OMPI

(10) International Publication Number WO 2010/011245 A3

(43) International Publication Date 28 January 2010 (28.01.2010)

(51) International Patent Classification: F42B 15/01 (2006.01)

(21) International Application Number:

PCT/US2009/003109

(22) International Filing Date:

20 May 2009 (20.05.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/054,639

20 May 2008 (20.05.2008)

US

(71) Applicant (for all designated States except US): RAYTHEON COMPANY [US/US]; 870 Winter Street, Waltham, Massachusetts 02451-1449 (US).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): GESWENDER, Chris E. [US/US]; P.O. Box 86119, Tucson, Arizona 85754-611 (US). SANCHEZ, Cesar [US/US]; 4641 W. Snow Leopard Dr., Tucson, Arizona 85742-9098 (US). ZAMORA, Matthew A. [US/US]; 9646 E. Shadow Lake Ct., Tucson, Arizona 85749 (US).
- (74) Agents: MADDEN, Robert B. et al.; 1600 TCF Tower, 121 South 8th Street, Minneapolis, Minnesota 55402 (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.

(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, MK, 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))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
- (88) Date of publication of the international search report: 25 March 2010

(54) Title: MULTI-CALIBER FUZE KIT AND METHODS FOR SAME

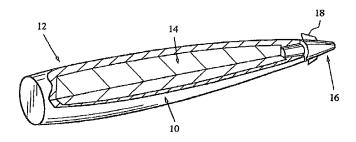


Fig. 1

(57) Abstract: A multi-caliber fuze kit includes a fuze housing configured for coupling with multiple projectiles. One or more canards are moveably coupled with the fuze housing. The one or more canards are adjustable between two or more canard configurations. In a first canard configuration, the one or more canards are at a first canard angle relative to a bore sight of the fuze housing, and the first canard angle is configured for use with a first projectile. In a second canard configuration, the one or more canards are at a second canard angle relative to the bore sight of the fuze housing, and the second canard angle is configured for use with a second projectile. The first and second canard angles are different.





INTERNATIONAL SEARCH REPORT

International application No. PCT/US 09/03109

٨	CIA	SCIEIC.	ATION	OF CITE	IECT N	/ATTER
м.	LLA	OSIFICA	4 I I() IV	บกอบธ	JEU I N	/IAIIF.K

IPC(8) - F42B 15/01 (2009.01)

USPC - 244/3.24

According to International Patent Classification (IPC) or to both national classification and IPC

FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

USPC: 244/3.24

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched 244/3.1, 3.21, 3.22, 3.23, 3.24, 244/3.25, 3.26, 3.27, 3.28, 3.29, 3.3, 14, 45A, 45R, 46, 82, 90R, 90A; 102/211, 265, 400, 382, 383, 384, 385, 388, 305, 347, 348, 501

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPTO Patent Collection; USPTO PGPubs; Google Scholar. Terms: Geswender, Chris, Sanchez, Cesar, Zamora, Matthew, fuze, kit, fuse, canard, Hinsdale, Andrew, Blaha, George, Dryer, Richard, Janik, Raytheon, caliber, multiple, nose, cone, universal, guidance, fin, vane, 2-D, 2D, projectile, missile, shell, bullet, rocket, bomb, torpedo, adjust\$, repl

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.				
X Y	US 7,163,176 B1 (GESWENDER, et al). 16 January 2007 (16.1.2007). Abstract; col 2, in 38-col 3, in 23; col 3, in 66-col 4, in 3; col 4, in 6-9, 11-16, 26-31, 55-56; col 5, in 9-11, 30-38, 49-64; col 6, in 35-48; col 6, in 64-col 7, in 6; col 7, in 23-26; Fig. 1-2b.	1-2, 6-8, 13-15, 19-20 3-5, 9-12, 16-18				
Y	US 6,666,402 B2 (RUPERT, et al). 23 December 2003 (23.12.2003). Col 4, ln 45-47; col 5, ln 9-11, 17-19, 56-64.	3-4, 9-12				
Υ	US 4,205,810 A (ISHIMITSU). 3 June, 1980 (3.6.1980). Abstract, col 4, ln 13-18; Fig. 1	9-11, 18				
Υ	US 6,969,216 B2 (BATH, et al). 16 August 2005 (16.8.2005). Figure 3.	5, 16-17				
Υ	US 7,198,532 B2 (FIELD, et al). 3 April 2007 (3.4.2007). Figures 3b, 18.	5, 16-17				
Y	US 5,007,875 A (DASA). 16 April 1991 (16.4.1991). Col 2, ln 23-25; Fig 1-4.	11				
Further documents are listed in the continuation of Box C.						

_					
* "A"	Special categories of cited documents: document defining the general state of the art which is not considered		" later document published after the international filing date or priority date and not in conflict with the application but cited to understand		
to be of particular relevance			the principle or theory underlying the invention		
"E"	E" earlier application or patent but published on or after the international filing date		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		
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other					
	cited to establish the publication date of another citation or other special reason (as specified)		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		
"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	"&"	" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report			
5 January 2010 (5.1.2010)			27 JAN 2010		
Name and mailing address of the ISA/US			Authorized officer:		
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents			Lee W. Young		
P.O. Box 1450, Alexandria, Virginia 22313-1450			PCT Helpdesk: 571-272-4300		
Facsimile No. 571-273-3201			OSP: 571-272-7774		