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(54) **Cone Penetration Testing Pushing Device and System**

(57) A ground penetrating device, comprising a housing, a locking arrangement (6) for locking the housing inside a borehole, a penetration member (5) arranged to move relative to the housing (20) in a penetration direction; and a force transmission element (9) provided movably relative to the housing (2), a conversion mechanism (10) for converting a movement of the force transmission element (9) in a direction different from the penetration direction to a movement of the penetration member (5) in the penetration direction.

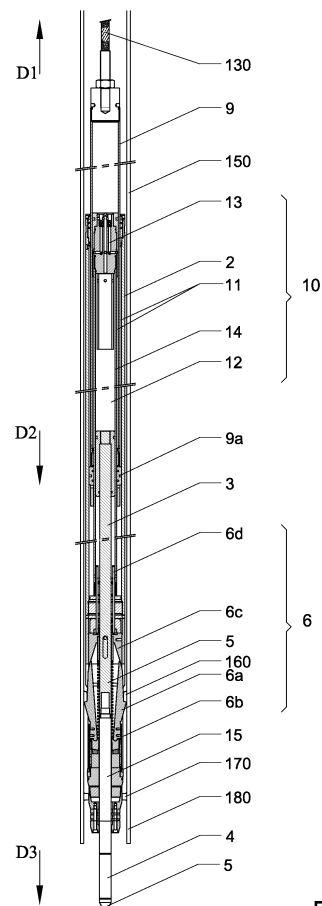


Fig. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 11 16 5351

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 553 852 B1 (SMAIL TIMOTHY R [US] ET AL) 29 April 2003 (2003-04-29)	1-3, 8-10, 13-15	INV. E02D1/04 E02D1/02 E21B49/00
Y	* column 4; figure 3 *	16,17	
A	-----	4-7	
A	EP 0 490 420 A2 (SCHLUMBERGER SERVICES PETROL [FR]; SCHLUMBERGER TECHNOLOGY BV [NL]; SC) 17 June 1992 (1992-06-17) * figure 1 *	1-3, 8-10, 13-15	
Y	-----		
	US 4 400 970 A (ALI MUHAMMAD A [US]) 30 August 1983 (1983-08-30) * figures 1,2 *	16,17	
A,D	-----		
	US 5 777 242 A (ZUIDBERG HERMAN MARIA [NL] ET AL) 7 July 1998 (1998-07-07) * figures 2-3 *	1-17	
A,D	-----		
	NL 7 108 761 A (SHELL INTERNATIONALE RESEARCH) 28 December 1971 (1971-12-28) * figures 1-3 *	1	TECHNICAL FIELDS SEARCHED (IPC)
A	-----		E02D G01N E21B
	FR 1 172 140 A (STICHTING WATERBOUWKUNDIG LAB) 5 February 1959 (1959-02-05) * the whole document *	1-17	

~~The present search report has been drawn up for all claims~~			
Place of search		Date of completion of the search	Examiner
The Hague		19 July 2013	Leroux, Corentine
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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EPO FORM 1503 03.82 (P04C01)



Application Number

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☒ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

1-10, 13-17

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4, 8-10, 13-17

movement in opposite direction

2. claim: 5

transmission element attached to a cable

3. claims: 6, 7

hydraulic piston in transmission

4. claims: 11, 12

choice of materials for the ground penetration device

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

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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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-07-2013

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