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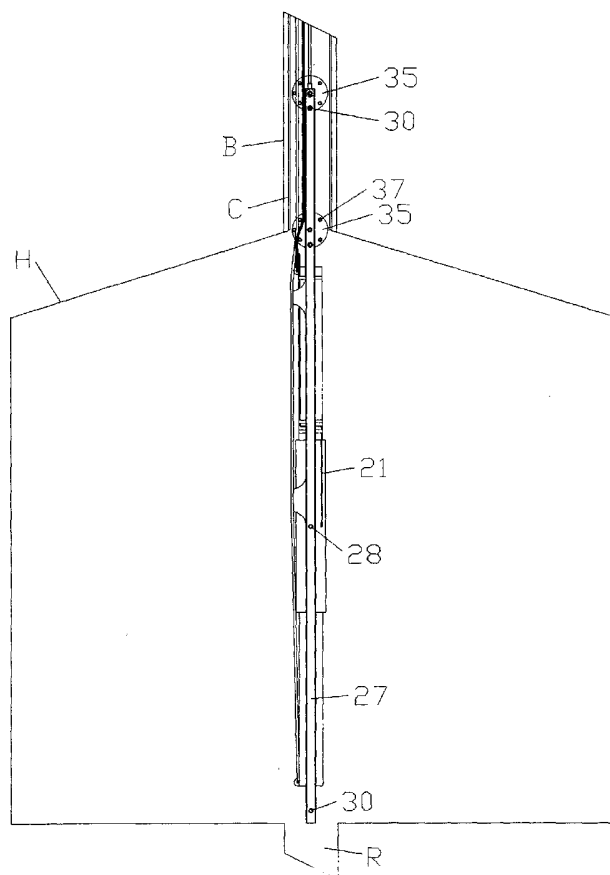
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR PENETRATING SUBSURFACE FORMATIONS



(57) Abstract: A method and apparatus (9, 53) for driving at least one explosive driven projectile (11, 58) into an open hole (H) or well bore (B) of a subterranean formation for the purpose of stimulating productive formation. The apparatus is capable of pivoting within the open hole or well bore for desired firing at an angle and is also capable of deep penetration into a subterranean formation. The apparatus may also be conveyed by a tubing (51) in horizontal drilling applications.



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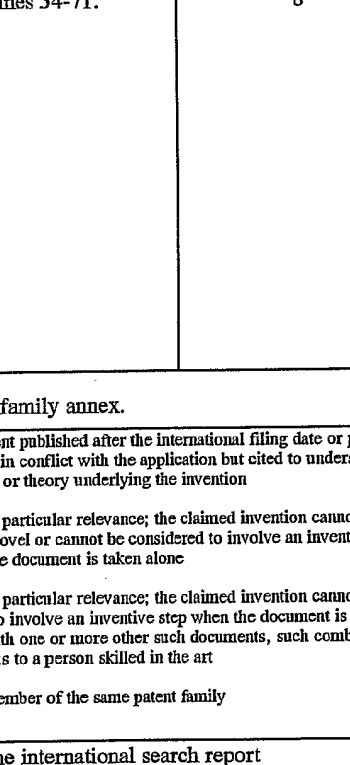
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**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US04/13295

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>				
IPC(7) : E21B 43/116				
US CL : 89/1.15; 175/4.53; 102/313				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>				
Minimum documentation searched (classification system followed by classification symbols) U.S. : 89/1.15; 175/4.53, 4.55, 4.57, 4.59; 102/312, 313, 321; 166/63				
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)				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 2,644,519 A (KANADAY) 07 July 1953 (07.07.1953), Figs. 1, 2 and associated written description.	1, 3, 5-7, 9, 11, 13-17, and 19-22		
Y	US 1,582,184 A (MIMS) 27 April 1926 (27.04.1926), Fig. 2 and associated written description.	4, 10, and 18		
Y	US 3,072,054 A (ASHBROOK) 08 January 1963 (08.01.1963), col. 3, lines 8-16.	2		
Y	US 2,695,665 A (BOX ET AL.) 30 November 1954 (30.11.1954) col. 4, lines 54-71.	8		
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.				
* Special categories of cited documents: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">           "A" document defining the general state of the art which is not considered to be of particular relevance            "B" earlier application or patent published on or after the international filing date            "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)            "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         </td> <td style="width: 50%;">           "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            "X" 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            "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            "&amp;" document member of the same patent family         </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "B" earlier application or patent published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "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	"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 "X" 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 "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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