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**VanDusseldorp**

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(54) **SURGICAL EXTRACTION DEVICE**

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(51) **Int. Cl.<sup>7</sup>** ..... **A61B 17/22**

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(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,873,978	A	*	10/1989	Ginsburg	.....	606/127
5,281,230	A	*	1/1994	Heidmueller	.....	606/127
5,944,728	A	*	8/1999	Bates	.....	606/127
6,129,683	A	*	10/2000	Sutton et al.	.....	606/207

\* cited by examiner

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(57) **ABSTRACT**

An extraction device comprising a sheath, distal legs that project from the sheath, and actuating means for retracting the legs into the sheath and deploying the distal legs from the sheath. The distal legs are formed to have a parabolic curved shape, such that the distal legs automatically deploy radially outward and away from each other when deployed outside the sheath with the actuating means. As such, a plunger is not required to operate the legs. When retracted into the sheath with the actuating means, the distal legs elastically deform, collapsing radially toward each other to acquire a mid-deployed position in which the legs define a basket. The legs can be further retracted into the sheath, providing a stowed position in which the legs are substantially parallel to each other. Each of the distal legs has a concave cross-section that contributes greater strength to the legs, such that they maintain their form and alignment and provide greater grasping strength and expansion force than extraction devices of the prior art. As a result, the device is not only capable of moving, manipulating and extracting biological material, such as calculi and stones, but also man-made material such as implants and stents.

**18 Claims, 2 Drawing Sheets**

