

(51) International Patent Classification:
E21B 7/02 (2006.01)(21) International Application Number:
PCT/US2017/013161(22) International Filing Date:
12 January 2017 (12.01.2017)

(25) Filing Language: English

(26) Publication Language: English

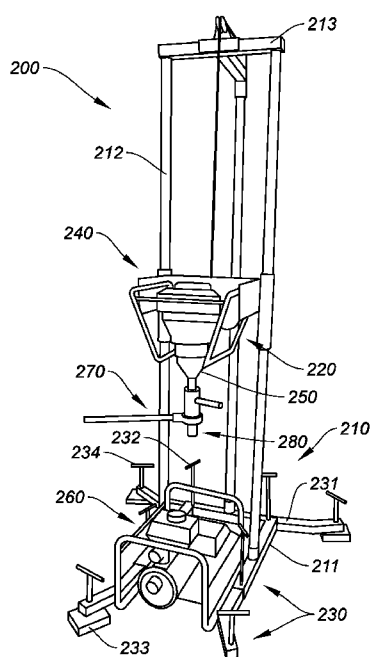
(30) Priority Data:
62/278,061 13 January 2016 (13.01.2016) US
15/397,120 03 January 2017 (03.01.2017) US(71) Applicant: **NORTHEAST TEXAS DISASTER
RESPONSE, INC.** [US/US]; 11766 FM 115, Scroggins,
Texas 75480 (US).(72) Inventor: **PATTERSON, Harold E.**; 11766 FM 115,
Scroggins, Texas 75480 (US).(74) Agent: **LATTIG, Matthew J.**; CHARTER IP LLC, PO
BOX 64, The Plains, Virginia 20198 (US).(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, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN, KP, KR,
KW, KZ, LA, LC, LK, LR, LS, 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, SA, 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, ST, 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,
KM, 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:
26 October 2017 (26.10.2017)

(54) Title: SHALLOW WELL-DRILLING APPARATUS

FIG. 7



(57) Abstract: A portable, shallow well-drilling apparatus (200) is described. The apparatus (200) is lightweight, modular, and easy to transport to and assemble at a remote drill site. The apparatus (200) includes a generally rectangular frame (210) having a plurality of multi-segment support beams (212) in spaced relation extending vertically from a lower base (211) to a top cap (213), no component of which exceeds five feet in length, a winch assembly (220) attached to the frame (210), and a motor (248) removably mounted on the frame (210) and slidable up and down the beams (212) via the winch assembly (220). The apparatus (200) further includes a transmission (250) removably coupled to the motor (248), and a drill pipe assembly (290) removably coupled to the transmission (250).



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 17/13161

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - E21B 7/02 (2017.01) CPC - E21B 7/028		
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)		
See Search History Document		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
See Search History Document		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
See Search History Document		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 5,199,507 A (WESTMORELAND) 06 April 1993 (06.04.1993) entire document	1-7 ---- 8-9
Y	US 2014/0238747 A1 (FABIAN) 28 August 2014 (28.08.2014) entire document	8-9
Y	US 2011/0042142 A1 (EDMONDS et al) 24 February 2011 (24.02.2011) entire document	9
Y	US 4,778,142 A (ROBA) 18 October 1988 (18.10.1988) entire document	9
X,E	US 2017/0198524 A1 (NORTHEAST TEXAS DISASTER RESPONSE, INC.) 13 July 2017 (13.07.2017) entire document	1-9
A	National Driller; "Texas Man Builds Low-Cost Well Drill Rigs for Ministry's Charity Work" 01 October 2014 (01.10.2014) [online] retrieved from <URL: http://www.nationaldriller.com/articles/89746-texas-man-builds-low-cost-well-drill-rigs-for-ministrys-charity-work > entire document, especially photographs.	1-9
A	National Driller; "Texas Baptist Men" 26 September 2015 (26.09.2015) [online] retrieved from <URL: https://www.facebook.com/TexasBaptistMen/photos/pcb.884102001678038/884099095011662/?type=3&theater > entire document, especially photographs.	1-9
☐ 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		Date of mailing of the international search report
25 July 2017		25 AUG 2017
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 17/13161

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
--SEE EXTRA SHEET--

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-9

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 17/13161

Continuation of: Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: Claims 1-9, directed to a well-drilling apparatus including a generally rectangular frame having a plurality of multi-segment support beams in spaced relation extending vertically from a lower base to a top cap, no component of which exceeds five feet in length.

Group II: Claim 10 directed to a well-drilling apparatus wherein the weight of the frame which does not exceed 175 pounds.

Group III: Claim 11 directed to a well-drilling apparatus wherein total weight of the apparatus does not exceed 650 pounds.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

SPECIAL TECHNICAL FEATURES

The invention of Group I includes the special technical feature of
a generally rectangular frame having a plurality of multi-segment support beams in spaced relation extending vertically from a lower base to a top cap, no component of which exceeds five feet in length;
not required by the claims of Groups II and III.

The invention of Group II includes the special technical feature of a frame, the weight of which does not exceed 175 pounds not required by the claims of Groups I and III.

The invention of Group III includes the special technical feature of wherein total weight of the apparatus does not exceed 650 pounds not required by the claims of Groups I and II.

COMMON TECHNICAL FEATURES

Groups I-III share the common technical features of a well-drilling apparatus, comprising:

- a frame,
- a winch assembly attached to the frame,
- a motor slidable up and down the frame via the winch assembly,
- a transmission removably coupled to the motor, and
- a drill pipe assembly removably coupled to the transmission.

However, this shared technical feature does not represent a contribution over prior art as being anticipated by US 5,199,507 A to Westmoreland (hereinafter referred to as Westmoreland), which discloses a well-drilling apparatus (Abstract; Fig. 1), comprising:

- a frame (mast 16; Col. 3, Lines 35-37),
- a winch (22) assembly attached to the frame (Col. 3, Lines 51-52),
- a motor (60) slidable up and down the frame via the winch assembly (Col. 6, Lines 18-19 and 33-35),
- a transmission (part of rotary power unit 60) removably coupled to the motor, and
- a drill pipe (68) assembly removably coupled to the transmission (Col. 4, Lines 55-56).

Groups I-II share the common technical features of a motor removably mounted on the frame. However, this shared technical feature does not represent a contribution over prior art as being anticipated by Westmoreland, which discloses a motor (60) removably mounted on the frame (Col. 6, Lines 1-6).

As the common technical features were known in the art at the time of the invention, these cannot be considered special technical feature that would otherwise unify the groups.

Therefore, Groups I-III lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.