

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
3 July 2008 (03.07.2008)

PCT

(10) International Publication Number
WO 2008/079247 A3

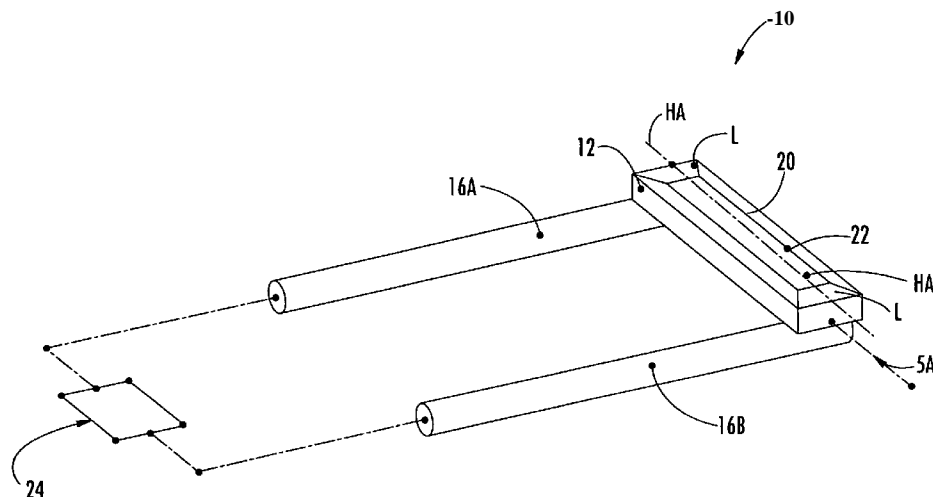
- (51) **International Patent Classification:**
A61B 17/04 (2006.01)
- (21) **International Application Number:**
PCT/US2007/025977
- (22) **International Filing Date:**
20 December 2007 (20.12.2007)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
60/876,196 20 December 2006 (20.12.2006) US
60/876,458 20 December 2006 (20.12.2006) US
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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

[Continued on next page]

(54) **Title:** HEATER ASSEMBLY FOR SUTURE WELDER



(57) **Abstract:** Disclosed is a heater device for thermally welding suture strands, including: a substrate extending from a first end to a second end along a substrate axis, and having a substantially planar heater support surface; a joiinder layer disposed on the heater support surface; a heater element extending from a first end to a second end along a heater axis thereof and disposed on the joiinder layer, the heater element being a layer and being coupled to the support surface by the joiinder layer; an electrical interface including a first electrically conductive element coupled to the first end of the heater element, and a second electrically conductive element coupled to the second end of the heater element. In some embodiments, the heater element is elongated along the heater axis.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
9 October 2008

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/025977

A CLASSIFICATION OF SUBJECT MATTER IPC(8) - A61 B 17/04 (2008.04) USPC - 606/148 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 17/04 (2008 04) USPC - 219/247, 228/44 7, 606/148		
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) Patbase, Google Patents		
C DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X ---	US 4,656,339 A (GRISE) 07 April 1987 (07 04 1987) entire document	1-3, 8, 21-23 -----
Y		4-7, 9-20, 24
Y	US 5,999,085 A (SZWARC et al) 07 December 1999 (07 12 1999) entire document	4-5, 10-14, 19-20
Y	US 2004/0037542 A1 (KANISHI) 26 February 2004 (26 02 2004) entire document	4-5, 10-14, 19-20
Y	US 4,423,401 A (MUELLER) 27 December 1983 (27 12 1983) entire document	6, 9
Y	US 4,501,951 A (BENIN et al) 26 February 1985 (26 02 1985) entire document	7, 10, 11
Y	US 2003/0039299 A1 (HOROVI2 et al) 27 February 2003 (27 02 2003) entire document	15-18
Y	US 5,408,577 A (WEBER, JR et al) 18 April 1995 (18 04 1995) entire document	16-18
Y	US 6,078,028 A (COOPER et al) 20 June 2000 (20 06 2000) entire document	24
D Further documents are listed in the continuation of Box C <input type="checkbox"/>		
* Special categories of cited documents	"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	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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	
"E" earlier application or patent but published on or after the international filing date	"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	
"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)	"&" document member of the same patent family	
"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		
Date of the actual completion of the international search 10 July 2008	Date of mailing of the international search report 1 2 AUG 2008	
Name and mailing address of the ISA/US Mail Stop PCT, Attn ISA/US, Commissioner for Patents P O Box 1450, Alexandria, Virginia 22313-1450 Facsimile No 571-273-3201	Authorized officer Blaine R Copenheaver PCT HJpdesk 571-272-4300 PCT OSP 571-272-7774	

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 LJ Claims Nos
because they relate to subject matter not required to be searched by this Authority, namely

- 2 D 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 D 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

See extra sheet

- 1 I I As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
- 2 I I As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees
- 3 I I 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

1-24

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

Continuation of Box III

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-24, drawn to comprising a substrate, a joinder layer, a heater element on said joinder layer, and an electrical interface electrically connecting the ends of the heater element with the ends of the substrate.

Group II, claims 25-28, drawn to an apparatus comprising first and second heater devices which operate alternatively at repetitive intervals.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention—a substrate, a joinder layer, a heater element on said joinder layer, and an electrical interface electrically connecting the ends of the heater element with the ends of the substrate as claimed therein—is not present in the invention of Group II. The special technical feature of the Group II invention—first and second heater devices which operate alternatively at repetitive intervals as claimed therein—is not present in the invention of Group I.

Since none of the special technical features of the Group I or II inventions are found in more than one of the inventions, unity of invention is lacking.