



(43) International Publication Date
14 November 2013 (14.11.2013)

(51) International Patent Classification:
E21B 15/00 (2006.01)

(21) International Application Number:
PCT/IB2013/053529

(22) International Filing Date:
3 May 2013 (03.05.2013)

(25) Filing Language: Italian

(26) Publication Language: English

(30) Priority Data:
TO2012A000414 9 May 2012 (09.05.2012) IT

(71) Applicant: **DRILLMEC S.P.A.** [IT/IT]; Via 1° Maggio,
12, I-29027 Gariga di Podenzano (PC) (IT).

(72) Inventor: **FERRARI, Stefano**; Via Don Massimino Nevi,
2/1, I-29027 Barbiano (PR) (IT).

(74) Agent: **VITILLO, Giuseppe**; c/o Barzanò & Zanardo Mil-
ano S.p.A., Corso Vittorio Emanuele II, 61, I-10128
Torino (IT).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,

HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,
NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU,
RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA,
ZM, ZW.

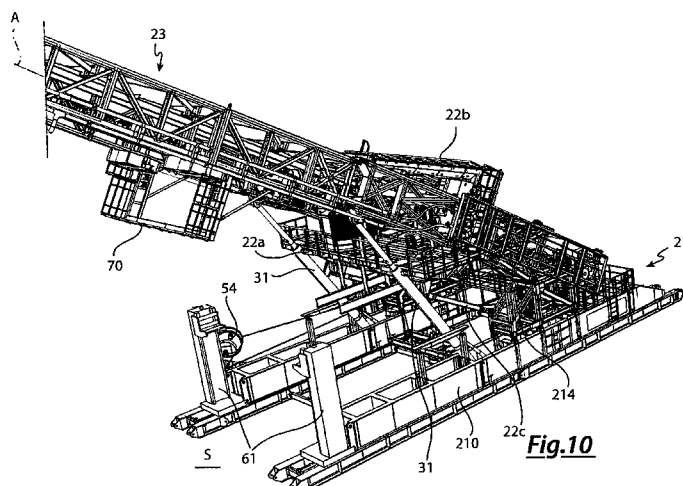
(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

(88) Date of publication of the international search report:
22 May 2014

(54) Title: WELL DRILLING APPARATUS AND ASSEMBLING AND DISASSEMBLING METHOD



(57) Abstract: Well drilling apparatus (2) and method associated therewith, which is able to shift from a first assembly operating configuration to a second use operating configuration and vice versa. Said apparatus (2) comprises a sub-structure (21), which supports said apparatus (2), a mast (23), which is pivoted to said sub-structure (21), around which it rotates so as to shift from said assembly operating configuration, which is substantially horizontal, to said use operating configuration and vice versa; a drill floor (22), which is able to be lifted and is connected to the mast (23); an actuating device (3), which is adapted to allow the drilling apparatus (2) to shift between said two operating configurations. The actuating device (3) is a hydraulic device, which is directly connected to the mast (23). The drill floor (22) comprises a first portion (22a), projects with respect to said mast (23), and a second portion (22b), which is constrained to said mast (23) and rotates with it. A draw-works (58) is installed, in a permanent manner, on the sub-structure (21).



INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2013/053529

A. CLASSIFICATION OF SUBJECT MATTER
INV. E21B15/00
ADD.

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2007/022300 A2 (VORA THEODORE CHEN [US]) 22 February 2007 (2007-02-22)	11-15
A	figures 3,4	1-10
Y	US 2005/193645 A1 (BARNES R M [US] BARNES R MICHAEL [US]) 8 September 2005 (2005-09-08)	11-15
A	figures 4-10	1-10
X	EP 2 025 860 A1 (BAUER MASCHINEN GMBH [DE]) 18 February 2009 (2009-02-18) paragraph [0022] - paragraph [0023]; figures 1-3 paragraph [0025] paragraph [0035]	11,15
A	US 4 221 088 A (PATTERSON BRADLEY C) 9 September 1980 (1980-09-09) figures 1-5	1-15

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

31 March 2014

Date of mailing of the international search report

07/04/2014

Name and mailing address of the ISA/
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Dantinne, Patrick

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2013/053529

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2007022300	A2	22-02-2007	US 2009321135 A1 WO 2007022300 A2	31-12-2009 22-02-2007
US 2005193645	A1	08-09-2005	NONE	
EP 2025860	A1	18-02-2009	NONE	
US 4221088	A	09-09-1980	CA 1104321 A1 GB 2046812 A MX 148035 A US 4221088 A	07-07-1981 19-11-1980 04-03-1983 09-09-1980