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- (71) Applicant (for all designated States except US): ITT
MANUFACTURING ENTERPRISES, INC. [US/US];
1105 North Market Street, Suite 1217, Wilmington, DE
19801 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): KALAYEH, Hoosh-
mand, M. [US/US]; 25 Mandalay Ridge, Pittsford, NY
14534 (US).
- (74) Agent: SEITTER, Robert, P.; RATNERPRESTIA, P. O.
Box 980, Valley Forge, PA 19482 (US).

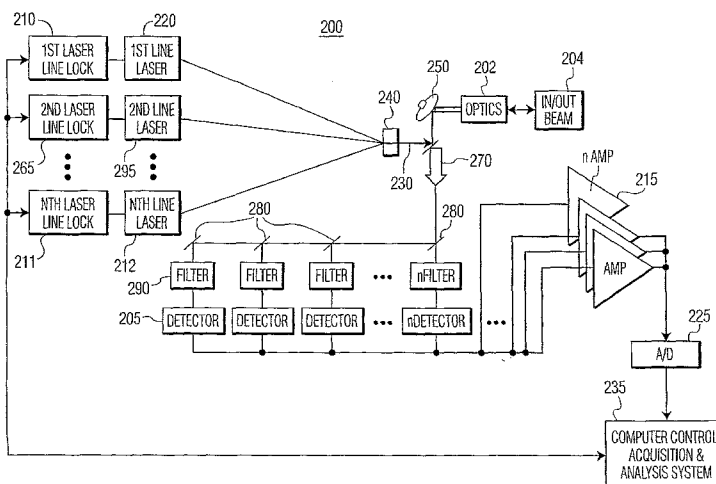
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(54) Title: MULTI-LINE TUNABLE LASER SYSTEM



(57) Abstract: A multi-line tunable laser system, which uses lasers as light sources to illuminate, identify and or quantify one or more targets based on multi-dimensional spectral characteristics of each target. The system includes a plurality of laser sources, each tunable to emit an electromagnetic wave, and at least one tuning controller (235) for tuning and locking each beam of light to a wavelength of required spectral line-width. The system also includes a transmitter (250) for transmitting each beam of light to illuminate one or more targets, and a receiver (205) for receiving light returning from the targets and converting the returned light to electrical signals for identifying and or quantifying the targets. The system further includes N tunable lasers where, M of the N lasers are each tuned to a wavelength that is partially absorbed by the targets, and L of the W (one or more) of the lasers are each tuned to a wavelength that is absorption-free of the targets.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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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)
 G01N G01S

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	US 6 822 742 B1 (KALAYEH HOOSHMAND M ET AL) 23 November 2004 (2004-11-23) cited in the application the whole document	1-20
A	US 5 250 810 A (GEIGER ET AL) 5 October 1993 (1993-10-05) abstract	1, 3-5, 14
A	US 6 509 566 B1 (WAMSLEY PAULA R ET AL) 21 January 2003 (2003-01-21) abstract column 3, line 57 - column 4, line 6 column 9, lines 42-49	1, 5, 8, 14, 17
A	EP 0 489 546 A (THE BRITISH PETROLEUM COMPANY P.L.C) 10 June 1992 (1992-06-10) abstract column 11, line 16 - column 12, line 20	1, 13

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 document but 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	*Z* 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 9 October 2006	Date of mailing of the international search report 18/10/2006
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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 Brison, Olivier
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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