

(12) United States Patent

Bindra et al.

(10) **Patent No.:**

US 8,430,892 B2

(45) Date of Patent: Apr. 30, 2013

(54)SURGICAL CLIP APPLIER HAVING A WIRELESS CLIP COUNTER

- (75) Inventors: **Manjit Singh Bindra**, Mysore (IN);
 - Prabhu Ramlingam, Mysore (IN)
- 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 320 days.

- Appl. No.: 12/895,901
- (22)Filed: Oct. 1, 2010

Prior Publication Data (65)

US 2011/0082474 A1 Apr. 7, 2011

Related U.S. Application Data

- (60) Provisional application No. 61/248,944, filed on Oct. 6, 2009.
- (51) Int. Cl. A61B 17/10 (2006.01)
- U.S. Cl.

USPC 606/143

(58) Field of Classification Search 606/143 See application file for complete search history.

(56)References Cited

U.S. PATENT DOCUMENTS

4,242,902	Α		1/1981	Green
4,712,549	Α	*	12/1987	Peters et al 606/143
5,047,038	Α		9/1991	Peters
5,529,235	Α		6/1996	Boiarski et al.
5,535,934	Α			Bpiarski et al.
5,535,937	Α		7/1996	Boiarski et al.
5,562,239	Α		10/1996	Boiarski et al.

2003/0009154 A1 1/2003 Whitman 2004/0230094 A1 11/2004 Nakamura 2007/0023476 A1 2/2007 Whitman et al. 2007/0118155 A1 5/2007 Goldfarb et al. 2007/0156017 A1 7/2007 Lamprecht et al. 2008/0164296 A1 7/2008 Shelfon et al. 2008/0171909 A1 Onoda et al. 7/2008 2008/0197167 A1 8/2008 Viola et al. 10/2008 Whitfield 2008/0243145 A1

(Continued)

FOREIGN PATENT DOCUMENTS

EP 0 085 931 A2 8/1983 EP0 324 166 A2 7/1989

(Continued)

OTHER PUBLICATIONS

European Search Report corresponding to European Application No. EP 05 80 2686.5, completed Jan. 9, 2012; mailed Jan. 18, 2012; (3 Pages).

(Continued)

Primary Examiner — Melanie Tyson

(57)ABSTRACT

An apparatus for application of surgical clips to body tissue is provided and includes a housing, at least one handle a channel assembly, a clip carrier disposed within the channel assembly and a counter mechanism supported in at least one of the housing and the channel assembly. The counter mechanism is configured to transmit a change in status of the apparatus upon each actuation of the at least one handle. The counter mechanism includes a switch configured to output a signal upon actuation of the trigger, an encoder configured to output a bit sequence upon actuation of the switch, a radio frequency transmitter operable to convert the bit sequence into a radio frequency signal, and a transmitting antenna configured to transmit the radio frequency signal.

2 Claims, 20 Drawing Sheets

