(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 15 May 2008 (15.05.2008)

PCT

(10) International Publication Number WO 2008/057069 A3

(51) International Patent Classification:

 F41G 7/00 (2006.01)
 G01C 21/00 (2006.01)

 F41G 9/00 (2006.01)
 G01S 13/00 (2006.01)

 F42B 10/00 (2006.01)
 G01S 13/08 (2006.01)

 F42B 15/00 (2006.01)

(21) International Application Number:

PCT/US2006/035437

(22) International Filing Date:

12 September 2006 (12.09.2006)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11/243,842 5 October 2005 (05.10.2005) US

- (71) Applicant (for all designated States except US): RAYTHEON COMPANY [US/US]; 870 Winter Street, Waltham, MA 02451-1449 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): DESA, Irwin, M. [US/US]; 4830 N. Valley View Road, Tucson, AZ 85718 (US). EBBERT, Marvin, D. [US/US]; 8864 E. Bear Paw Place, Tucson, AZ 85749 (US). KREBS, Rodney, H. [US/US]; 844 W. Annandale Way, Oro Valley, AZ 85737-6926 (US).

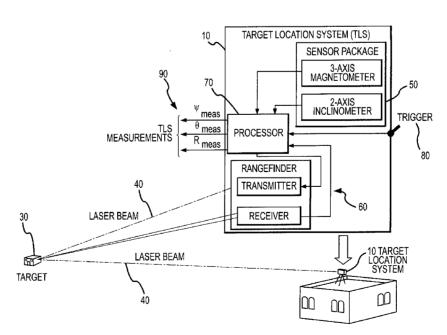
- (74) Agent: GILMORE, Douglas, W.; NOBLITT & GILMORE, LLC, 4800 North Scottsdale Road, Suite 6000, Scottsdale, AZ 85251-7630 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, 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, SV, SY, 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, 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, HU, IE, IS, IT, LT, LU, LV, MC, NL, 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

[Continued on next page]

(54) Title: PRECISION TARGETING



(57) Abstract: The disclosed system, device and method for targeting and measurement of stationary target locations in addition to prediction of moving target positions for given weapon intercept times generally includes: a target location system (TLS) configured with a computing device, a GPS receiver, mapping software, calibration software and digital filtering software. Disclosed features and specifications may be variously controlled, adapted or otherwise optionally modified to improve target acquisition and engagement. Exemplary embodiments of the present invention generally provide for improved accuracy of range finders, magnetometers and inclinometers as well as for improved prediction of moving target positions.



(88) Date of publication of the international search report:

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/35437

A. CLASSIFICATION OF SUBJECT MATTER IPC: F41G 7/00(2006.01),9/00(2006.01);F42B 10/00(2006.01),15/00(2006.01);G01C 21/00(2006.01);G01S 13/00(2006.01),13/08(2006.01)						
USPC: 244/3.1-3.3;701/200,207,213-216;342/52-68,73-81,118,146-158,165-175,195 According to International Patent Classification (IPC) or to both national classification and IPC						
B. FIELI	DS SEARCHED					
Minimum documentation searched (classification system followed by classification symbols) U.S.: 244/3.1-3.3; 701/200, 207, 213-216; 342/52-68, 73-81, 118, 146-158, 165-175, 195						
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) Please See Continuation Sheet						
	JMENTS CONSIDERED TO BE RELEVANT					
Category *	Citation of document, with indication, where ap		Relevant to claim No.			
X	US 5,260,709 A (NOWAKOWSKI) 09 November 19	993, see fig. 2.	1-9, 16-18, 25			
Α	US 5,310,134 A (HSU et al.) 10 May 1994, see entire	e document.	1-25			
Α .	US 5,344,105 A (YOUHANAIE) 06 September 1994	, see entire document.	1-25			
			·			
Further documents are listed in the continuation of Box C. See patent family annex.						
Special categories of cited documents: "A" document defining the general stateof 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 app	olication or patent published on or after the international filing date	"X" document of particular relevance; the cl considered novel or cannot be considered	ed to involve an inventive step			
	which may throw doubts on priority claim(s) or which is cited to he publication date of another citation or other special reason (as	"Y" document of particular relevance; the cl considered to involve an inventive step with one or more other such documents.	when the document is combined			
"O" document	referring to an oral disclosure, use, exhibition or other means	obvious to a person skilled in the art	Ŭ			
	published prior to the international filing date but later than the ste claimed	"&" document member of the same patent fa	mily			
Date of the ac	tual completion of the international search	Date of mailing of the international search	n report			
	08 (25.08.2008)	03 SEP 2008				
	illing address of the ISA/US I Stop PCT, Attn: ISA/US	Authorized officer				
Commissioner for Patents		TOM DUNN				
P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201		Telephone No. 571-272-1700				

Form PCT/ISA/210 (second sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/35437

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)				
This international search 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.	\boxtimes	Claims Nos.: 10-15 and 19-24 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: lack of clarity and indefiteness.		
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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)				
This International Searching Authority found multiple inventions in this international application, as follows:				
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 additional fees, this Authority did not invite payment of any additional fees.		
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.:		
4.	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.:			
Rem	ark on P	The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.		
		The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.		
		No protest accompanied the payment of additional search fees.		

INTERNATIONAL SEARCH REPORT	International application No. PCT/US06/35437
Continuation of B. FIELDS SEARCHED Item 3:	
USOCR; IBM_TDB; US-PGPUB; USPAT; EPO; JPO; DERWENT: programme, pr calibrat, position, communicat, link, filter, comput, microprocess, process, microcom	nputer, minicomputer, target, global, positioning,
	•
	<u> </u>

Form PCT/ISA/210 (extra sheet) (April 2007)