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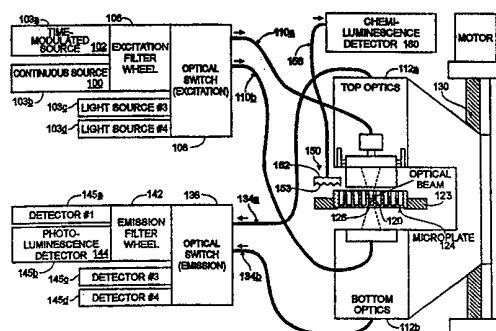
With international search report.

Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

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(54) Title: LIGHT DETECTION DEVICE



(57) Abstract

A high-throughput light detection instrument and method are described. In some embodiments, switch mechanisms (108, 136) and optical relay structures permit different light sources (103a-d) and/or detectors (145a-d) to be selected for different applications. In other embodiments, switch mechanisms (108, 136) and optical paths permit top/bottom illumination and/or top/bottom detection, or combinations thereof.

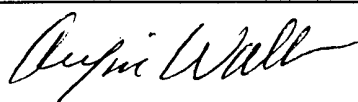
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/14575

A. CLASSIFICATION OF SUBJECT MATTER IPC(6) : G01N 21/64, 21/66, 35/02. US CL : Please See Extra Sheet. 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. : 422/52, 63, 65, 67, 82.05, 82.08, 104; 436/43, 48, 164, 165, 172, 435/288.4, 288.7; 250/227.23, 458.1, 461.2; 356/318, 319, 320 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.
Y	US 5,491,343 A (BROOKER) 03 February 1996, figures 2 and columns 1-3.	1-5, 15-21, 30-38 and 41-46
X	US 5,206,568 A (BJORNSEN et al.) 27 April 1993, figures 1-4 and its appropriate description.	63-69, 72, 74, 75, 79-82, 95, 101, 102, 108, 109, 111, 112, 114-118, 122, 123, 129
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Y		71, 73
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> 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 *B* earlier document 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 *Z* document member of the same patent family	
Date of the actual completion of the international search 29 JANUARY 1999		Date of mailing of the international search report 08 FEB 1999
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 Long V. Le  Telephone No. (703) 308-0651

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/14575

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 4,772,453 A (LISENBEE) 20 September 1988, figures 3, 11-13.	149-151, 159, 163-167, 169, 170
X	US 5,592,289 A (NORRIS) 07 January 1997, figures 1-6.	208-215
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Y		216, 217
Y	US 5,384,093 A (OOTANI et al.) 24 January 1995, figures 1-4	238-245
A	US 4,873,633 A (MEZEI, LOUIS M. et al.) 10 October 1989, figures 2 and 13.	130-135

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/14575

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. ☐ 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:

Please See Extra 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.:
1-48, 63-107, 108-129, 130-135, 139-145, 149-151, 159-183, 188-193, 208-217, 218-245, and 265-270
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

International application No.
PCT/US98/14575

A. CLASSIFICATION OF SUBJECT MATTER:

US CL :

422/52, 63, 65, 67, 82.05, 82.08, 104; 436/43, 48, 164, 165, 172, 435/288.4, 288.7; 250/227.23, 458.1, 461.2; 356/318, 319, 320

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claims 1-48, drawn to an apparatus for detection of light from a composition.

Group II, claims 49-53, drawn to a light switching module.

Group III, claims 54-58, drawn to a method of controlling light sources using a switching mechanism.

Group IV, claims 59-60, drawn to an apparatus with plural light sources and means for positioning the sample.

Group V, claims 61-62, drawn to an apparatus having a detector selection device that permits selection of different detectors for different applications.

Group VI, claims 63-107, drawn to an apparatus having an automatic registration means.

Group VII, claims 108-129, drawn to an apparatus with an optical relay structure for sensing sample volume.

Group VIII, claims 130-135, drawn to a photoluminescence detecting apparatus having a confocal optical element.

Group IX, claims 136-138, drawn to a method of automatically bringing a succession of compositions into register for analysis.

Group X, claims 139-145, drawn to a device for detecting light from a sample having means to properly position the optical detection head.

Group XI, claims 146-148, drawn to a chemiluminescence detecting device with a mask structure.

Group XII, claims 149-151, drawn to a chemiluminescence detecting device with a baffle.

Group XIII, claims 152-156, drawn to a chemiluminescence detecting device with means to control a specific spacing.

Group XIV, claims 157-158, drawn to a device having a plurality of optical relay structures.

Group XV, claims 159-183, drawn to a device for transmitting through an aperture.

Group XVI, claims 184-187, drawn to a method of light tight switching between two light fixtures.

Group XVII, claims 188-193, drawn to a device for holding an optical filter.

Group XVIII, claims 194-195, drawn to a tool for loading an optical filter into a holder.

Group XIX, claims 196-199, drawn to an optical filter holder system.

Group XX, claims 200-207, drawn to an optical filter wheel module.

Group XXI, claims 208-217, drawn to a support device for a sample container.

Group XXII, claims 218-245, drawn to an apparatus for the transport of microplates.

Group XXIII, claims 246-249, drawn to an automated analyzer having an analyzer unit and multiple loading stations.

Group XXIV, claims 250-264, drawn to a control unit for an automated analyzer.

Group XXV, claims 265-270, drawn to an apparatus for measuring the polarization of emitted luminescence.

Group XXVI, claims 271-272, drawn to a method for quantifying an optical signal.

The inventions listed as Groups I-XXVI do not relate to a single 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: each of the groups are drawn to different inventive concepts as evidenced by their above descriptions such that each does not share a special technical relationship with any of the other groups.