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(54) **ENDOSCOPIC INSTRUMENT HAVING MOVABLE DISTAL TOOL**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,187,849 A 2/1980 Stim
4,452,236 A * 6/1984 Utsugi 600/107
(Continued)

FOREIGN PATENT DOCUMENTS

EP 1 426 005 A1 6/2004
EP 1 849 416 A2 10/2007
(Continued)

OTHER PUBLICATIONS

International Search Report for corresponding international application PCT/US2013/023219, mailed Apr. 19, 2013, 2 pages.

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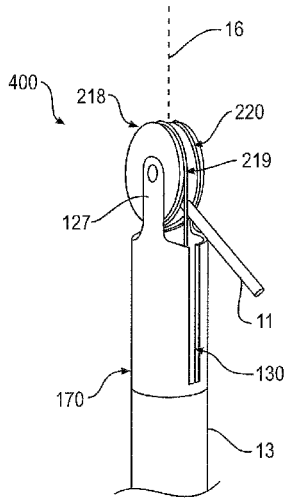
(57) **ABSTRACT**

Embodiments of the disclosure may include a medical device comprising a flexible elongate member including a longitudinal axis and a tool connected to the elongate member near a pivot, wherein the tool may be configured for at least one of suction and infusion, and wherein the tool may be configured to pivot towards both sides of the longitudinal axis relative to the elongate member at the pivot.

3 Claims, 13 Drawing Sheets