

(12) **United States Patent**  
**Austin**

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(54) **APPARATUS FOR CONTRACTING, OR CRIMPING STENTS**

(75) Inventor: **Michael Austin**, Gardenfield (IE)

(73) Assignee: **Scimed Life Systems, Inc.**, Maple Grove, MN (US)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(22) Filed: **Sep. 22, 1999**

(51) **Int. Cl.**<sup>7</sup> ..... **B21J 7/16; B23P 11/02**

(52) **U.S. Cl.** ..... **72/402; 29/516; 29/508; 29/243.517; 29/237**

(58) **Field of Search** ..... **72/402, 121; 29/516, 29/237, 243.517, 508**

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*Primary Examiner*—S. Thomas Hughes

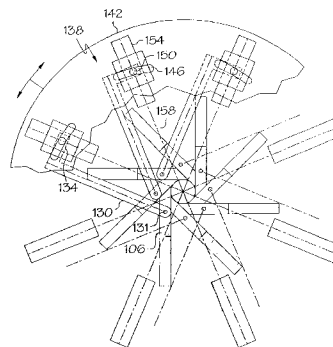
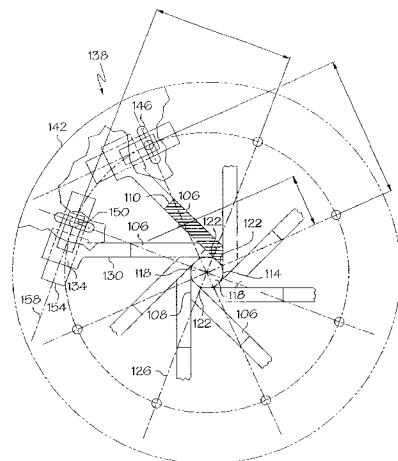
*Assistant Examiner*—Marc Jimenez

(74) *Attorney, Agent, or Firm*—Vidas, Arrett & Steinkraus

(57) **ABSTRACT**

An apparatus for manipulating a medical device is formed of at least three coupled movable blades which are disposed about a reference circle to form an aperture whose size may be varied. The aperture capable of being sized to contain a medical device. Each blade is in communication with an actuation device which is capable of moving the blade to alter the size of the aperture. Each blade includes a single radial point which a) lies on the circumference of the reference circle prior to movement of the blade, and b) may be moved only along a radius of the reference circle on movement of the blade.

**22 Claims, 15 Drawing Sheets**



**Edwards Lifesciences v. Boston Scientific Scimed**  
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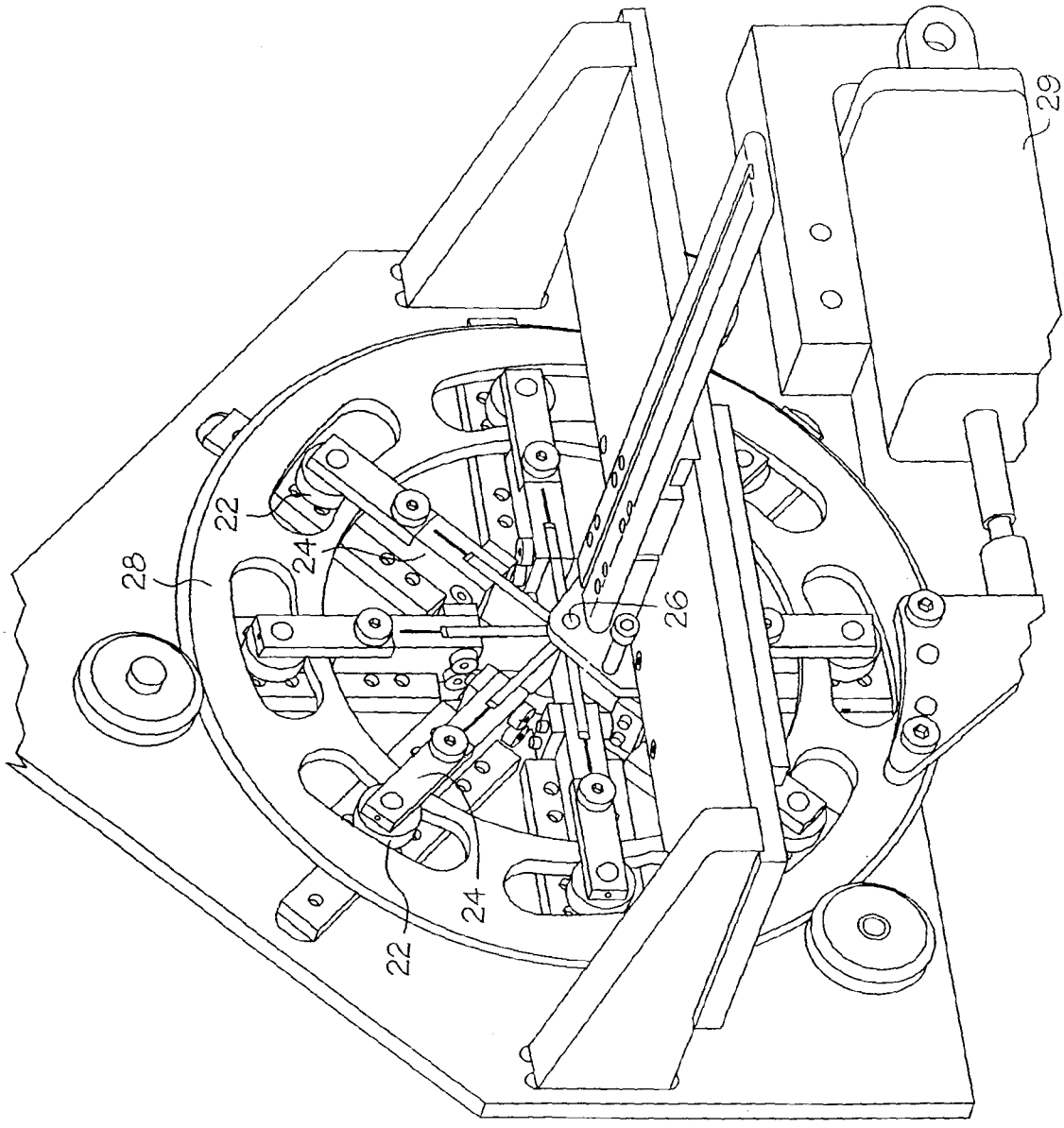


FIG. 1  
PRIOR ART

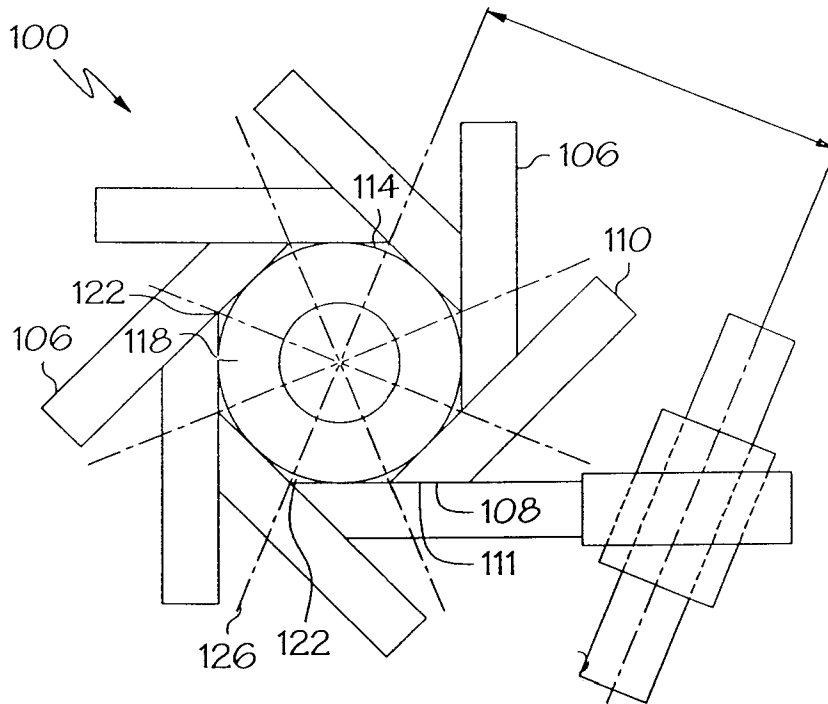


FIG. 2a

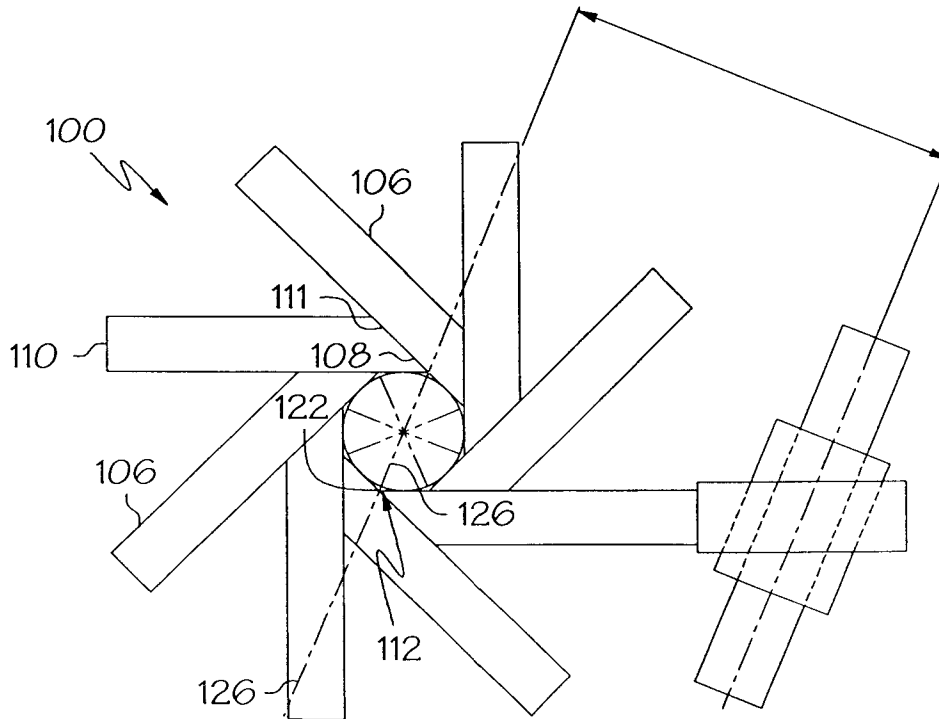


FIG. 2b

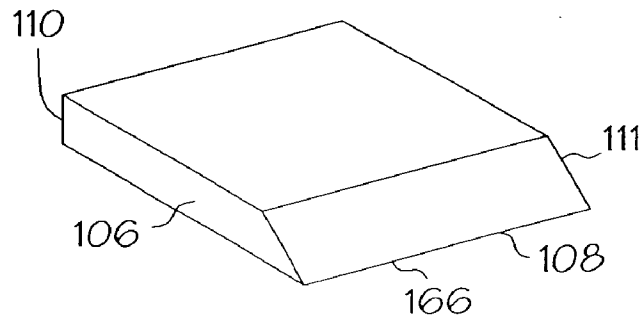


FIG. 3a

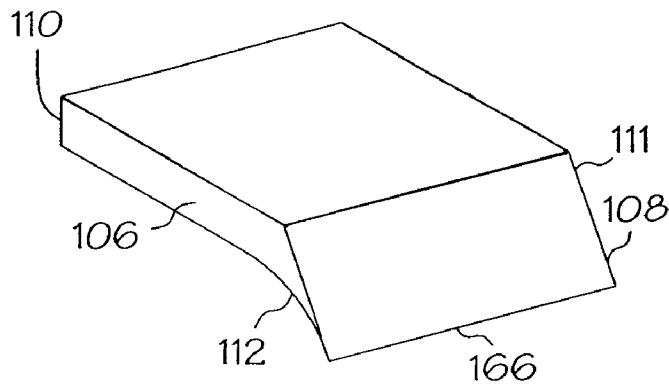


FIG. 3b

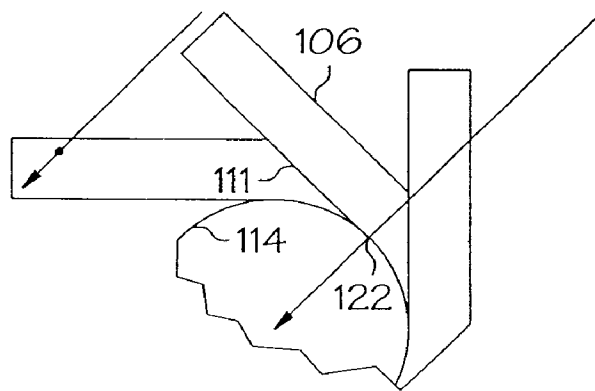


FIG. 3c

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