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(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, 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.

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A. CLASSIFICATION OF SUBJECT MATTER***E21B 34/06(2006.01)i, E21B 43/12(2006.01)i, E21B 21/10(2006.01)i***

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)

E21B 34/06; E21B 23/08; E21B 34/00; E21B 23/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: displacement based, activating, actuating, piston, length, distance, range, interval, chamber, volume, housing, bias, spring, release, manipulate, lower, deploy, perforating gun

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004-0144546 A1 (READ, DENNIS M. JR) 29 July 2004 See abstract; paragraph 19; claims 18-22; and figure 1	1-22
A	US 2010-0126715 A1 (DITHMAR, ERIK et al.) 27 May 2010 See abstract; and claims 1-23	1-22
A	US 2007-0284118 A1 (BENTON, JOHN F.) 13 December 2007 See abstract; paragraphs 15-19; and figures 1,2	1-22
A	US 2003-0159829 A1 (FRIPP, MICHAEL L. et al.) 28 August 2003 See abstract; paragraphs 21,30; and figures 1,2	1-22



Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

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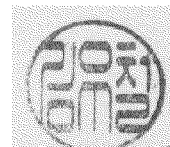
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/US2011/044034

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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