



(12) **United States Patent**
Niazi

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(54) CATHETER TO CANNULATE THE CORONARY SINUS
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Related U.S. Application Data

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(51) **Int. Cl.⁷** **A61M 25/098**

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(58) **Field of Search** 601 528, 523, 604/164.01, 530, 264, 266, 96.01, 93.01, 95.01

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Primary Examiner—Ira S. Lazarus

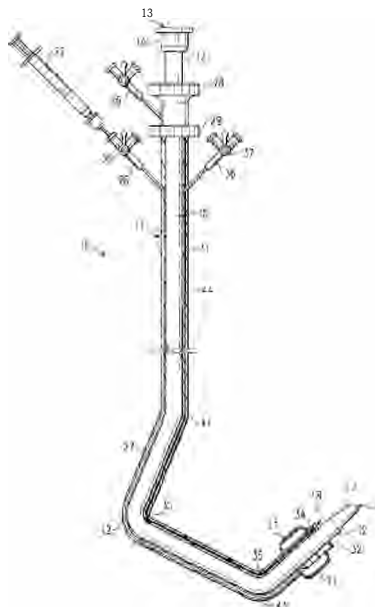
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(57) **ABSTRACT**

A double catheter includes an outer, resilient catheter having shape memory and a hook-shaped distal end, an inner, pliable catheter slidably disposed in the outer catheter and of greater length than the outer catheter so that a distal end portion of the inner catheter can be extended or retracted from a distal end opening of the outer catheter to vary the overall length of the double catheter, the inner catheter preferably having an internal lumen suitable for the introduction of contrast media, and a mechanism operable from the proximal end of the outer catheter for changing the curvature of the hook shaped distal end of the outer catheter. Such a catheter of the invention can cannulate the coronary sinus without significant manipulation.

27 Claims, 5 Drawing Sheets



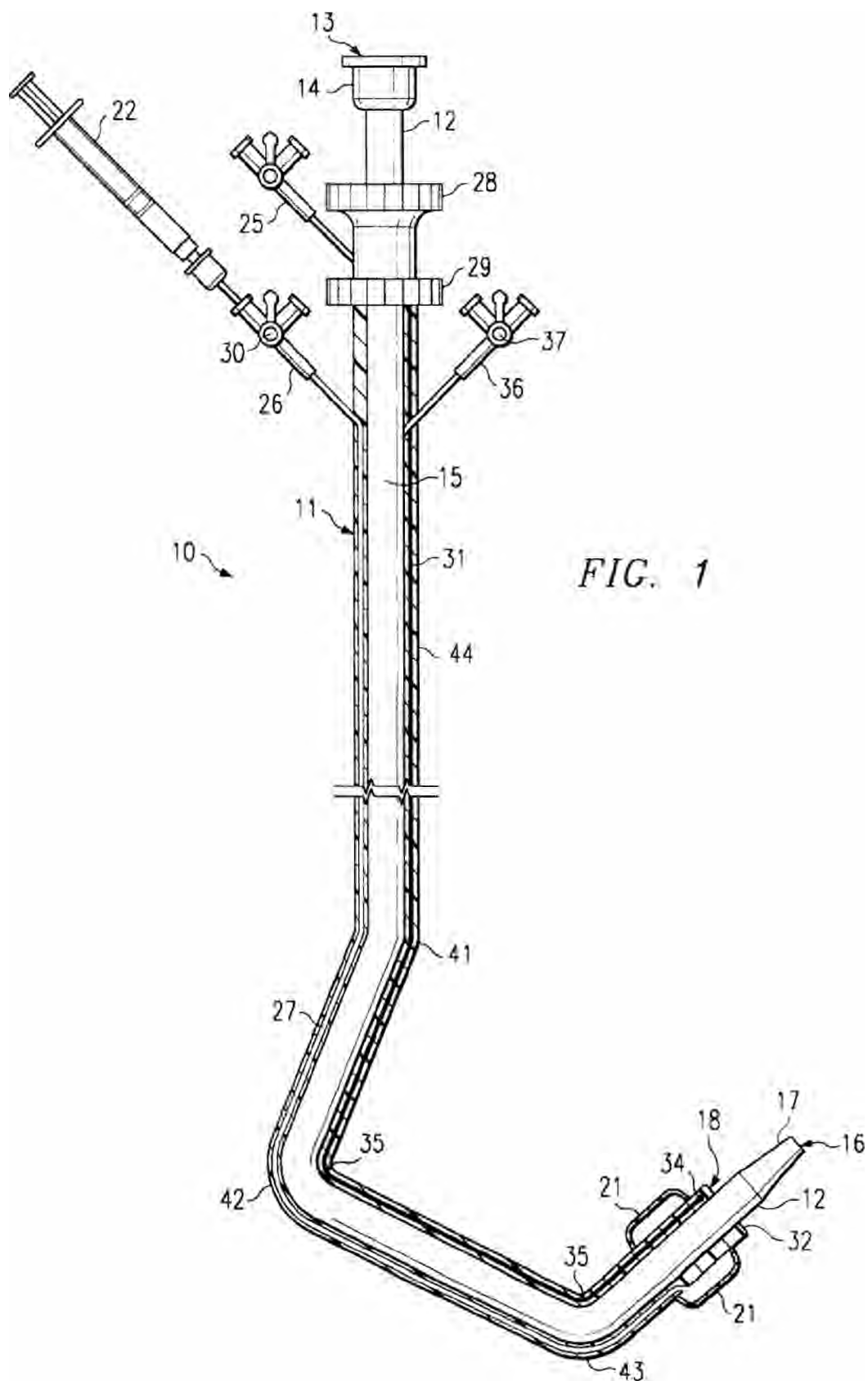
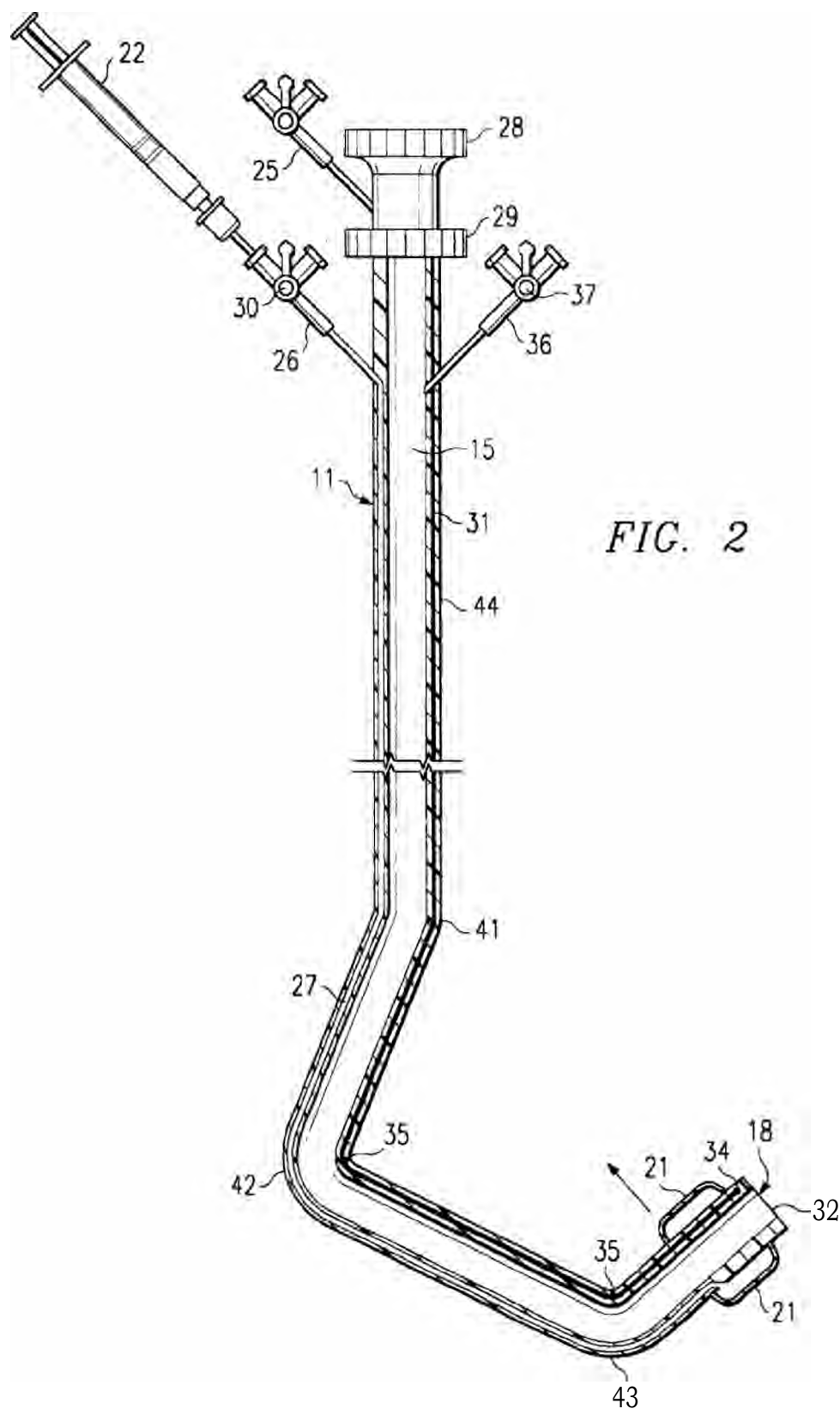
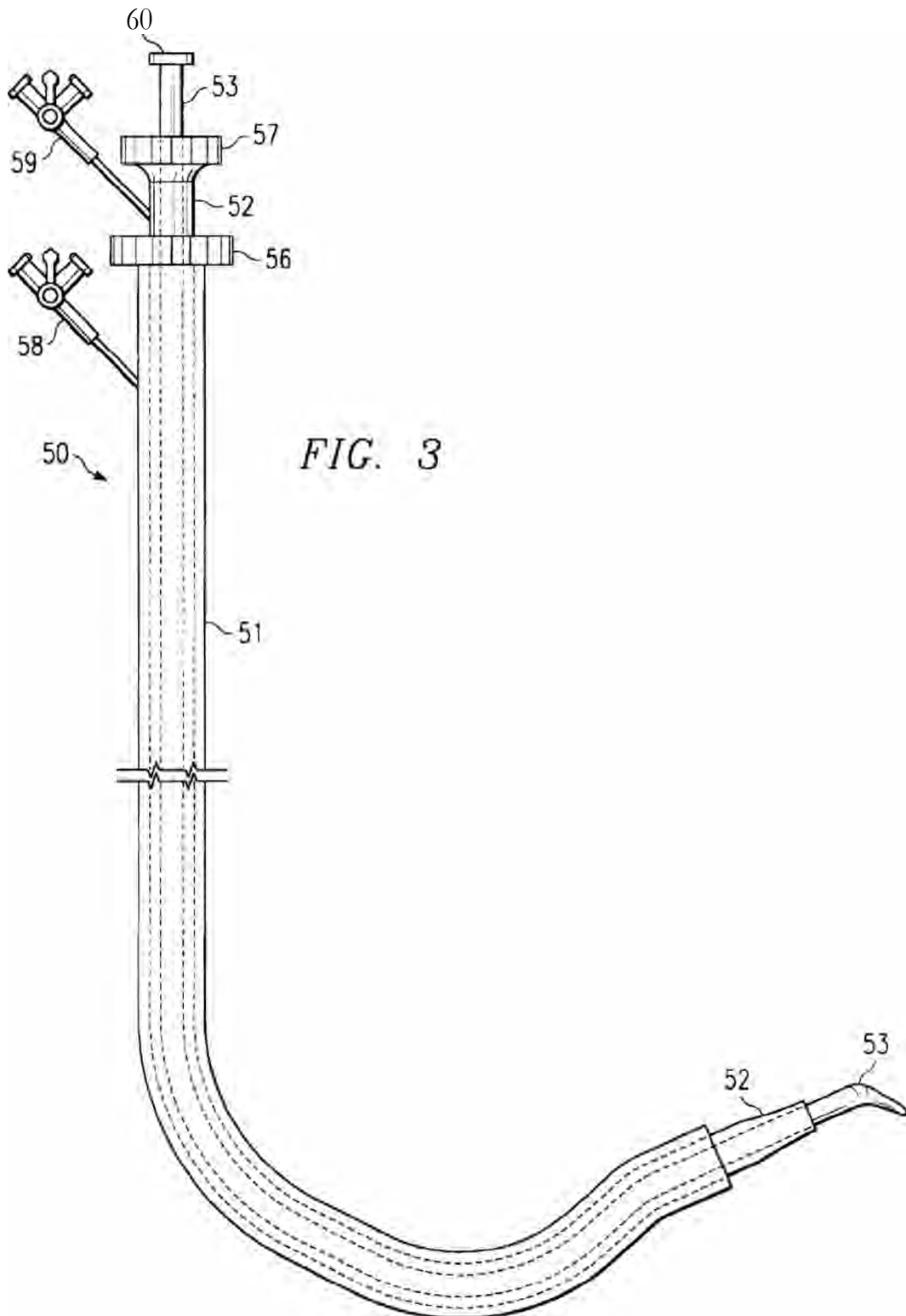


FIG. 1





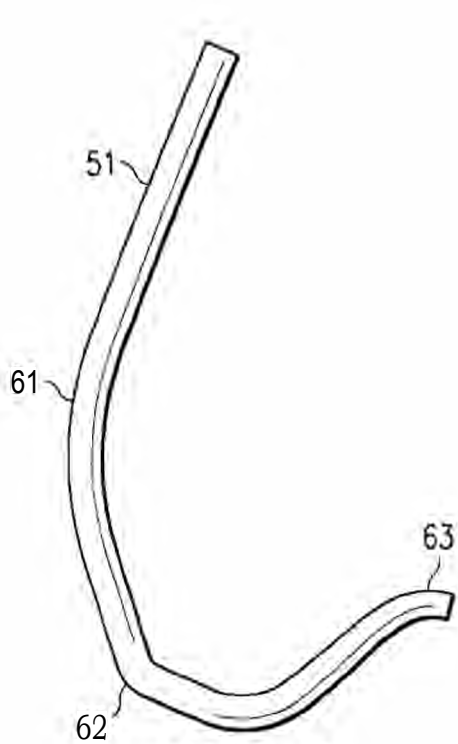


FIG. 4

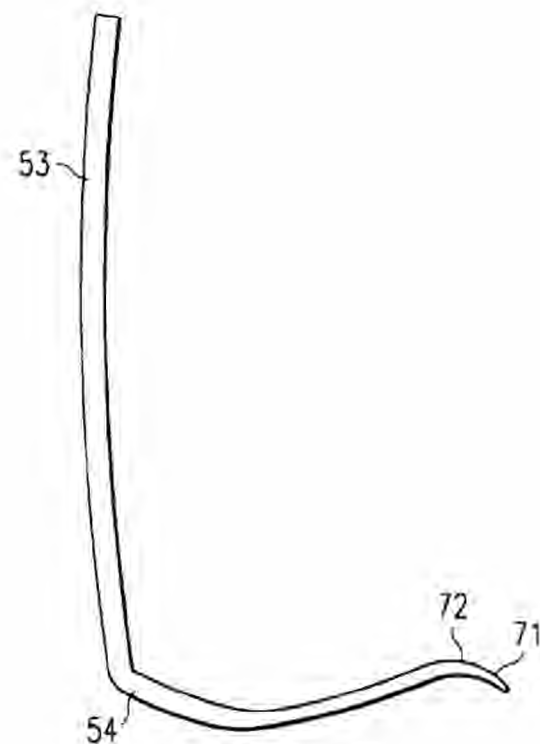


FIG. 5

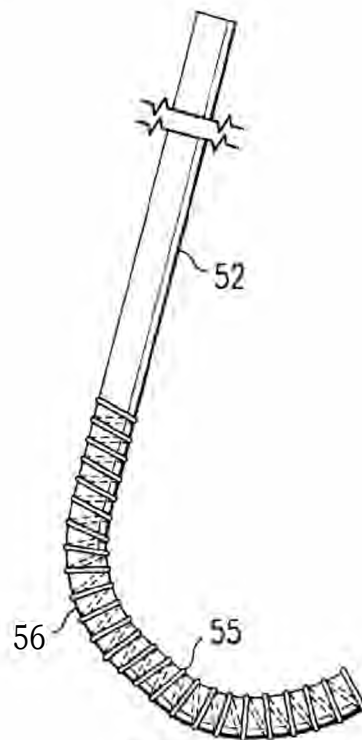


FIG. 6

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