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# United States Patent [19]

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Morales

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[54] **STENT CRIMPING TOOL AND METHOD OF USE**

WO 98/19633 5/1998 WIPO .

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[75] Inventor: **Stephen A. Morales**, Mountain View, Calif.

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[73] Assignee: **Advanced Cardiovascular Systems, Inc.**, Santa Clara, Calif.

U.S. Patent Application Serial No. 08/837,771 filed Apr. 22, 1997.

[21] Appl. No.: **09/069,011**

U.S. Patent Application Serial No. 08/089,936 filed Jul. 15, 1997.

[22] Filed: **Apr. 28, 1998**

U.S. Patent Application Serial No. 08/962,632 filed Nov. 3, 1997.

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

*The eXtraordinary Stent*, C.R. Bard Brochure (Undated).

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

*Primary Examiner*—Michael Buiz

[58] Field of Search ..... 606/198, 191–195, 606/1, 108; 29/515, 516

*Assistant Examiner*—Vikki Trinh

*Attorney, Agent, or Firm*—Fulwider Patton Lee & Utecht, LLP

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### [57] ABSTRACT

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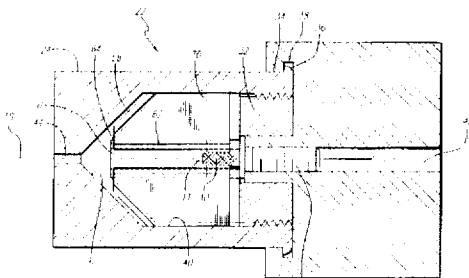
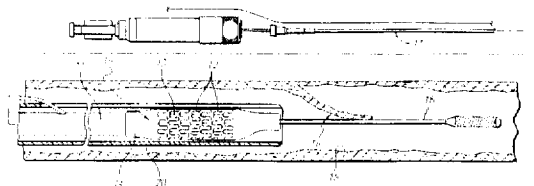
A stent crimping tool for firmly and uniformly crimping a conventional or radioactive stent onto a balloon catheter is constructed from a proximal section rotatably connected to a distal section, the two cylindrical sections forming the transparent housing. A cylindrical cavity having a tapered end is formed into the proximal section. Inside the cavity is affixed a transparent cylindrical collar having radial slots leading to a central passage extending along its axis, and a conical end that fits into the tapered end. Teeth made of trapezoidal shape flat plates each having an angular proximal edge and a radiused edge slide into their respective slots in the collar. A transparent screw feed having a hollow core and a slotted head that receives the radiused edge of each tooth/plate is threaded to the distal section. A balloon catheter is passed through a passage in the proximal section and the collar and an uncrimped stent positioned in the hollow core of the screw is loaded thereon. Rotating the distal section of the housing advances the screw and plates toward the tapered cavity, which has angled walls that force the plates to converge radially inward. This convergence causes the radiused edges of the plates to collectively crimp the stent onto the balloon.

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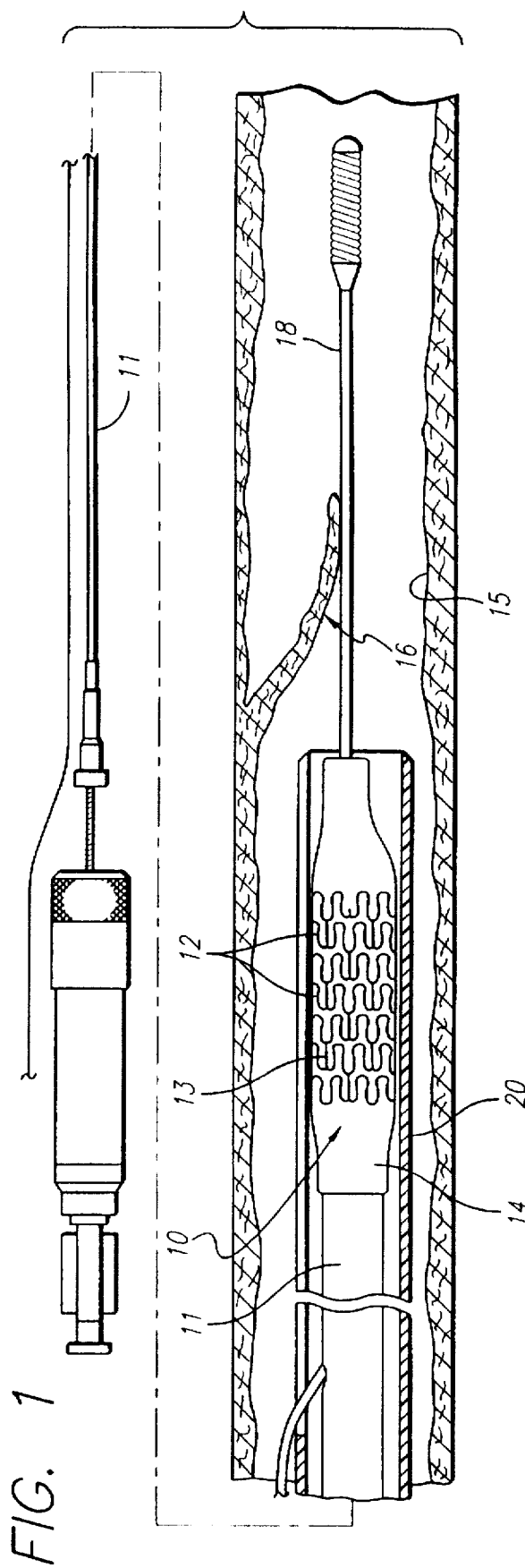
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**22 Claims, 6 Drawing Sheets**



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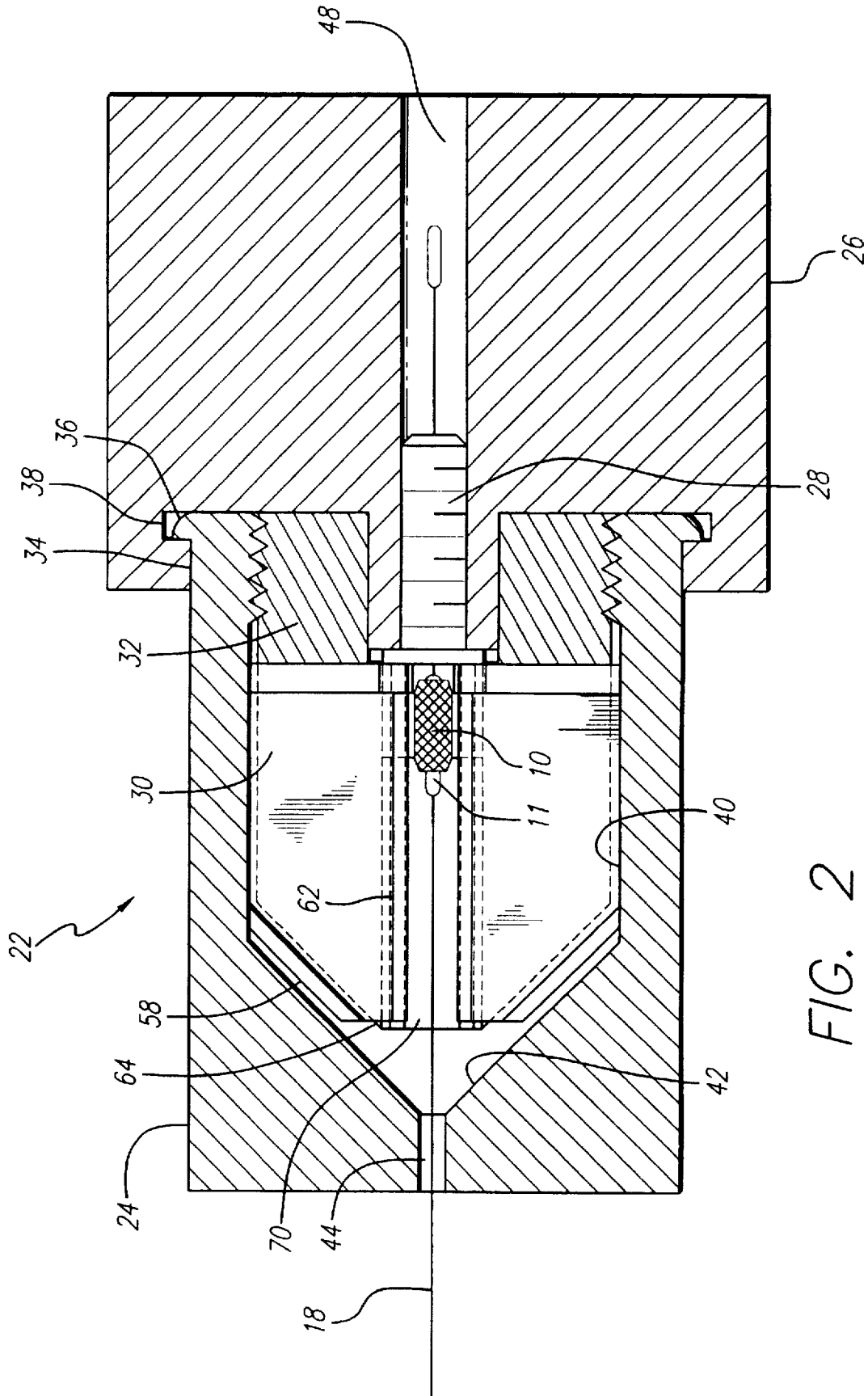


FIG. 2

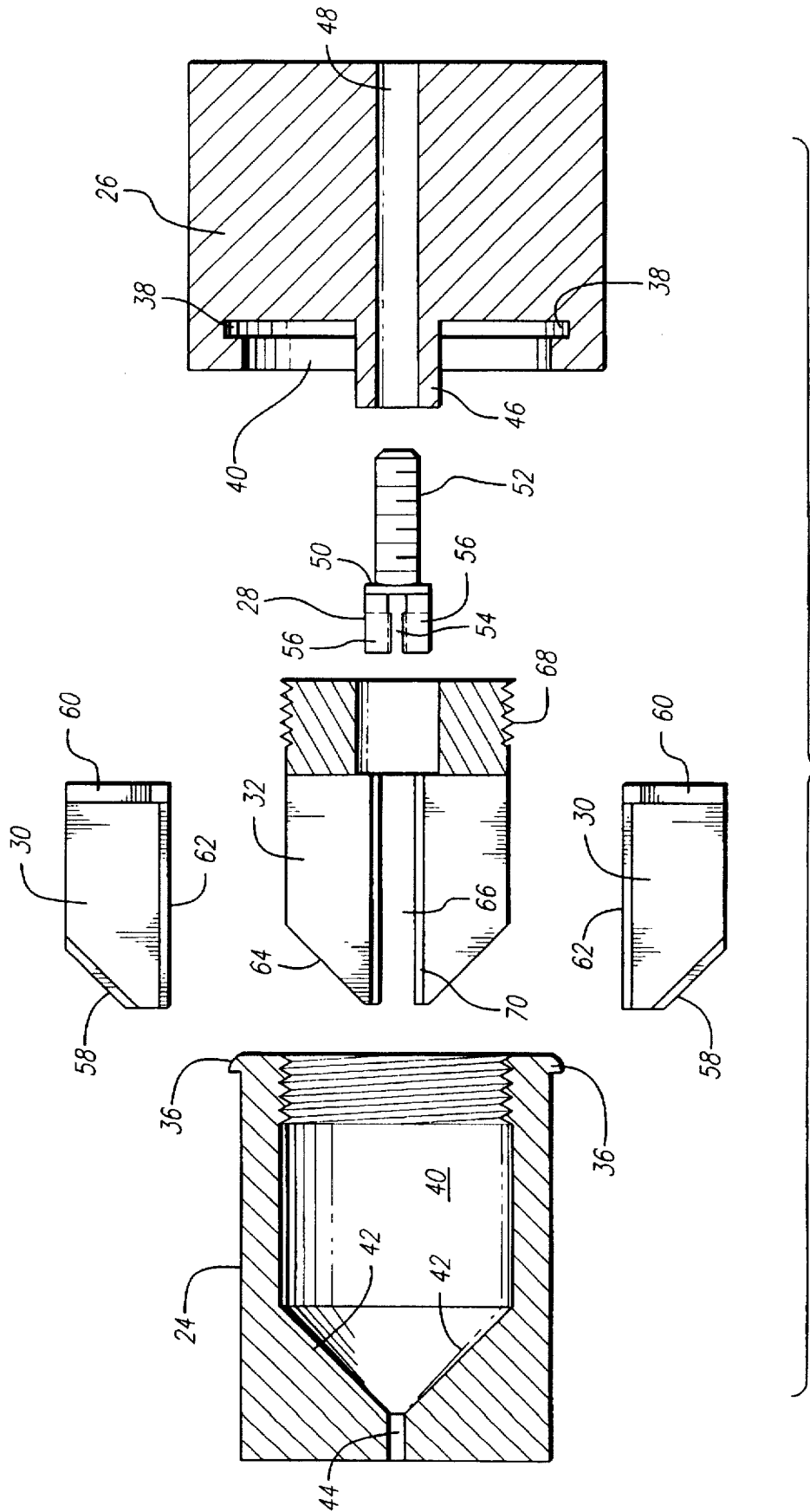


FIG. 3

FIG. 4B

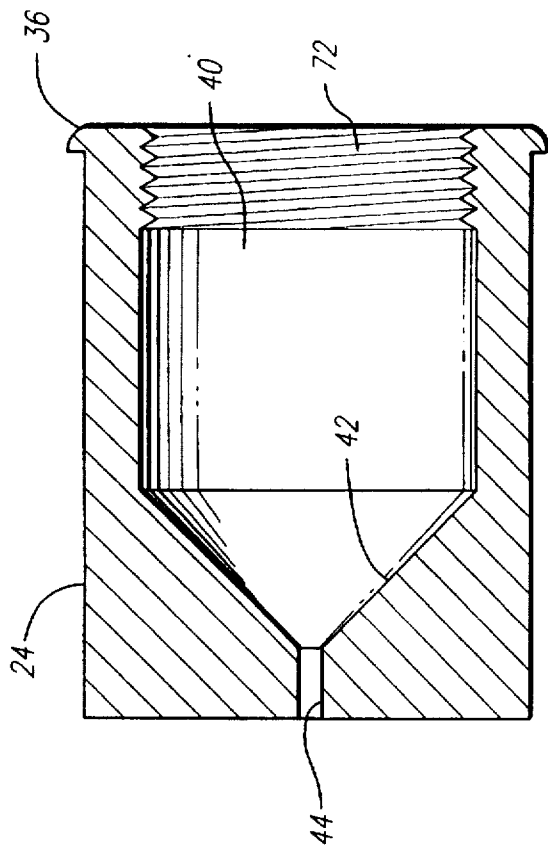
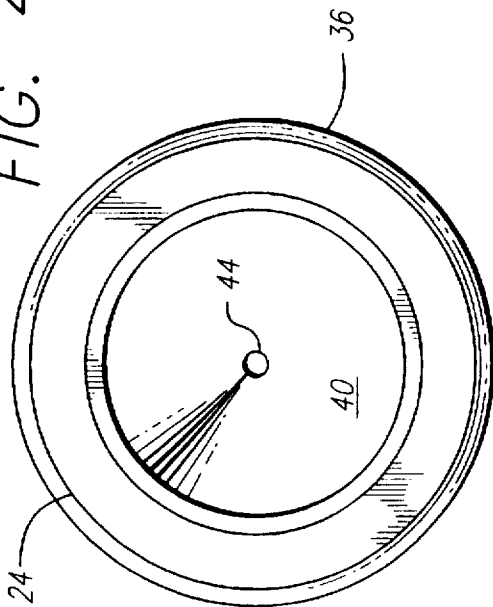


FIG. 4A

FIG. 5B

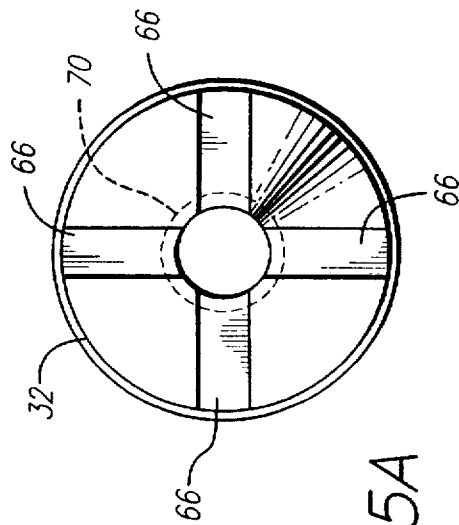
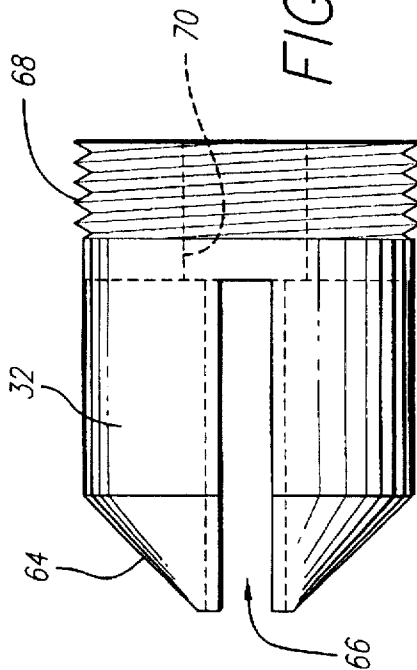


FIG. 5A

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