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(72) Inventor: **French, Philip Frank**
UB7 0NX, West Drayton (GB)

(74) Representative: **Cookson, Barbara Elizabeth**
Nabarro Nathanson,
Lacon House,
84 Theobald's Road
London WC1X 8RW (GB)

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(71) Applicant: **Laing O'Rourke Plc**
Crossways, Dartford, Kent DA2 6SN (GB)

(54) **Fixing Devices**

(57) A fixing device (2) consists of a threaded rod (4) having tool engaging heads (8) at each end (6). The heads (8) have a maximum width which is smaller than the diameter of the rod (4). A nut (30) is fitted to the rod (4). The fixing device can be inserted from one side

through a load limiting washer (26), an embedment (20) and into a threaded bore (12) in a shutter (10). After the concrete has been cast the rod (4) can be removed from the other side leaving the nut (30) in the concrete behind the embedment (20).

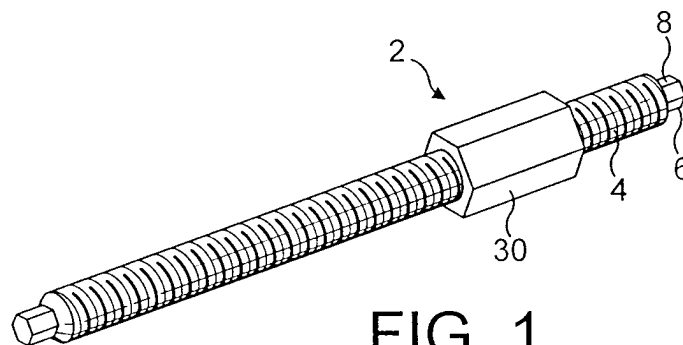


FIG. 1



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 04 10 2483

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.7)
X	US 5 226 770 A (WATSON ET AL) 13 July 1993 (1993-07-13) * column 2, line 28 - line 48 *	1-4	E04G21/18 E04G15/06
Y	* figures *	5	
A	US 4 044 986 A (STRICKLAND ET AL) 30 August 1977 (1977-08-30) * column 3, line 63 - line 67 * * figures 2,8 *	1,5	
A	FR 2 575 209 A (OUTINORD SAINT AMAND) 27 June 1986 (1986-06-27) * figures *	2-4	
Y	BE 555 347 A (O KLINT) 11 March 1957 (1957-03-11) * page 4, line 21 - last line * * figure 9 *	5	
A		6	
A	CH 379 734 A (GERHARD, HANS) 15 July 1964 (1964-07-15) * figures *	1,5	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	US 3 685 783 A (EUGENE R. HILSON) 22 August 1972 (1972-08-22) * figures *	1	E04G F16B B28B E04B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		16 June 2005	Andlauer, D
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			

2
EPO FORM 1503 03.82 (P04C01)

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

EP 04 10 2483

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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16-06-2005

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5226770	A	13-07-1993	CA 2098078 A1	09-12-1994
US 4044986	A	30-08-1977	AU 508584 B2	27-03-1980
			AU 1381076 A	17-11-1977
			BR 7603000 A	23-11-1976
			CA 1086091 A1	23-09-1980
			DE 2620522 A1	25-11-1976
			ES 447775 A1	01-11-1977
			ES 459398 A1	16-08-1978
			FR 2311158 A1	10-12-1976
			GB 1553104 A	19-09-1979
			GB 1553105 A	19-09-1979
			GB 1553106 A	19-09-1979
			IN 146298 A1	21-04-1979
			IT 1060434 B	20-08-1982
			JP 52001922 A	08-01-1977
			MX 142933 A	20-01-1981
			NL 7604883 A	16-11-1976
			SE 7605291 A	13-11-1976
			SE 8001226 A	15-02-1980
			SE 8001227 A	15-02-1980
FR 2575209	A	27-06-1986	FR 2575209 A1	27-06-1986
BE 555347	A		NONE	
CH 379734	A	15-07-1964	NONE	
US 3685783	A	22-08-1972	NONE	