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[Continued on next page]

(54) **Title:** DOWNHOLE, SINGLE TRIP, MULTI-ZONE TESTING SYSTEM AND DOWNHOLE TESTING METHOD USING SUCH

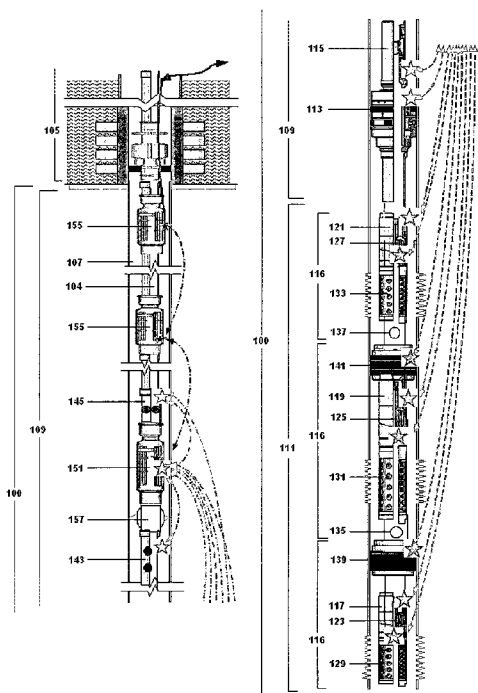


Figure 2

(57) **Abstract:** A multizone testing system (100), for the testing of subterranean layers, comprises an upper subsystem (109) comprising a control station (151), a main isolation packer (113) for isolating the upper subsystem (109) from the lower subsystem (111), a lower subsystem (111) comprising an array of individual apparatuses (116) connected in series, each apparatus (116) being adapted for the testing of one layer and comprising a series of remotely activated tools for hydraulically isolating and testing the corresponding layer and a communication system comprises communication means between the control station (151) and the surface and between the control station (151) and each of the individual apparatuses (116) in order to control the remotely activated tools of the individual apparatuses for sequential testing of the layers. A multizone testing method for the testing of a plurality of subterranean layers intersected by a well, using a multizone testing system (100) comprises the steps of running and positioning said system (100) into the well such that each individual apparatus (116) is adjacent to a layer to be tested and controlling the remotely activated tools of the individual apparatuses for a sequential test of the layers.

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**A. CLASSIFICATION OF SUBJECT MATTER**  
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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

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

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 EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006/207764 A1 (RYTLEWSKI GARY [US]) 21 September 2006 (2006-09-21) cited in the application page 1 - page 2; figure 1	1-43
A	US 2005/077086 A1 (WISE CHARLES E [US] WISE JR CHARLES E [US]) 14 April 2005 (2005-04-14) page 1 - page 2	1-43
A	US 6 497 290 B1 (MISSELBROOK JOHN G [US] ET AL) 24 December 2002 (2002-12-24) abstract	1
A	US 5 598 894 A (BURLESON JOHN D [US] ET AL) 4 February 1997 (1997-02-04) abstract; figure 1	1

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## INTERNATIONAL SEARCH REPORT

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 137 086 A (STOKLEY CHARLES O [US] ET AL) 11 August 1992 (1992-08-11) abstract; figure 1 -----	1
A	US 3 605 887 A (LAMBIE DARRYL A) 20 September 1971 (1971-09-20) the whole document -----	1

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/EP2008/010119
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006207764	A1	21-09-2006	CA 2529913 A1 14-06-2006
			CA 2568365 A1 13-07-2007
			DE 102005060007 A1 22-06-2006
			DE 102007001399 A1 19-07-2007
			GB 2434815 A 08-08-2007
			RU 2314415 C2 10-01-2008
			US 2006124312 A1 15-06-2006
US 2005077086	A1	14-04-2005	MX PA04009237 A 05-07-2005
US 6497290	B1	24-12-2002	NONE
US 5598894	A	04-02-1997	AR 002669 A1 25-03-1998
			BR 9601917 A 07-04-1998
			CA 2180515 A1 06-01-1997
			DE 69623399 D1 10-10-2002
			EP 0752514 A2 08-01-1997
US 5137086	A	11-08-1992	NONE
US 3605887	A	20-09-1971	NONE