505508540 06/04/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5555344

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|--------------|----------------|
| QINGBO LIU | 04/22/2019 |
| QINGYUN DI | 04/19/2019 |
| TSILI WANG | 04/22/2019 |
| WENXUAN CHEN | 04/16/2019 |
| JIANSHENG DU | 04/18/2019 |
| YONGYOU YANG | 04/10/2019 |
| XINZHEN HE | 04/12/2019 |
| LINFENG HONG | 04/20/2019 |
| QIJUN XIE | 04/19/2019 |

RECEIVING PARTY DATA

| Name: | INSTITUTE OF GEOLOGY AND GEOPHYSICS, CHINESE ACADEMY OF SCIENCES |
|-----------------|--|
| Street Address: | NO. 19, BEITUCHENG WESTERN ROAD, CHAOYANG DISTRICT |
| City: | BEIJING |
| State/Country: | CHINA |

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
|---------------------|----------|--|
| Application Number: | 16466238 | |

CORRESPONDENCE DATA

Fax Number: (703)205-8050

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent

using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 703-205-8000

Email: Spencer.Garth@bskb.com, Mailroom@BSKB.com
Correspondent Name: BIRCH, STEWART, KOLASCH & BIRCH, LLP

Address Line 1: 8110 GATEHOUSE ROAD

Address Line 2: SUITE 100E

Address Line 4: FALLS CHURCH, VIRGINIA 22042

ATTORNEY DOCKET NUMBER: 7021-0103PUS1

NAME OF SUBMITTER: SPENCER GARTH

PATENT 505508540 REEL: 049371 FRAME: 0371

| SIGNATURE: | /spencer garth/ | |
|--|-----------------|--|
| DATE SIGNED: | 06/04/2019 | |
| Total Attachments: 3 | | |
| source=2019-06-04_AssgnAsFiled_7021-0103PUS1#page1.tif | | |
| source=2019-06-04 AssgnAsFiled 7021-0103PUS1#page2.tif | | |

source=2019-06-04_AssgnAsFiled_7021-0103PUS1#page3.tif

PATENT REEL: 049371 FRAME: 0372

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road, Suite 100 East, Falls Church, Virginia 22042-1248 Telephone: (703) 205-8000 • Facsimile: (703) 205-8050 • Email: mailroom@bskb.com

DECLARATION AND ASSIGNMENT FOR PATENT AND DESIGN APPLICATIONS

UNITED STATES PATENT RICHTS, OR UNITED STATES PLUS ALL FOREIGN PATENT RICHTS

Title of Invention - A ROTARY GUIDE DEVICE BASED ON RADIAL DRIVING FORCE

As a below named inventor (hereinafter designated as the undersigned), I hereby declare that: This declaration is directed to the application attached hereto. Application not * If the application is not attached hereto, the application is as identified by the attorney docket number as Amehed set forth above and/or the following: Enter Apple, No. 4 United States Application Number or PCT International Apple, No. PCT/CN2018/000085 later Filing Date: 40 filed on March 2, 2018 The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I have reviewed and understand the contents of the above-identified application, including the claims, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations § 1.56. WHEREAS, the undersigned has invented certain new and useful improvements described in the application identified. luseri Name * WHEREAS, INSTITUTE OF GEOLOGY AND GEOPHYSICS, CHINESE ACADEMY OF SCIENCES of Assignee of No. 19, Beitucheng Western Road, Chaoyang District, Beijing, China, of Assignee

Insert Address

its heirs, successors, legal representatives and assigns (hereinafter designated as the Assignee) is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent(s) that may be granted therefor in the United States of America and

Classic Sox if Appropriate

in any foreign countries.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, the undersigned has sold, assigned and transferred, and by these presents does (do) sell, assign and transfer unto said Assignee the full and exclusive right to the said invention in the United States of America, its territories, dependencies and possessions and the entire right, title and interest in and to any and all Letters Patent(s) which may be granted therefor in the United States of America, its territories, dependencies and possessions, and if the box above is designated, in any and all foreign countries; including all rights under the International Convention for the Protection of Industrial Property or similar agreements as well as the right to claim benefit from the priority of the above-mentioned application; and to any and all divisions, reissues, continuations, conversions and extensions thereof for the full term or terms for which the same may be granted.

BIRCH, STEWART, KOLASCH & BIRCH, LLP

Page 1

BSKB-DEC-ASSIGN (11-18)

The undersigned agrees to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division, conversion or reissue thereof or Letters Patent(s) or reissue patent issued thereon and to cooperate with the Assignee in every way possible in obtaining and producing evidence and proceeding with such interference.

The undersigned agrees to execute all papers and documents and to perform any act which may be necessary in connection with claims or provisions of the International Convention for the Protection of Industrial Property or similar agreements.

The undersigned agrees to perform all affirmative acts which may be necessary to obtain a grant of (a) valid United States of America patent(s) or a grant of (a) valid United States of America and any foreign patent(s) to the Assignee and to vest all rights therein hereby conveyed to said Assignee as fully and entirely as the same would have been held by the undersigned if this Assignment and sale had not been made.

The undersigned hereby authorizes and requests the Patent and Trademark Office Officials in the United States of America and in any foreign countries to issue any and all Letters Patent(s) resulting from said application or any continuing, divisional conversion or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has the full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grants the law firm of Birch, Stewart, Kolasch & Birch, LLP the power to insert any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office.

The undersigned hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment.

The undersigned hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

In witness whereof, executed by the undersigned on the date opposite the undersigned name.

 \boxtimes Additional inventors are being named on the $\underline{\quad \text{x}\quad}$ supplemental sheet(s) attached hereto:

| LEGAL | NAME OF INVENTOR | | |
|--|------------------|-------|-----------|
| imentar's Name ==== Inventor. | Qingbe LIU | Date: | 2019-4-22 |
| investor's Signature: | Gingbo LLU | | |
| An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use a separate form for each inventor; or check the box below and complete the attached page(s) to list additional inventors. | | | |

BIRCH, STEWART, KOLASCH & BIRCH, LLP

Page 2

BSKB-DEC-ASSIGN (11-18)

SUPPLEMENTAL SHEET FOR DECLARATION AND ASSIGNMENT

ADDITIONAL INVENTOR(S) Supplemental Sheet Page 1 of 1

| | LEGAL N | AME OF JOINT INVENTOR, IF ANY | | |
|----------------------|-------------------------|-------------------------------------|--------------------------------|---|
| Inventor's Name | · Inventor: | Qingyun Di | Date: | 2019 - 4 - 19 |
| Inventor's Signature | ⇒ Signature: | Oing yun Di | ****************************** | |
| | LEGAL N | W* AME OF IOINT INVENTOR, IF ANY | | |
| Inventor's Kame | * Inventor | Tsili WANG | Date: | 2019-4-22 |
| Inventor's Signature | * Signature: | TSili Wang | ebibb | |
| | | AME OF JOINT INVENTOR, IF ANY | | |
| Inventor's Name | | | and to | 2019-4-16 |
| | Sinventor: | Wenxuan CHEN | Date: | |
| Inventor's Signature | [⇔] Signature: | Wentle (Se | | |
| | LEGAL N | AME OF JOINT INVENTOR, IF ANY | | |
| Inventor's Name | ⇒Inventor: | Jiansheng DU | Date: | 2019-4-18 |
| Inventor's Signature | «Signature: | Transheng Du | aliteraturi estaturi estaturi | |
| | | AME OF JOINT INVENTOR, IF ANY | | |
| Inventor's Same | *Inventor: | Yongyou YANG | Date: | 2019-4-10 |
| investor's Signature | *Signature: | Yong you YAN G | | |
| | | • • • • | | |
| Education V. CVV | | AME OF JOINT INVENTOR, IF ANY | | 2919-4-12 |
| Incentor's Name | **Inventor: | Xinzhen HE | Date: | 211 111 |
| Inventor's Signature | ≫Signature: | Xinzhen 17E | | *************************************** |
| | LEGAL N | AME OF JOINT INVENTOR, IF ANY | | b |
| Inventor's Name | [⇔] Inventor: | Linfeng HONG | Date: | 2019-4-20 |
| Inventor's Signature | *Signature: | Lindery Holls | ************* | ······································ |
| | LEGAL N. | AME OF JOINT INVENTOR, IF ANY | | |
| Inventor's Name | [∞] Inventor: | Qijun XIE | Date: | 2019 - 4-19 |
| Inventor's Signature | [©] Signature: | ZjunxiE | | |
| | | | | |

Page 3

PATENT REEL: 049371 FRAME: 0375

B5KB-DEC-A88IGN (11-18)

RECORDED: 06/04/2019

BIRCH, STEWART, KOLASCH & BIRCH, LLP