(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 July 2011 (21.07.2011)

PCT

(10) International Publication Number
WO 2011/086495 A3

(51) International Patent Classification:
G01T 1/10 (2006.01)

(21) International Application Number:
PCT/IB2011/050097

(22) International Filing Date:
10 January 2011 (10.01.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/294,142 12 January 2010 (12.01.2010) US
12/757,214 9 April 2010 (09.04.2010) US

(71) Applicant *(for all designated States except US)*: **LANDAUER, INC.** [US/US]; 2 Science Road, Glenwood, Illinois 60425 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **YODER, Craig R.** [US/US]; 1522 Chalone Ct., Crown Point, Indiana 46307 (US). **AKSELROD, Mark S.** [US/US]; 516 Wedgewood Drive, Stillwater, Oklahoma 74075 (US).

(74) Agent: **JAGTIANI, Ajay**; Vedder Price, PC, 875 15th Street, NW, Suite 725, Washington, District of Columbia 20005 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,

[Continued on next page]

(54) Title: OPTICAL SYSTEM FOR DOSIMETER READER

(57) Abstract: Described is an optical system for a dosimeter reader having reduced sensitivity to vibration and motion.

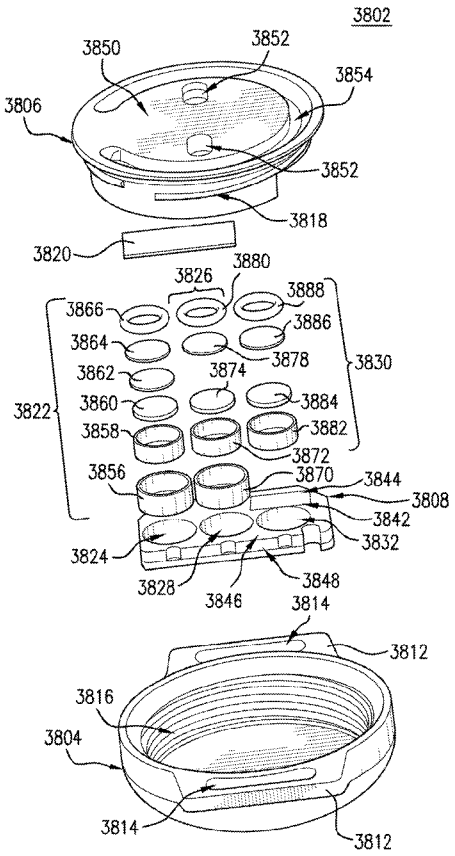

FIG.38

WO 2011/086495 A3

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

(88) Date of publication of the international search report:
27 October 2011

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 11/50097

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G01T 1/10 (2011.01)
USPC - 250/484.5
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)
USPC: 250/484.5

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 250/207, 361R, 370.07, 370.11, 458.1, 483.1, 484.2, 484.4, 484.5 (keyword limited - see search terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (PGPB, USPT, USOC, EPAB, JPAB); Google; Google Scholar; Google Patents Search Terms Used: dosimeter, optical, stimulated, luminescence, radiate, pipe, optical, sensor, diode, led, mirror, filter, movement, wavelength, dichroic, path, channel, stream, vibration, light, uniform, illumination, osl, reader, gasket, position, change, sleep, mo

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2006/0043304 A1 (Miller et al.) 02 March 2006 (02.03.2006), entire document, especially abstract; Fig 2a; para [0019], [0020], [0022], [0023], [0026], [0028], [0034]	1-23
Y	US 4,975,589 A (Chamberlain et al.) 04 December 1990 (04.12.1990), entire document, especially Fig 5-9, 12; col 1, ln 10-17; col 3, ln 58-66; col 5, ln 51-68; col 7, ln 11 to col 8, ln 19	19-23
Y	US 2009/0014665 A1 (Fleming et al.) 15 January 2009 (15.01.2009), para [0020]	1-18
Y	US 2004/0211917 A1 (Adamovics) 28 October 2004 (28.10.2004), para [0056]	1-18
Y	US 6,087,666 A (Huston et al.) 11 July 2000 (11.07.2000), col 7, ln 49 to col 8, ln 4; col 9, ln 46 -52	5-10, 12, 13, 19-23
Y	US 2008/0023647 A1 (Patel) 31 January 2008 (31.01.2008), para [0050]	18
Y	US 2006/0217691 A1 (Schuele et al.) 28 September 2006 (28.09.2006), para [0013]	7, 9
Y	US 2009/0100933 A1 (Brunson et al.) 23 April 2009 (23.04.2009), para [0090]	10, 12, 13

☐ Further documents are listed in the continuation of Box C. ☐

* 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 application or patent 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
03 July 2011 (03.07.2011)	27 JUL 2011
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)