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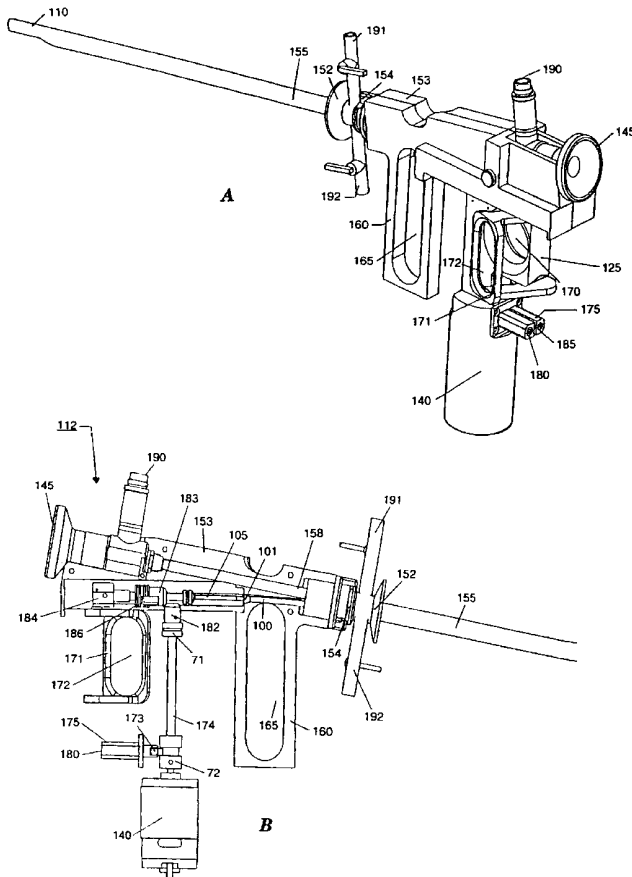
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[Continued on next page]

(54) Title: SURGICAL INSTRUMENT AND METHOD OF USING THE SAME



(57) Abstract: A surgical instrument (102) comprises a non-rotating positioning tube (100) having at least one lumen. A blade shaft (105) (which may be a hollow tube) passes through the lumen and one or more blades (106, 107) are attached to the distal end (115) of the blade shaft (105). The blades (107) have a non-cutting position in which they are retracted so that their diameter is roughly equivalent to the diameter of the lumen and a cutting position in which the blades extend radially outwards beyond the lumen diameter. The blades (107) are moved between the non-cutting position and the cutting position by sliding the blade shaft (105) relative to the tube (100). During a cutting procedure, the blade shaft (105) and the attached blades (107) are rotated while the tube (100) remains fixed. The instrument (102) may also be modular in construction with a main module and additional modules that are interchangeable. These additional modules can include an excision module for removing tissue and a treatment module for applying various therapeutic materials to the surgical site.



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INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 A61B17/22

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)

EPO-Internal

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 5 766 191 A (TREROTOLA) 16 June 1998 (1998-06-16) column 4, line 13 -column 5, line 63; figures 1-10	1,2,24, 27 3-7,9, 11,16, 19,20, 23,25, 26,28, 36,37, 39-59, 62,65
Y	US 5 792 157 A (MISCHE) 11 August 1998 (1998-08-11) column 5, line 1 -column 6, line 20; figures 1-5	3,7,19, 20

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° 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 document 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

14 February 2002

Date of mailing of the international search report

4. 03. 2002

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## INTERNATIONAL SEARCH REPORT

Int: 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.
Y	US 5 053 044 A (MUELLER) 1 October 1991 (1991-10-01) column 2, line 56 -column 4, line 53; figures 1-5	4-6
Y	US 6 007 533 A (CASSCELLES) 28 December 1999 (1999-12-28) column 3, line 1 -column 4, line 28; figures 1A-4B	9,11,23, 26
Y	US 5 364 395 A (WEST) 15 November 1994 (1994-11-15) column 9, line 43 - line 62; figures 1,2,4-8	16
Y	US 5 951 581 A (SAADAT) 14 September 1999 (1999-09-14) column 5, line 47 -column 6, line 38; figures 1-2B	25,28
X	EP 0 419 154 A (FISCHELL) 27 March 1991 (1991-03-27) column 4, line 23 -column 6, line 55; figures 1-8	1,3,19, 20,24,27
X	US 5 030 201 A (PALESTRANT) 9 July 1991 (1991-07-09)  column 7, line 11 -column 9, line 62; figures 1-10	1,3,6,7, 19,20, 24,27
Y	WO 95 20341 A (SOFAMOR) 3 August 1995 (1995-08-03)  page 6, line 19 -page 9, line 27; figures 1-7	36,37, 39-59, 62,65
A	US 4 950 278 A (SACHSE) 21 August 1990 (1990-08-21)  column 1, line 22 -column 2, line 45; figures 1-6	36,37, 40-43, 45-47, 50-55, 59,63,65
A	WO 97 29680 A (IMAGYN) 21 August 1997 (1997-08-21) page 10, line 12 -page 11, line 32 page 23, line 17 - line 29; figures 1-4	36-65

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB 01/01332

## 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.: 29-35  
because they relate to subject matter not required to be searched by this Authority, namely:  
Claims 29-35 refer to methods of treatment of the human or animal body by surgery. According to Art. 17(2)(a)(i), 17(2)(b) and Rule 39.1(iv) the ISA is not required to search such subject-matter and decides not to perform the relevant search.
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.:
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: 1-28

A surgical instrument for cutting a tissue, comprising: 1) a positioning tube having a longitudinal axis and a diameter; 2) a shaft positioned in the tube, the shaft having a proximal end and a distal end; 3) at least one two-position blade affixed to the shaft distal end; 4) the blade having a non-cutting position in which the blade does not extend outside the tube diameter and a cutting position in which the blade extends outside of the tube diameter; 5) a mechanism operable from the shaft proximal end that moves the blade between the non cutting position and the cutting position; and 6) a mechanism operable from the shaft proximal end that rotates the blade in the cutting position about the longitudinal axis so that the tissue is cut, as described in claim 1 and referred to in its dependent claims 2-28.

2. Claims: 36-58

A modular surgical instrument for treating a tissue mass at a surgical site, comprising substantially the same features 1) to 6) of subject 1, expressed merely using different terms, and further comprising: 7) a treatment module adapted to be removably attached to the main module, 8) the treatment module having at least one lumen for delivering a therapeutic material to the surgical site, as described in claim 36 and referred to in its dependent claims 37-58.

3. Claims: 59-65

A surgical instrument for cutting tissue, comprising, merely expressed using slight different terms, all the features 1) to 6) of subject 1, wherein: 9) the at least one cutting blade is affixed substantially perpendicular to the shaft distal end, as described in claim 59 and referred to in its dependent claims 60-65.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 01/01332

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