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- (71) **Applicant (for all designated States except US):** **DOMAIN SURGICAL, INC.** [US/US]; 1370 S. 2100 E., Salt Lake City, UT 84108 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **MANWARING, Kim** [US/US]; 1915 E. Muirwood Dr., Phoenix, AZ 85048 (US). **MCNALLY, David** [US/US]; P.O. Box 58704, Salt Lake City, UT 84158 (US). **WRIGHT, David** [US/US];

11857 Elk Head Range Rd., Littleton, CO 80123 (US). **MIDDEL, Josh** [US/US]; 9256 W. Maplewood Ave., Littleton, CO 80123 (US). **MANWARING, Preston** [US/US]; 666 Eton Court, Farmington, UT 84025 (US). **STRINGHAM, Mark** [US/US]; 6102 South Dewdrops Dr., Kerns, UT 84118 (US). **BECK, Kent** [US/US]; 825 North 300 West, Suite C250, Salt Lake City, UT 84103 (US). **EGGERS, Philip** [US/US]; 7704 Timberline Dr., Cottonwood Heights, UT 84121 (US).

(74) **Agent:** **BATEMAN, Randall**; Bateman Ip, P.O. Box 1319, Salt Lake City, UT 84110 (US).

(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ,

[Continued on next page]

(54) **Title:** SEALING AND/OR CUTTING INSTRUMENT

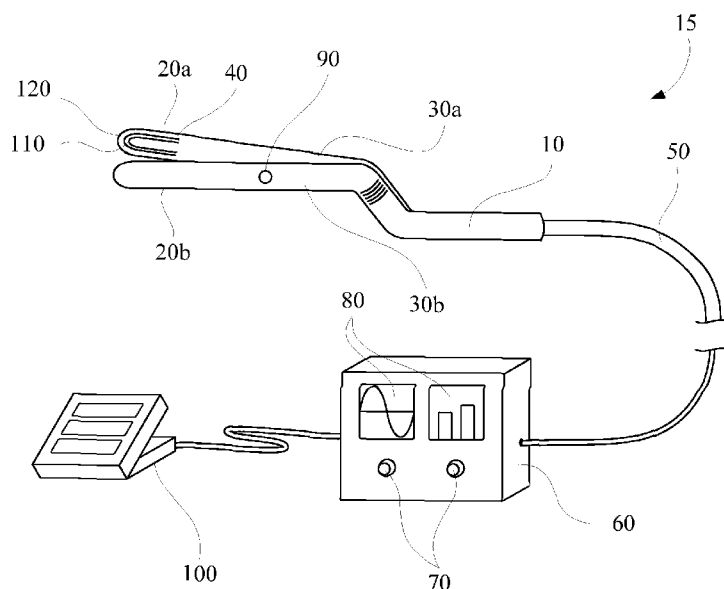


FIG. 1

(57) **Abstract:** A sealing and/or cutting instrument having a thermally active surface or element which may be used to seal and then cut tissue, ducts, vessels, etc., apart. The instrument may include a thermally active surface or element comprised of a conductor covered with a ferromagnetic material. The instrument may contact tissue with one or more surfaces comprised of a non-stick material. A sensor in communication with the instrument may be used to monitor a therapeutic procedure and signal when sealing and/or cutting of a tissue is complete.



TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US12/55229

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 18/04 (2013.01)

USPC - 606/1, 27, 28, 29

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8): A61B 18/04 (2013.01)

USPC: 606/1, 27, 28, 29, 30, 32, 37, 39, 40, 51, 52; 607/98, 99, 150

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); Google/GoogleScholar; DialogPro; MEDLINE/PubMed: electrosurgical, cutting, sealing, ferromagnetic, thermal, heat, forceps

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2010/0268212 A1 (MANWARING, K et al.) October 21, 2010; figures 20A, 20B; paragraphs [0085], [0090], [0095], [0110], [0133], [0186]-[0193], [0223]	1, 4, 6, 7, 10, 11, 13-17 ----- 2, 3, 5, 8, 9, 12, 18-20
Y	US 7931649 B2 (COUTURE, GM et al.) April 26, 2011; figures 2, 3A; column 12, lines 17-32	2, 3, 8, 9, 12, 19
Y	US 2010/0228244 A1 (HANCOCK, CP et al.) September 9, 2010; paragraphs [0055], [0090]	5, 18-20
A	US 2005/0107776 A1 (MCGAFFIGAN, T et al.) May 19, 2005; entire document	1-20
A	US 5911719 A (EGGERS, PE) June 15, 1999; entire document	1-20

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

11 January 2013 (11.01.2013)

Date of mailing of the international search report

01 FEB 2013

Name and mailing address of the ISA/US

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Authorized officer:

Shane Thomas

PCT Helpdesk: 571-272-4300

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US12/55229

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Group I: Claims 1-20 are directed toward a surgical instrument comprising: a first surface; a second surface movable into a position adjacent the first surface; and a thermally active element coupled to one of the first surface and the second surface, the thermally active element configured to be connectable to an electrical power source in a closed circuit, the thermally active element comprising a conductor and a ferromagnetic material disposed about the conductor such that electrical power passing through the conductor causes the ferromagnetic material to heat; wherein heat is generated in the thermally active element and conducted from the thermally active element to tissue to thereby treat the tissue.

Group II: Claims 21-24 are directed toward a tissue sealing instrument comprising: a first arm having a first surface; a second arm having a second surface oriented generally opposite to the first surface; and a thermally active element mechanism associated with at least one of the first surface and second surface, the thermally active element mechanism comprising a first portion defining a sealing zone configured to heat to a temperature to seal tissue and a second portion defining a cutting zone configured to heat to a temperature to cut tissue.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Claims 1-20

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.