

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

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

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(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

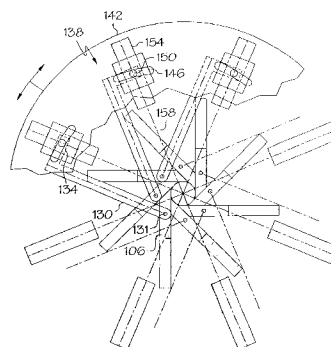
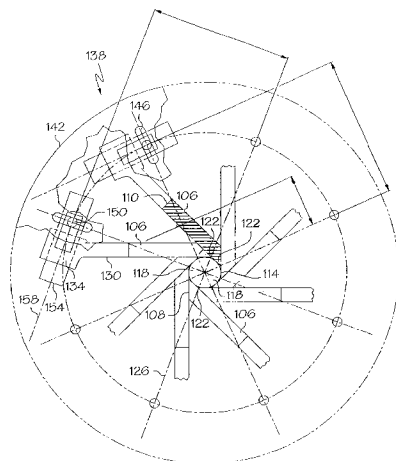
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(57) **ABSTRACT**

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**  
**U.S. Patent No. 6.915.560**

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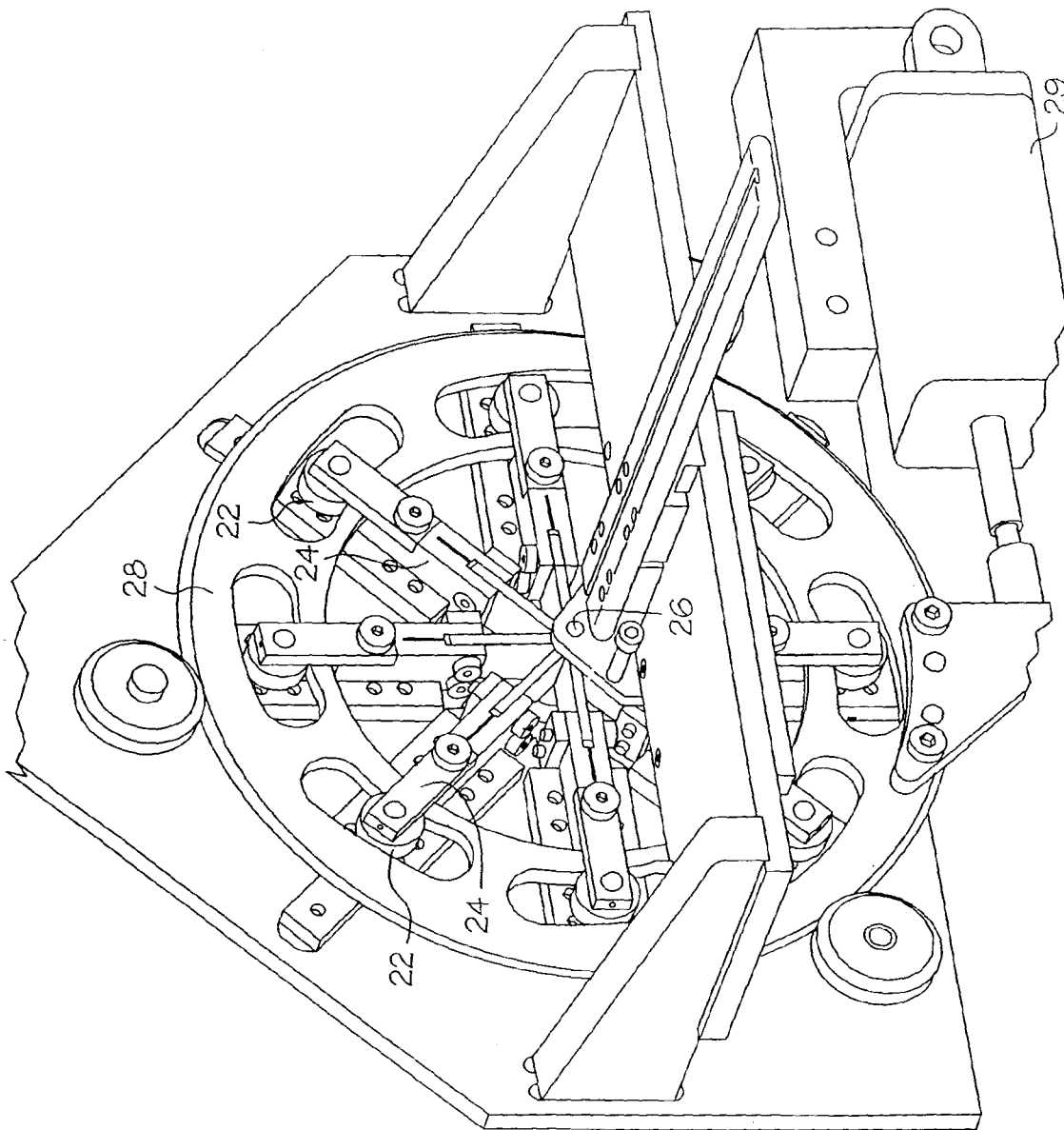


FIG. 1  
PRIOR ART

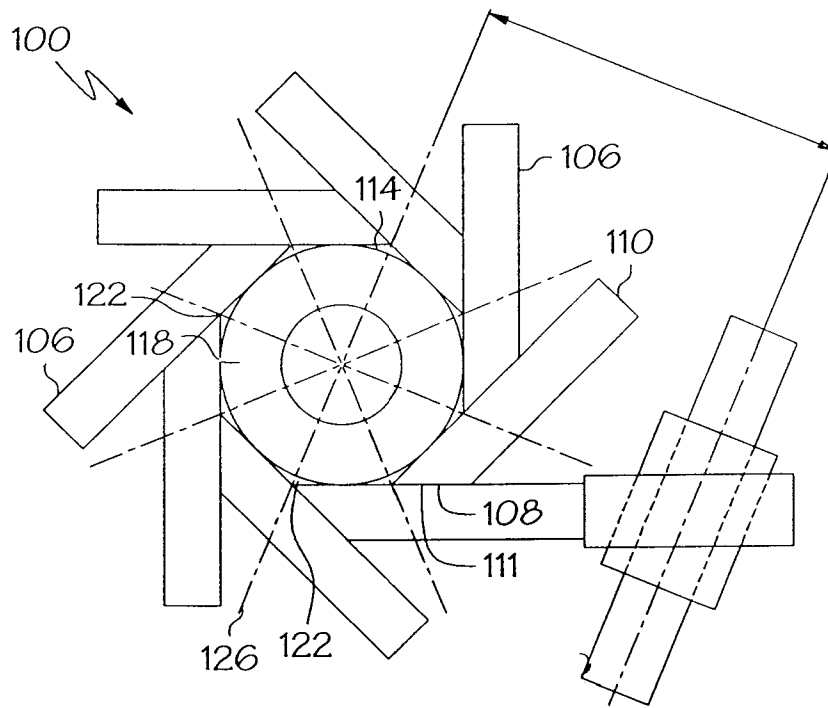


FIG. 2a

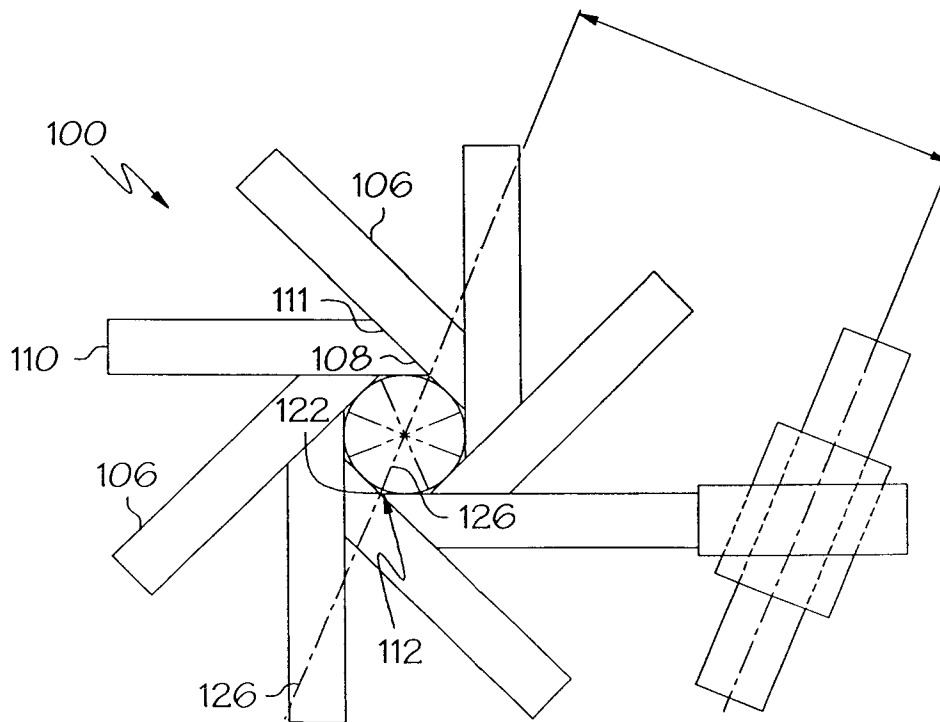


FIG. 2b

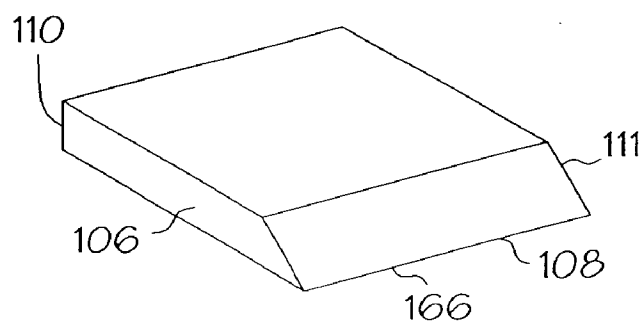


FIG. 3a

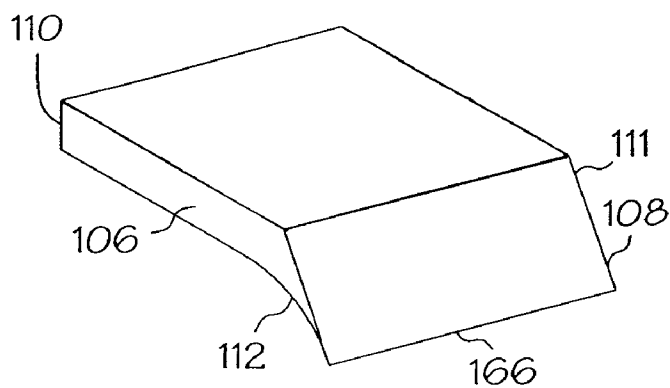


FIG. 3b

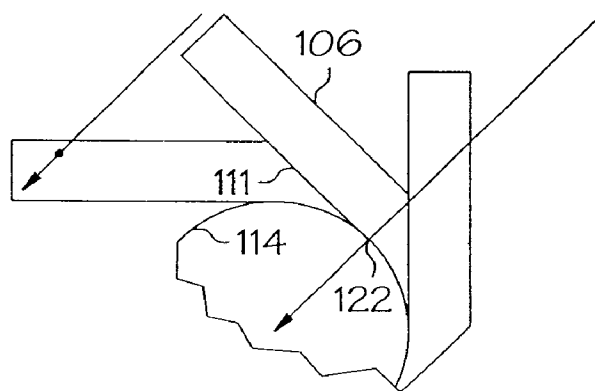


FIG. 3c

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