

(43) International Publication Date  
9 July 2009 (09.07.2009)(10) International Publication Number  
**WO 2009/085204 A3**

PCT

(51) International Patent Classification:  
A61N 5/10 (2006.01)(21) International Application Number:  
PCT/US2008/013886(22) International Filing Date:  
18 December 2008 (18.12.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

61/016,472	23 December 2007 (23.12.2007)	US
61/020,655	11 January 2008 (11.01.2008)	US
12/027,083	6 February 2008 (06.02.2008)	US
12/027,094	6 February 2008 (06.02.2008)	US
12/027,069	6 February 2008 (06.02.2008)	US
12/100,398	9 April 2008 (09.04.2008)	US
12/103,534	15 April 2008 (15.04.2008)	US
61/076,128	26 June 2008 (26.06.2008)	US
61/093,092	29 August 2008 (29.08.2008)	US
61/101,013	29 September 2008 (29.09.2008)	US
12/262,031	30 October 2008 (30.10.2008)	US

(71) Applicant (for all designated States except US): **ORAYA THERAPEUTICS, INC.** [US/US]; 8000 Jarvis Avenue, Newark, CA 94560 (US).

(72) Inventors; and

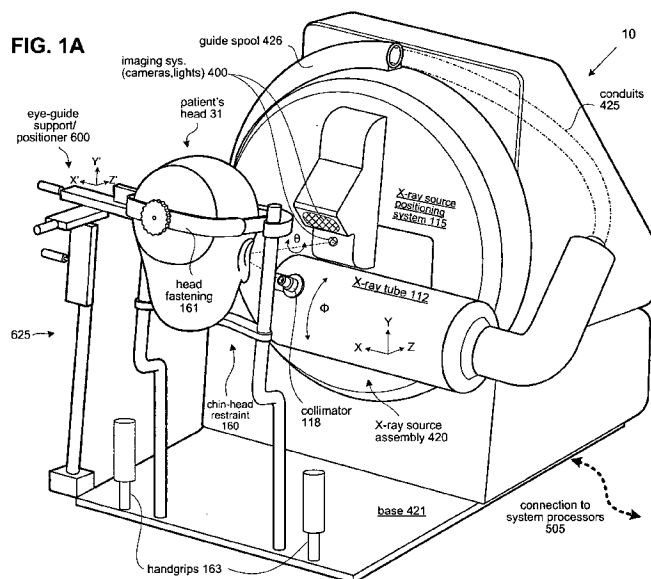
(75) Inventors/Applicants (for US only): **GERTNER, Michael** [US/US]; 520 Laurel Street, Menlo Park, CA 94025 (US). **ARNOLDUSSEN, Mark** [US/US]; 127 Park Avenue, San Carlos, CA 94070 (US). **CHELL, Erik** [US/US]; 3344 Butters Drive, Oakland, CA 94602 (US). **HANSEN, Steven, D.** [US/US]; 1731 Vincente Road, Concord, CA 94519 (US). **HERRON, Matt** [US/US]; 1050 McGregor Way, Palo Alto, CA 94306 (US). **KORUGA, Igor** [RS/US]; 139 Hilton Way, Pacifica, CA 94044 (US). **LIANG, Junzhong** [US/US]; 45 Kootenai Drive, Fremont, CA 94539 (US).

(74) Agents: **HALES, Todd, M.** et al.; McDermott Will & Emery LLP, Suite 500, 18191 Von Karman, Irvine, CA 92612 (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, CN, CO, CR, CU, CZ, DE, DK, DM, DO, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

[Continued on next page]

(54) Title: METHODS AND DEVICES FOR DETECTING, CONTROLLING, AND PREDICTING RADIATION DELIVERY



(57) Abstract: Embodiments provide method/systems for determining alignment of a patient's body part, such as an eye, in an external coordinate system of a treatment or diagnostic device, such as a radiotherapy device, so as to define a reference axis for guiding device operation. Additional embodiments provide image-based methods/systems for aligning, tracking and monitoring motion of a body part and a treatment target in relation to a radiation beam axis. Particular ophthalmic embodiments provide method/systems including an eye-contact guide device and imaging system for aligning and tracking motion of an eye and ocular treatment target in relation to an orthovoltage X-ray beam axis, so as to monitor application of radiation to a lesion, such as a macular lesion of the retina. Particular methods for controlling radiation in response to motion of the target during treatment are described to ensure treatment goals and avoid exposure to sensitive structures.



**(84) Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, 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:**

30 December 2009

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2008/013886

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61N 5/10 (2009.01)

USPC - 378/65

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(8) - A61N 5/10 (2009.01)

USPC - 378/65

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)

USPTO EAST System (US, USPG-PUB, EPO, DERWENT), Patbase

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/0274885 A1 (WANG et al) 07 December 2006 (07.12.2006) entire document	34
Y		2-20, 22, 24-33, 35-49
Y	US 6,134,294 A (GIBBS) 17 October 2000 (17.10.2000) entire document	1-33, 37, 39-43
Y	US 5,411,026 A (CAROL) 02 May 1995 (02.05.1995) entire document	1-20
Y	US 2005/0271590 A1 (SCHWARTZ et al) 08 December 2005 (08.12.2005) entire document	1-33
Y	US 6,287,299 B1 (SASNETT et al) 11 September 2001 (11.09.2001) entire document	21-33
Y	US 6,942,656 B2 (PAWLOWSKI et al) 13 September 2005 (13.09.2005) entire document	5-9, 24-33, 44-49
Y	US 6,299,307 B1 (OLTEAN et al) 09 October 2001 (09.10.2001) entire document	4, 23-33, 38, 44-46
Y	US 2003/0189689 A1 (RATHJEN) 09 October 2003 (09.10.2003) entire document	35-37, 39-43
Y	US 2004/0054359 A1 (RUIZ et al) 18 March 2004 (18.03.2004) entire document	47-49
Y	US 4,710,193 A (VOLK) 01 December 1987 (01.12.1987) entire document	40

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"&amp;" document member of the same patent family

Date of the actual completion of the international search

12 February 2009

Date of mailing of the international search report

22 MAY 2009

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:

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300  
PCT OSP: 571-272-7774