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Cowley et al.

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(54) **STEERABLE SURGICAL SNARE**
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5,906,621 A	5/1999	Secret	
6,007,546 A	12/1999	Snow	
6,126,654 A *	10/2000	Giba et al.	606/15
7,052,489 B2 *	5/2006	Griego et al.	606/1
2003/0135222 A1	7/2003	Baska	
2005/0038424 A1 *	2/2005	Okada	606/47
2005/0043743 A1	2/2005	Dennis	
2012/0004647 A1	1/2012	Cowley	

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USPC 600/104; 606/106, 110, 113, 114, 127
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,886,067 A *	12/1989	Palermo	600/434
5,417,684 A	5/1995	Jackson	

OTHER PUBLICATIONS

International Search Report Dated Jun. 29, 2011 Cited in Application No. PCT/US2011/042448.
U.S. Appl. No. 12/862,347, Mail Date Jan. 8, 2013, Office Action.
Written Opinion for PCT/US2011/042448 dated Jun. 29, 2011.
U.S. Appl. No. 12/862,347, Mail Date Jul. 15, 2013, Final Office Action.

* cited by examiner

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(57) **ABSTRACT**

Apparatus, assemblies, and methods for capturing objects within a body are disclosed. A surgical snare device includes a steerable deflection portion with a steerable distal tip. An interface is linked to the steerable deflection portion to selectively manipulate the distal tip. A snare loop disposed at the distal tip can have a length that remains substantially constant as the distal tip is deflected and the snare loop moves in concert with the distal tip. The distal tip may deflect up to at least one-hundred eighty degrees, while the snare loop moves a corresponding amount. A method includes extending a snare through a body lumen and to a location near an object. The snare may have a loop that changes positions while maintaining the same length. The loop may be placed around an object and then used to retrieve the object from the body lumen.

18 Claims, 10 Drawing Sheets

