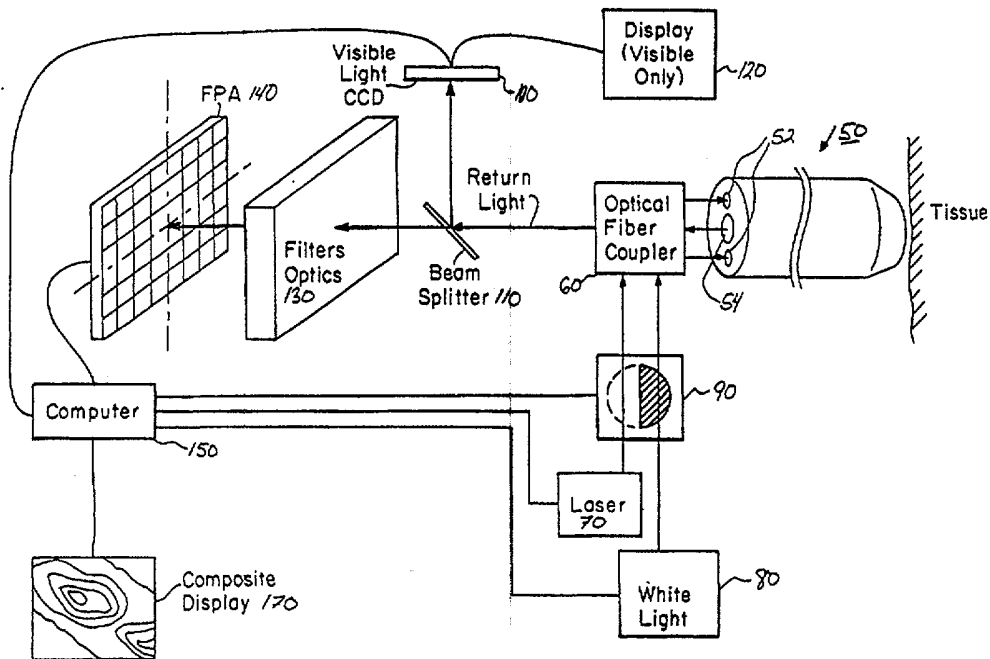




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : A61B 5/00</p>	<p>A3</p>	<p>(11) International Publication Number: WO 95/11624 (43) International Publication Date: 4 May 1995 (04.05.95)</p>
<p>(21) International Application Number: PCT/US94/12440 (22) International Filing Date: 28 October 1994 (28.10.94) (30) Priority Data: 08/144,782 29 October 1993 (29.10.93) US (71)(72) Applicants and Inventors: FELD, Michael, S. [US/US]; 56 Hincley Road, Waban, MA 02168 (US). BARAGA, Joseph [US/US]; 66 Porter Street, Somerville, MA 02143 (US). (74) Agents: HOOVER, Thomas, O. et al.; Hamilton, Brook, Smith & Reynolds, Two Militia Drive, Lexington, MA 02173 (US).</p>		<p>(81) Designated States: CA, JP, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 18 May 1995 (18.05.95)</p>

(54) Title: A RAMAN ENDOSCOPE



(57) Abstract

The invention relates to a Raman endoscope for diagnosing diseased tissue within the human body. An infrared sensitive array (140) is used to form spectroscopy enhanced images of tissue where laser induced Raman Scattering is used to identify and quantitatively measure constituents of diseased and healthy tissue.

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INTERNATIONAL SEARCH REPORT

Intern. Application No
PCT/US 94/12440

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A61B5/00

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 6 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.
X	WO,A,93 03672 (D. REDD) 4 March 1993	1,2,6,10
X	see page 10, line 17 - page 14, line 25	11,15,19
X	see page 18, line 9 - page 19, line 16	20
A	WO,A,89 02718 (MASSACHUSTTS INSTITUTE OF TECHNOLOGY) 6 April 1989	1-3,5,6, 10,13,15
A	see page 12, line 9 - page 18, line 15	16,19,20
A	US,A,4 768 513 (S. SUZUKI) 6 September 1988	1-3,5,6
A	see column 6, line 63 - column 7, line 64	10,13
A	see column 8, line 16 - line 58	15-17,19
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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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"&" document member of the same patent family

Date of the actual completion of the international search 28 March 1995	Date of mailing of the international search report 21. 04. 95
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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 Rieb, K.D.
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INTERNATIONAL SEARCH REPORT

Internat'l Application No PCT/US 94/12440

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US,A,5 125 404 (C. KITTRELL ET AL.) 30 June 1992 cited in the application	1-3,6, 10,14
A	see column 19, line 20 - column 21, line 20 see column 24, line 11 - line 65 -----	15,18,19

1

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

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:
CLAIM NO 4 NOT SEARCHED. A PART OF CLAIM NO 4 IS MISSING BETWEEN THE EXPRESSIONS "FURTHER" AND "BETWEEN".

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:

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 94/12440

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO-A-9303672	04-03-93	AU-A- 2519892	16-03-93
WO-A-8902718	06-04-89	EP-A- 0380586 JP-T- 3500373	08-08-90 31-01-91
US-A-4768513	06-09-88	JP-A- 62247232	28-10-87
US-A-5125404	30-06-92	US-A- 5318024 US-A- 4913142 US-A- 5034010	07-06-94 03-04-90 23-07-91