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(54) Title: OBJECT MANOEUVRING APPARATUS

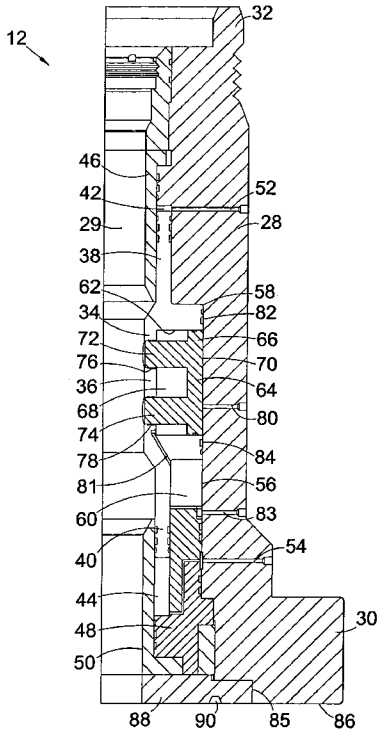


Fig. 3

(57) Abstract: An apparatus (12) for manoeuvring a downhole object (22) comprises a casing (28) and a carriage (34) slidably mounted within the casing (28), wherein the carriage (34) defines a cylinder bore (62) extending at least partially into a side wall thereof. An engaging member (64) comprising a piston body (66) is slidably mounted within the cylinder bore (62) of the carriage (34) and is arranged to divide the bore (62) into first and second piston chambers (68, 70). The engaging member (64) is arranged to extend through the wall portion of the carriage (34) between extended and retracted positions to selectively engage an object (22) to be manoeuvred. In one disclosed embodiment, the apparatus (12) is for use in displacing a tool (22) for setting or retrieving a plug (26) in or from a Christmas tree (132).

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ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, 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).

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E21B

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2005/103442 A1 (EXPRO NORTH SEA LTD [GB]; RICHARDS ANDREW [GB]) 3 November 2005 (2005-11-03) cited in the application	1-9, 14-27, 33-36,38
Y	figures 1,2	37
Y	US 2002/040782 A1 (RYTLEWSKI GARY L [US] ET AL) 11 April 2002 (2002-04-11) figures 7,8	37
A	US 2006/124314 A1 (HAHEIM SVEIN A [NO] ET AL HAAHEIM SVEIN AUDUN [NO] ET AL) 15 June 2006 (2006-06-15) paragraph [0059]; figure 6F	1-38
A	WO 2007/006137 A1 (STAR OIL TOOLS INC [CA]; OBREJANU MARCEL [CA]) 18 January 2007 (2007-01-18) page 1, line 7 - page 4, line 19	1-38

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2005103442 A1	03-11-2005	AT 462868 T	15-04-2010
		AU 2005235781 A1	03-11-2005
		BR PI0510190 A	02-10-2007
		CA 2564598 A1	03-11-2005
		EP 1756397 A1	28-02-2007
		US 2007289745 A1	20-12-2007
US 2002040782 A1	11-04-2002	AU 777160 B2	07-10-2004
		AU 2004218672 A1	04-11-2004
		US 2005189115 A1	01-09-2005
US 2006124314 A1	15-06-2006	NONE	
WO 2007006137 A1	18-01-2007	CA 2614980 A1	18-01-2007
		EP 1902195 A1	26-03-2008
		US 2007012435 A1	18-01-2007
		US 2009095466 A1	16-04-2009