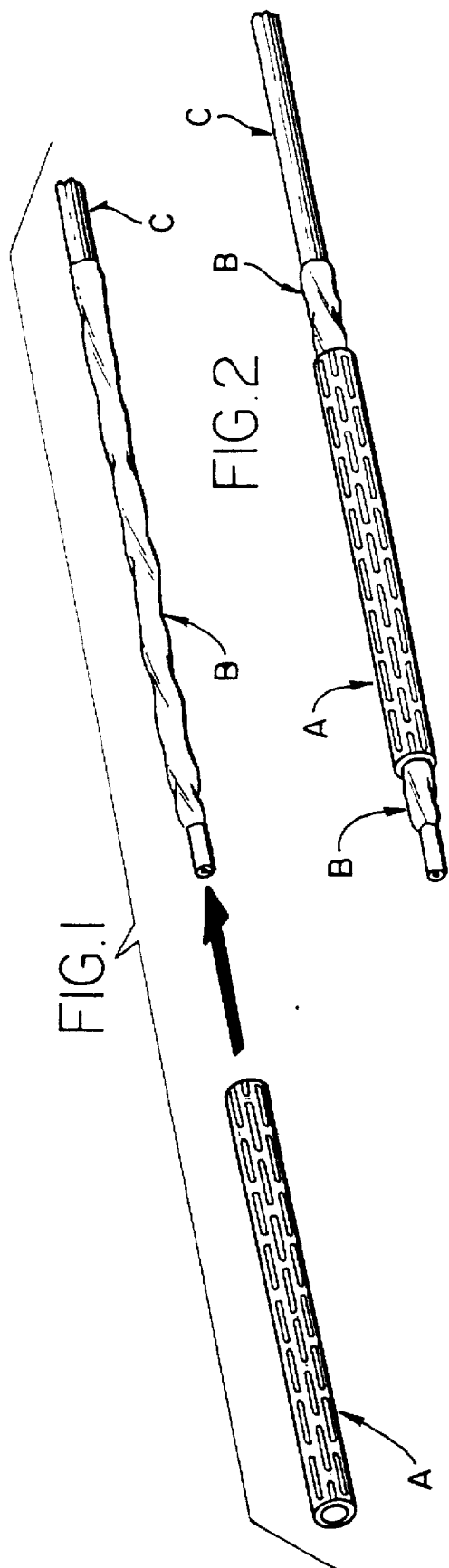
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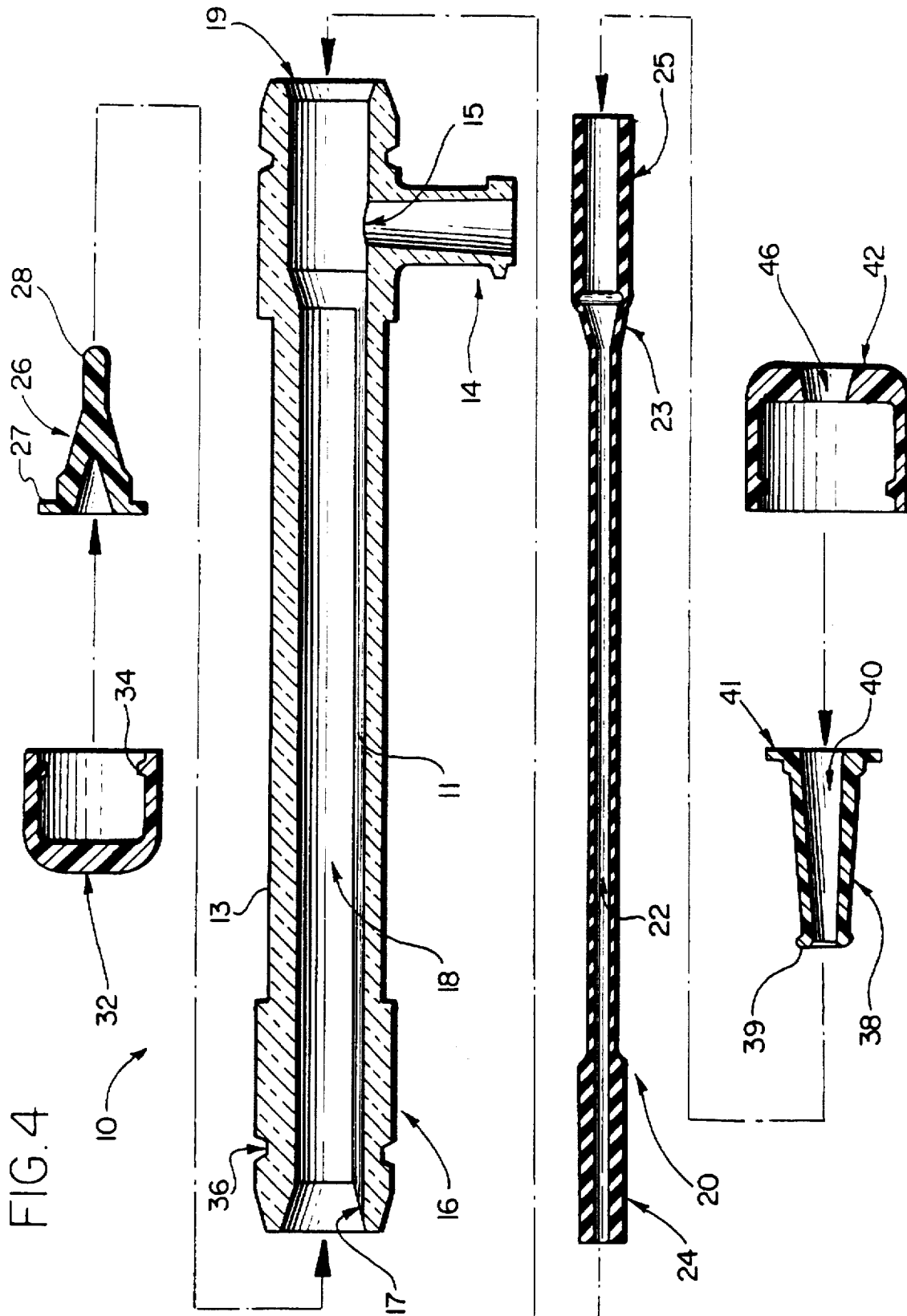
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**22 Claims, 5 Drawing Sheets**

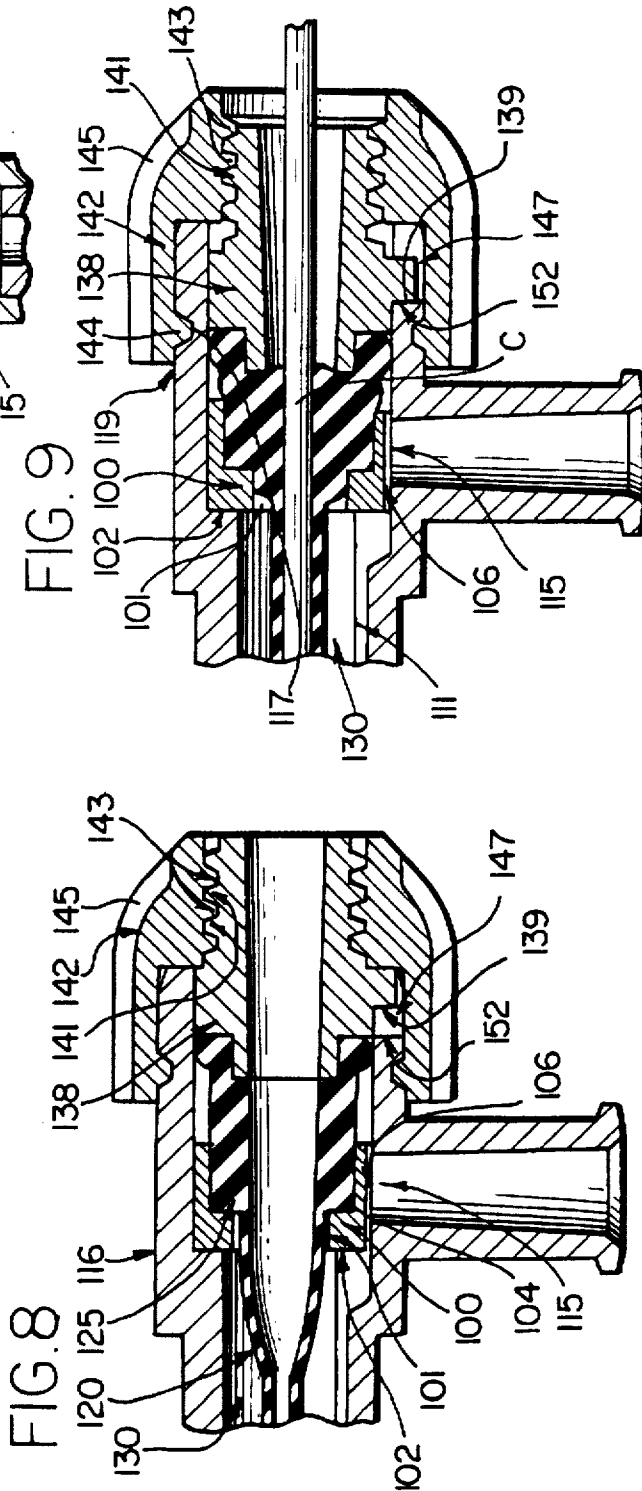
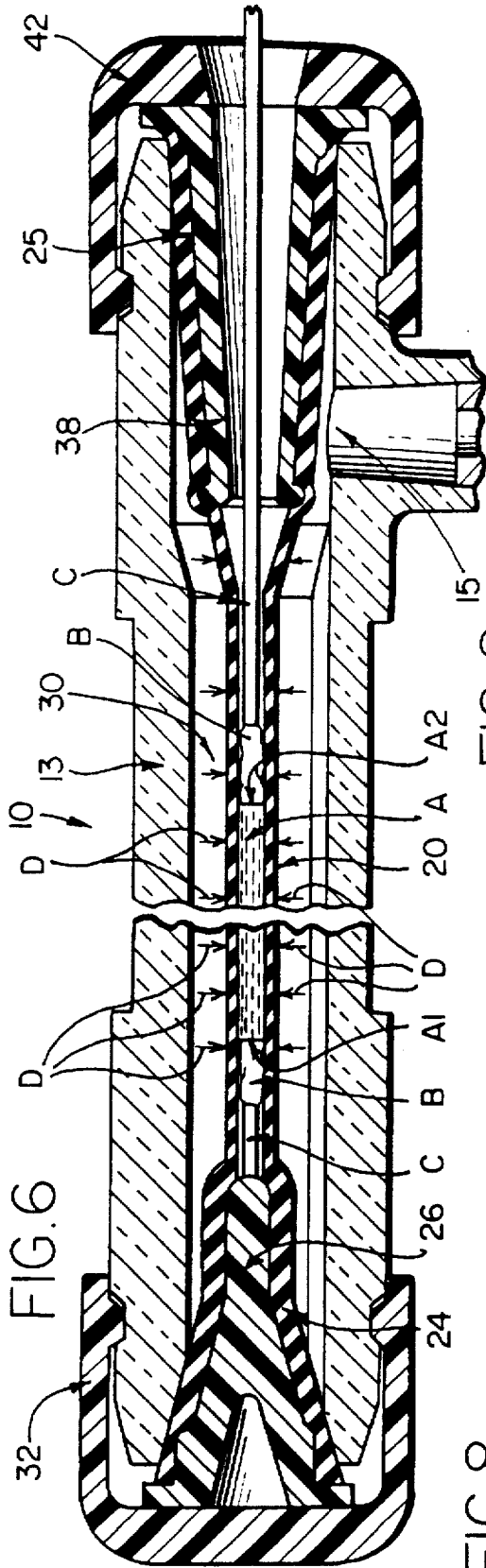


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