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Declarations under Rule 4.17:

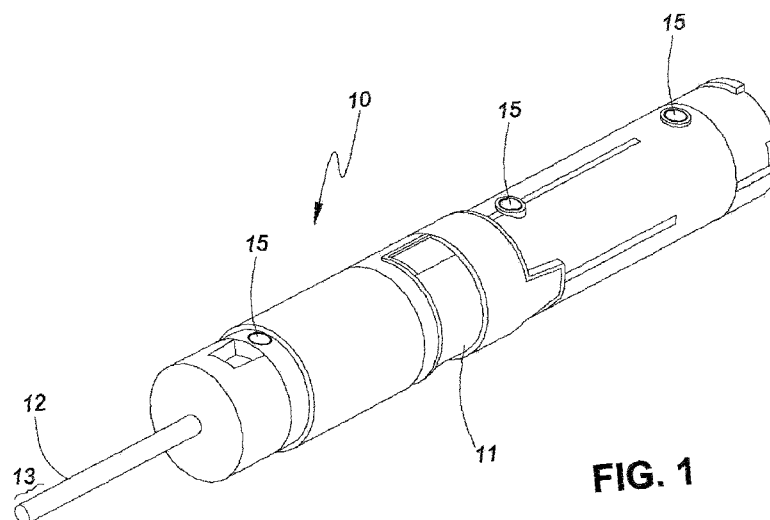
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(54) Title: WIRELESS DETONATORS WITH STATE SENSING, AND THEIR USE



(57) Abstract: Wireless detonator systems present opportunities for controlled blasting of rock without the encumbrances of physical wired connections at the blast site. Disclosed herein are wireless detonator assemblies, which sense the state of environmental condition(s) of their immediate vicinity, and which are active to receive and / or process a command signal to FIRE only if the environmental condition(s) are deemed suitable or appropriate according to predetermined parameters. Also disclosed are improved methods of blasting involving such wireless detonator assemblies, as well as corresponding wireless electronic primers.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/035397

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - F42D 1/00 (2012.01)

USPC - 102/200

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) - F23Q 21/00; F42D 1/00, 1/02, 1/04, 1/045, 1/05, 1/08 (2012.01)

USPC - 73/35.14-35.17; 102/200, 202.5, 204, 206, 214-15, 217-18, 301, 306, 312-14; 166/250.1; 361/247-51

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, ProQuest

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0314176 A1 (LOWNDS et al) 24 December 2009 (24.12.2009) entire document	1-9, 12-18, 20-21, 23
Y	US 2002/0088620 A1 (LERCHE et al) 11 July 2002 (11.07.2002) entire document	1-9, 12-18, 20-21, 23
Y	US 7,929,270 B2 (HUMMEL et al) 19 April 2011 (19.04.2011) entire document	6, 13, 14-18, 20-21, 23
Y	US 7,568,429 B2 (HUMMEL et al) 04 August 2009 (04.08.2009) entire document	9
Y	US 6,901,865 B1 (THOMSON et al) 07 June 2005 (07.06.2005) entire document	14-18, 20-21
A	US 7,778,006 B2 (STEWART et al) 17 August 2010 (17.08.2010) entire document	1-23
A	US 6,789,483 B1 (JENNINGS III et al) 14 September 2004 (14.09.2004) entire document	1-23

☐ Further documents are listed in the continuation of Box C.


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"Y" 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

"&" document member of the same patent family

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