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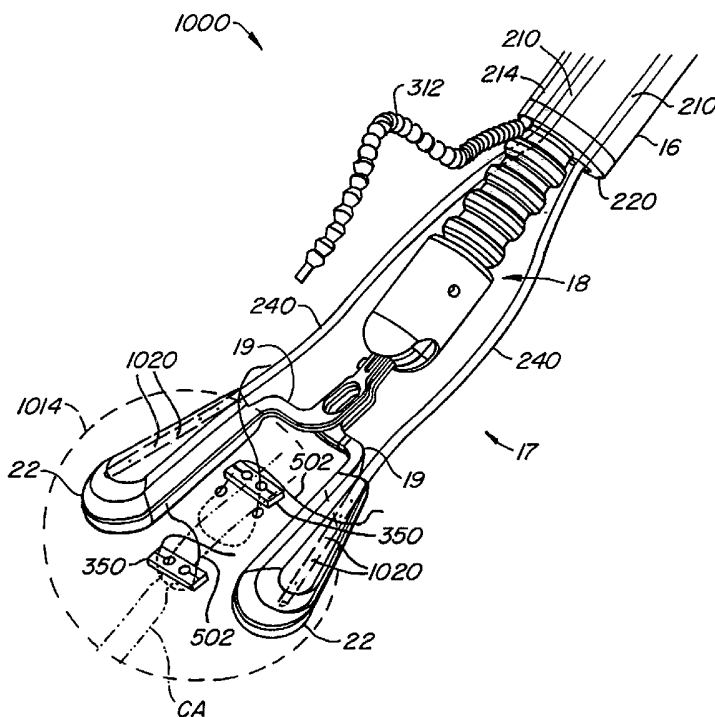
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- (71) Applicant: INTUITIVE SURGICAL, INC. [US/US];
1340 West Middlefield Road, Mountain View, CA 94043 (US).
- (72) Inventors: JULIAN, Christopher, A.; 546 Woodland Ridge, Los Gatos, CA 95033 (US). IKEDA, Michael; 4930 Elmwood Drive, San Jose, CA 95130 (US). RA-MANS, Andris, D.; 585 Tahoe Terrace, Mountain View, CA 94041 (US). HOORNAERT, Dean, F.; 1945 Latham Street, #11, Mountain View, CA 94040 (US). ISAAC, Margaret, M.; 2101 Jefferson Avenue, Redwood City, CA 94062 (US).
- (74) Agents: THOMPSON, Lynn, M. et al.; Townsend and Townsend and Crew LLP, 2 Embarcadero Center, 8th Floor, San Francisco, CA 94111 (US).
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[Continued on next page]

(54) Title: ENDOSCOPIC BEATING-HEART STABILIZER AND VESSEL OCCLUSION FASTENER



(57) Abstract: Devices, systems and methods related to endoscopic surgery, particularly related to robotic surgical operations, provide a tissue stabilizer (1000) for endoscopically stabilizing a target tissue (1014) within a patient's body. For stabilizing a beating heart (H) during a closed-chest coronary artery bypass grafting procedure, a stabilizer (1000) is inserted through an endoscopic cannula and provides sufficient surface area to contact the heart and effectively stabilize the target tissue area. The stabilizer can straddle a blood vessel, such as a coronary artery (CA), which is targeted for an anastomosis. Vessel occlusion fasteners may occlude the target blood vessel prior to the anastomosis procedure.

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- (88) **Date of publication of the international search report:** 21 August 2003 *For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*
- (15) **Information about Correction:**
Previous Correction:
see PCT Gazette No. 07/2003 of 13 February 2003, Section II

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/44771

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61B 17/00
 US CL : 600/229, 228

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)
 U.S. : 600/229, 228, 210, 215, 216

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)

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 6,149,583 A (VIERRA ET AL) 21 November 2000, see entire document.	75,83, 84 ----- 1,6,7,12,15,30,31,36,3 9,40,43-45,50,76,87
X,E --- Y,E	US 6,398,726 B1 (RAMANS ET AL) 04 June 2002, see entire document.	75,77,83 ----- 76,87
Y,P	US 6,210,323 B1 (GILHULY ET AL) 03 April 2001, see entire document.	1,6,7,12,15,30,31,36,3 940,43-45,50,76

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"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

27 March 2003 (27.03.2003)

Date of mailing of the international search report

23 APR 2003

Name and mailing address of the ISA/US
 Commissioner of Patents and Trademarks
 Box PCT
 Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Cary E. O'Connor

Telephone No. 703-308-0858

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/44771

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

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

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

2. Claim 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. Claim 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:
Please See Continuation 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.:

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.: 1-60, 75-87

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

The inventions listed as Groups I-V 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 inventions of Groups I-V are considered to be subcombinations usable together. Each has a separate utility because each can be used in totally separate procedure i.e. the irrigator or occlusion device can be used in a non-endoscopic procedure.

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-60, 75-87, claim(s) 1-60, 75-87, drawn to a tissue stabilizer and method for stabilizing tissue.

Group II, claim(s) 61-66, drawn to a vessel occlusion device and a method for controlling blood flow.

Group III, claim(s) 67-74, drawn to method for preparing a vessel.

Group IV, claim(s) 88-94, drawn to a joint assembly.

Group V, claim(s) 95-99, drawn to an irrigator.