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(71)(72) Applicant and Inventor: WILD, Andrew, [GB/GB]; P.O. Box 35, St. Neots, Huntingdon, Cambridgeshire PE19 3UY (GB).

(74) Agent: BROWN, David, Leslie; Page Hargrave, Southgate, Whitefriars, Lewins Mead, Bristol BS1 2NT (GB).

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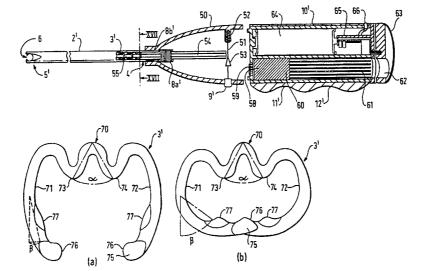
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(88) Date of publication of the international search report:

12 October 2000 (12.10.00)

(54) Title: SURGICAL OCCLUSION APPARATUS AND METHOD



(57) Abstract

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 gnerally 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 The apparatus is then withdrawn from the operating zone.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.

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In. ational Application No PCT/GR 99/04164

PCT/GB 99/04164 A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61B17/122 A61E 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. Υ WO 96 16603 A (CREIGHTON) 1,6-8,156 June 1996 (1996-06-06) Α figures 3,5; example 6 16,26 Υ US 5 601 572 A (PYKA) 1,6-8,15 11 February 1997 (1997-02-11) cited in the application figures 212,215 Α US 5 171 252 A (FRIEDLAND) 1 15 December 1992 (1992-12-15) cited in the application figures 20,21 Α US 4 950 258 A (KAWAI) 1 21 August 1990 (1990-08-21) cited in the application figures 8,12 Χ Further documents are listed in the continuation of box C. Patent family members are listed in annex. 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 "A" document defining the general state of the art which is not considered to be of particular relevance invention "E" earlier document but published on or after the international "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 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) "Y" document of particular relevance; the claimed invention continent 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. "O" document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 7 June 2000 2 1 06 2000 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31,-70) 340-2040. Tx. 31 651 epo nl, Barton, S Fax: (+31-70) 340-3016

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International application No. PCT/GB 99/04164

INTERNATIONAL SEARCH REPORT

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. X 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	
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.	
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

Information on patent family members

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