



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : A61B 17/122, 17/128	A3	(11) International Publication Number: WO 00/35355 (43) International Publication Date: 22 June 2000 (22.06.00)
(21) International Application Number: PCT/GB99/04164 (22) International Filing Date: 10 December 1999 (10.12.99) (30) Priority Data: 9827415.2 11 December 1998 (11.12.98) GB (71)(72) Applicant and Inventor: WILD, Andrew, Michael [GB/GB]; P.O. Box 35, St. Neots, Huntingdon, Cam- bridgeshire PE19 3UY (GB). (74) Agent: BROWN, David, Leslie; Page Hargrave, Southgate, Whitefriars, Lewins Mead, Bristol BS1 2NT (GB).		(81) Designated States: AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), DM, EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 12 October 2000 (12.10.00)
(54) Title: SURGICAL OCCLUSION APPARATUS AND METHOD <div style="text-align: center;"> </div>		
(57) Abstract <p>A surgical apparatus and method for occluding or encircling a body passageway, e.g. for haemostasis, is described. The apparatus comprises generally a delivery system for offering a temperature-dependent shape memory material clip (3') (e.g. of Nitinol and suitably of generally U-shape in the open (a) condition) onto the body passageway, allowing body heat to warm the clip whereby the clip closes to a closed (b) condition in which it occludes or encircles the body passageway. The apparatus is then withdrawn from the operating zone. The apparatus includes drive and control functions for moving a train of clips (3') within a shaft (2') of the apparatus towards a distal end port (6'), and preferably a temperature control system whereby the clips within the housing are maintained at a first temperature, substantially below body temperature.</p>		

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/04164

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61B17/122 A61B17/128

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 7 A61B

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 96 16603 A (CREIGHTON) 6 June 1996 (1996-06-06)	1,6-8,15
A	figures 3,5; example 6 ---	16,26
Y	US 5 601 572 A (PYKA) 11 February 1997 (1997-02-11) cited in the application figures 212,215 ---	1,6-8,15
A	US 5 171 252 A (FRIEDLAND) 15 December 1992 (1992-12-15) cited in the application figures 20,21 ---	1
A	US 4 950 258 A (KAWAI) 21 August 1990 (1990-08-21) cited in the application figures 8,12 ---	1
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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

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"&" document member of the same patent family

Date of the actual completion of the international search

7 June 2000

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21.06.2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040. Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Barton, S

INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	US 4 969 890 A (SUGITA) 13 November 1990 (1990-11-13) ---	
X	US 5 618 311 A (GRYSKIEWICZ) 8 April 1997 (1997-04-08) column 4, paragraph 2; figure 4 ---	26-32
X	US 5 246 443 A (MAI) 21 September 1993 (1993-09-21) column 4, paragraph 3; figures 5,6 ---	26
A	US 5 219 354 A (CHOUHDURY) 15 June 1993 (1993-06-15) figure 9 ---	16
A	US 5 219 353 A (GARVEY) 15 June 1993 (1993-06-15) column 4, line 46 - line 55; figures 8-12 ---	26
A	EP 0 743 045 A (GAZZANI) 20 November 1996 (1996-11-20) page 8, paragraph 4 ---	16,26
A	US 3 120 230 A (SKOLD) 4 February 1964 (1964-02-04) figures 2,5,7 ---	26
A	WO 92 19144 A (NAKAO) 12 November 1992 (1992-11-12) figure 21 ---	26
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X,P	WO 99 62406 A (COALESCENT) 9 December 1999 (1999-12-09) figures 3-6 -----	16,26

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 99/04164

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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.: 37-40
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
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 II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

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

see additional sheet

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 an additional fee, this Authority did not invite payment of any additional fee.
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.:
1-25, 26a, 26b, 27-36
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.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-15

Surgical clip applier adapted for placement of thermal memory clip(s)

2. Claims: 16-25,
26 with alternative feature a; 27-
36 as dependent on claim 16

Thermal memory surgical clip with a convoluted central portion

3. Claim : 26 with alternative feature b

Surgical clip with legs whose ends are adapted for mutual sliding action

4. Claim : 26 with alternative feature c

Surgical clip with legs whose ends are enlarged in order to trap engaged body tissue

5. Claim : 26 with alternative feature d

Surgical resilient clip releasable to a helical configuration

INTERNATIONAL SEARCH REPORT

Information on patent family members

In. ational Application No

PCT/GB 99/04164

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