

(12) **United States Patent**
Bindra et al.

(10) **Patent No.:** **US 8,308,043 B2**
(45) **Date of Patent:** **Nov. 13, 2012**

(54) **RECOGNITION OF INTERCHANGEABLE COMPONENT OF A DEVICE**

(75) Inventors: **Manjit Singh Bindra**, Karnataka (IN);
Prabhu Ramlingam, Karnataka (IN);
Adam J. Ross, Prospect, CT (US);
Michael A. Zemlok, Prospect, CT (US)

(73) Assignee: **Covidien LP**, Mansfield, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 285 days.

(21) Appl. No.: **12/762,557**

(22) Filed: **Apr. 19, 2010**

(65) **Prior Publication Data**

US 2010/0294828 A1 Nov. 25, 2010

Related U.S. Application Data

(60) Provisional application No. 61/179,397, filed on May 19, 2009.

(51) **Int. Cl.**
A61B 17/068 (2006.01)

(52) **U.S. Cl.** **227/176.1; 227/179.1; 227/180.1**

(58) **Field of Classification Search** **227/176.1, 227/179.1, 180.1; 606/1, 151, 219**
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,395,033 A 3/1995 Byrne et al.
5,529,235 A 6/1996 Boiarski et al.

5,535,934 A	7/1996	Boiarski et al.	
5,535,937 A	7/1996	Boiarski et al.	
5,562,239 A	10/1996	Boiarski et al.	
5,836,867 A *	11/1998	Speier et al.	600/112
7,055,730 B2	6/2006	Ehrenfels et al.	
7,159,750 B2	1/2007	Racenet et al.	
7,301,332 B2	11/2007	Govari et al.	
7,303,528 B2	12/2007	Couvillon, Jr.	
7,588,546 B2 *	9/2009	de Andrade	600/567
2003/0069475 A1	4/2003	Banik et al.	
2004/0267297 A1 *	12/2004	Malackowski	606/167
2005/0131390 A1 *	6/2005	Heinrich et al.	606/1
2007/0023476 A1	2/2007	Whitman et al.	
2007/0175956 A1	8/2007	Swayze et al.	
2008/0164296 A1	7/2008	Shelton et al.	
2008/0179374 A1	7/2008	Beardsley et al.	
2008/0185419 A1 *	8/2008	Smith et al.	227/179.1
2008/0251568 A1	10/2008	Zemlok et al.	
2008/0251569 A1	10/2008	Smith et al.	
2008/0255418 A1	10/2008	Zemlok et al.	

* cited by examiner

Primary Examiner — Lindsay Low
Assistant Examiner — Nathaniel Chukwurah

(57) **ABSTRACT**

A device and a method are provided for determining a characteristic of an interchangeable component of a surgical instrument. An electrically conductive material having a measurable strength measurable by a hall effect sensor is coupled to the component. In another embodiment, a plurality of conductive materials are arranged to form a binary code representing a corresponding of the interchangeable component. The number and/or strength of the magnets measurable by the sensors may be dynamically altered such that the status of the surgical instrument is determinable.

9 Claims, 7 Drawing Sheets

