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(54) Title: DUAL MODE X-RAY SCANNING SYSTEM

(57) Abstract: A variable mode X-ray transmission system is provided that can be operated in low or high dose rate modes depending upon the area or portion of the vehicle to be screened. In one embodiment, variable dose rate is achieved by use of a novel collimator. The systems disclosed in this application enable the scanning of a vehicle cab portion (occupied by people, such as a driver) at low dose rate, which is safe for human beings, while allowing the scanning of the cargo portion (unoccupied by people) at a high dose rate. Rapid switching from low dose rate to high dose rate operating mode is provided, while striking a balance between high material penetration for cargo portion and low intensity exposure that is safe for occupants in the cab portion of the inspected vehicle.



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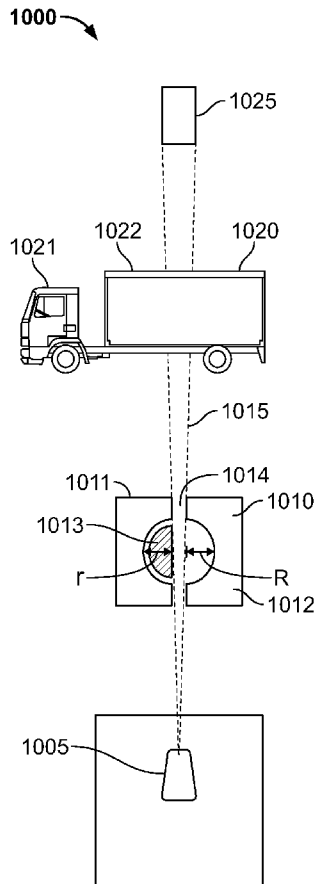


FIG. 10A



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, QA, RO, RS, RU, RW, 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.

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**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

**Published:**

- with international search report (Art. 21(3))

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6 December 2012

**(15) Information about Correction:**

**Previous Correction:**  
see Notice of 18 October 2012

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US2012/024182

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(8) - G01N 23/087 (2012.01)

USPC - 378/57

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) - G01N 23/083, 23/087; G01V 05/00 (2012.01)

USPC - 378/16, 57, 160

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)

MicroPatent, Google Patents, Google Scholar

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/0117683 A1 (MISHIN et al) 02 June 2005 (02.06.2005) entire document	1-20
Y	US 7,215,738 B2 (MUENCHAU et al) 08 May 2007 (08.05.2007) entire document	1-20
Y	US 2009/0316851 A1 (OOSAKA et al) 24 December 2009 (24.12.2009) entire document	8
Y	US 7,742,568 B2 (SMITH) 22 June 2010 (22.06.2010) entire document	9, 13, 20
Y	US 2006/0140341 A1 (CARVER et al) 29 June 2006 (29.06.2006) entire document	11, 14
A	US 3,275,831 A (MARTIN) 27 September 1966 (27.09.1966) entire document	1-20
A	US 7,046,768 B1 (GILEVICH) 16 May 2006 (16.05.2006) entire document	1-20
A	US 2010/0177873 A1 (CHEN et al) 15 July 2010 (15.07.2010) entire document	1-20

Further documents are listed in the continuation of Box C.

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Date of the actual completion of the international search

09 August 2012

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