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(54) **Tool connector**

(57) A tool connector for downhole use in oil and gas fields. The tool connector includes a stinger (10) and a stinger receptacle (100), the stinger (10) being adapted to be stabbed into the stinger receptacle (100). A loaded engaging member (108) is provided, which is movable between a running position before the stinger (10) is stabbed into the stinger receptacle (100) and a latched position when the stinger (10) is stabbed into the stinger receptacle to latch the stinger and the stinger receptacle together. A release member (170) retains the loaded engaging member in the running position. When the stinger (10) is stabbed into the stinger receptacle (100) and a set force is applied to the stinger (10) and stinger receptacle (100), the release member releases the loaded engaging member to move to the latched position and latch the stinger (10) and the stinger receptacle (100) together. The tool connector is particularly suitable for connecting perforating guns.

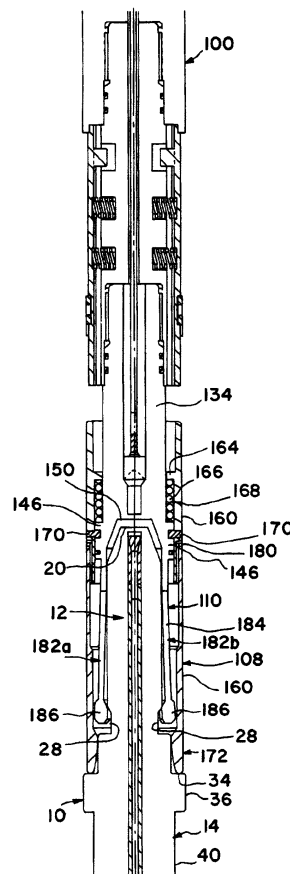


FIG. 7

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EUROPEAN SEARCH REPORT

Application Number
EP 97 30 6247

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 647 765 A (HALLIBURTON CO) 12 April 1995 (1995-04-12)	1-5, 11-14	E21B17/04 E21B43/116
Y	* column 1, line 37 - column 3, line 36 * * column 4, line 48 - column 5, line 7 * * column 8, line 13 - line 19 * * column 9, line 30 - column 12, line 55 * * column 13, line 44 - line 54; claims 1-4; figures 8,10 *	7-9	E21B17/06 E21B23/04
X	US 4 436 157 A (BROOKS ROBERT T) 13 March 1984 (1984-03-13)	1,3-6, 10,11, 13,14	
Y	* column 3, line 52 - column 7, line 52 * * column 17, line 34 - column 19, line 15 * * column 19, line 35 - column 21, line 10; figure 6 *	7-9	
X	US 5 518 072 A (MCVERNAGHAN KENNETH) 21 May 1996 (1996-05-21)	1,3-5, 11,13,14	
	* column 1, line 37 - column 2, line 22; claims 1-4 *		TECHNICAL FIELDS SEARCHED (Int.Cl.6)
X	US 4 305 465 A (ELLIS GARY D) 15 December 1981 (1981-12-15)	1,3-5, 11,13,14	E21B
	* column 2, line 1 - line 25 * * column 4, line 23 - line 44 * * column 5, line 53-66 * * column 7, line 34 - column 10, line 26; figures 2,6,7 *		
X	US 4 391 326 A (GREENLEE DONALD R) 5 July 1983 (1983-07-05)	1,3-5, 11,13,14	
	* abstract; figure 1 *		
X	US 5 111 884 A (STRIECH STEVEN G ET AL) 12 May 1992 (1992-05-12)	1,3-5, 11,13,14	
	* claims 1-11; figure 1 *		
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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 8 February 2000	Examiner Tompouloglou, C
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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Application Number
EP 97 30 6247

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 4 449 736 A (BLACKWELL HENRY W) 22 May 1984 (1984-05-22) * claims 1-6; figure 1 *	1, 3-5, 11, 13, 14	
A	US 5 529 127 A (BURLESON JOHN D ET AL) 25 June 1996 (1996-06-25) * abstract; figures 1-3 *	2, 8, 9, 12	
A	US 5 273 121 A (KITNEY HOWARD R ET AL) 17 August 1993 (1993-08-17) * abstract; figure 3 *	2, 8, 9, 12	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 8 February 2000	Examiner Tompouloglou, C
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 97 30 6247

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The members are as contained in the European Patent Office EDP file on
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08-02-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0647765 A	12-04-1995	US 5398760 A CA 2133817 A NO 943754 A	21-03-1995 09-04-1995 10-04-1995
US 4436157 A	13-03-1984	US 4320804 A GB 2103689 A,B CA 1141289 A FR 2463257 A GB 2055133 A,B	23-03-1982 23-02-1983 15-02-1983 20-02-1981 25-02-1981
US 5518072 A	21-05-1996	CA 2168301 A FR 2730004 A GB 2297368 A,B NO 960276 A	31-07-1996 02-08-1996 31-07-1996 31-07-1996
US 4305465 A	15-12-1981	US 4363358 A	14-12-1982
US 4391326 A	05-07-1983	CA 1181002 A GB 2091789 A,B	15-01-1985 04-08-1982
US 5111884 A	12-05-1992	NONE	
US 4449736 A	22-05-1984	CA 1191452 A	06-08-1985
US 5529127 A	25-06-1996	AU 686485 B AU 4079696 A BR 9600489 A CA 2167666 A EP 0728913 A NO 960113 A	05-02-1998 01-08-1996 03-03-1998 21-07-1996 28-08-1996 22-07-1996
US 5273121 A	28-12-1993	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82