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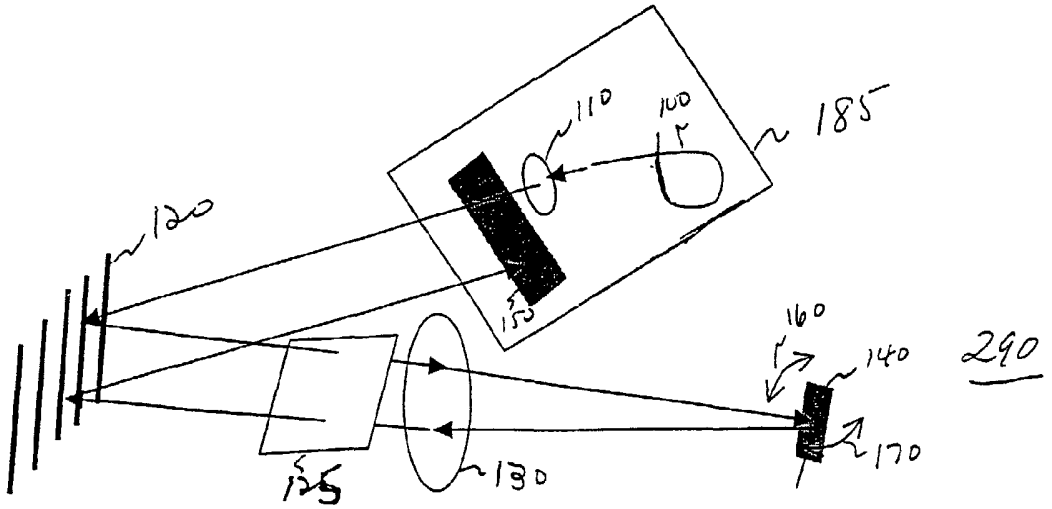
(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

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28 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.

(54) Title: OPTICAL DELAY LINE



(57) Abstract: One embodiment of the present invention is an optical delay line that comprises a plurality of optical elements in optical communication with each other, wherein: (a) at least one of the plurality of optical elements is capable of spatially dispersing a spectrum of an optical signal to provide a spatially dispersed optical signal; (b) at least one of the plurality of optical elements is adjustable to affect one or more of a phase delay and a group delay of an optical signal; and (c) at least one of the plurality of optical elements compensates for polarization introduced into the optical signal by others of the optical elements.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP 02/02231

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G02B6/293 G02B6/34 G01N21/45

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 G02B G01N G01B

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, WPI Data, INSPEC, COMPENDEX, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SILVA K K M B D ET AL: "Extended range, rapid scanning optical delay line for biomedical interferometric imaging" ELECTRONICS LETTERS, IEE STEVENAGE, GB, vol. 35, no. 17, 19 August 1999 (1999-08-19), pages 1404-1406, XP006012570 ISSN: 0013-5194	1-6,8, 12-15, 20,21
Y	the whole document	7,16-19
Y	US 6 111 645 A (TEARNEY GUILLERMO ET AL) 29 August 2000 (2000-08-29) cited in the application	7,16-19
A	column 1, line 44 -column 9, line 27; figures 1-13	1-6, 8-15,22
	-/--	

[X] Further documents are listed in the continuation of box C.

[X] 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	Date of mailing of the international search report
7 February 2003	18/02/2003

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, Fax: (+31-70) 340-3016	Wolf, S

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

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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.
A	TEARNEY G J ET AL: "HIGH-SPEED PHASE- AND GROUP-DELAY SCANNING WITH A GRATING-BASED PHASE CONTROL DELAY LINE" OPTICS LETTERS, OPTICAL SOCIETY OF AMERICA, WASHINGTON, US, vol. 22, no. 23, 1 December 1997 (1997-12-01), pages 1811-1813, XP000735869 ISSN: 0146-9592 the whole document	1-6
A	ROLLINS A M ET AL: "IN VIVO VIDEO RATE OPTICAL COHERENCE TOMOGRAPHY" OPTICS EXPRESS, OPTICAL SOCIETY OF AMERICA, WASHINGTON, DC,, US, vol. 3, no. 6, 14 September 1998 (1998-09-14), pages 219-229, XP001041324 ISSN: 1094-4087 the whole document	1-22
A	DELACHENAL N ET AL: "Robust and rapid optical low-coherence reflectometer using a polygon mirror" OPTICS COMMUNICATIONS, NORTH-HOLLAND PUBLISHING CO. AMSTERDAM, NL, vol. 162, no. 4-6, 15 April 1999 (1999-04-15), pages 195-199, XP004165455 ISSN: 0030-4018 paragraph '0002!; figure 1	1,12,21
A	US 5 892 583 A (LI MING-CHIANG) 6 April 1999 (1999-04-06) column 12, line 26 -column 13, line 19; figure 11	11,22

INTERNATIONAL SEARCH REPORT

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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:

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: 1-10,12-21

   Dispersive optical delay line with compensation of difference in grating reflectivity for different polarizations, imaging system using the delay line

2. Claims: 11,22

   Optical delay line with input fiber, collimation lens and double-pass mirror on one translation stage

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/EP 02/02231

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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