

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT3034685

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT

**CONVEYING PARTY DATA**

Name	Execution Date
JIE YANG	07/26/2013
REBECCA CORINA JACHMANN	07/16/2013
SONGHUA CHEN	07/16/2013

**RECEIVING PARTY DATA**

<b>Name:</b>	HALLIBURTON ENERGY SERVICES, INC.
<b>Street Address:</b>	10200 BELLAIRE BLVD
<b>City:</b>	HOUSTON
<b>State/Country:</b>	TEXAS
<b>Postal Code:</b>	77072

**PROPERTY NUMBERS Total: 1**

Property Type	Number
<b>Application Number:</b>	14387485

**CORRESPONDENCE DATA****Fax Number:**

*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:** 612-373-6900  
**Email:** USPTO@slwip.com  
**Correspondent Name:** SCHWEGMAN LUNDBERG & WOESSNER / HALLIBUR  
**Address Line 1:** P.O. BOX 2938  
**Address Line 4:** MINNEAPOLIS, MINNESOTA 55402

<b>ATTORNEY DOCKET NUMBER:</b>	1880.417US1
<b>NAME OF SUBMITTER:</b>	TARA MCMILLEN
<b>SIGNATURE:</b>	/Tara McMillen/
<b>DATE SIGNED:</b>	09/23/2014

**Total Attachments: 5**

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**PATENT**

### ASSIGNMENT

WHEREAS, Jie Yang, Rebecca Corina Jachmann and Songhua Chen (hereinafter the "Undersigned") have made one or more inventions and other subject matter (hereinafter collectively referred to as the "Invention") which are described in a patent application filed on July 29, 2013, which application was assigned PCT patent application serial number PCT/US2013/052535, and which is titled TOOL CASING DETECTION.

FOR GOOD AND VALUABLE CONSIDERATION, the receipt, sufficiency, and adequacy of which are hereby acknowledged by the Undersigned, the Undersigned do hereby irrevocably and unconditionally:

CONVEY, ASSIGN, AND TRANSFER to Halliburton Energy Services, Inc. (the "Assignee"), a corporation of the State of Delaware, having a place of business at 10200 Bellaire Blvd, Houston, TX 77072, the Undersigned's entire right, title, and interest for the United States and all foreign countries and jurisdictions in and to:

the Invention which is disclosed in the above-identified application or applications;

such application or applications, and all divisional, continuing (including continuation-in-part), substitute, renewal, reissue, and all other applications for a patent or patents which have been or shall be filed in the United States (including all provisional and non-provisional applications), and in all foreign countries and jurisdictions based in whole or in part on any of such Invention (including any application for a utility model or an innovation patent application);

all original and reissued patents which have been or shall be issued in the United States and all foreign countries and jurisdictions based in whole or in part on any of such Invention;

including the right to claim priority to the above-identified patent application or applications in relation to subject matter based in whole or in part on the above-identified patent application or applications and any of the foregoing including the right to file foreign applications under the provisions of any convention or treaty;

and including the right to all causes of action, remedies, and other enforcement rights related to the above-identified application or applications, including without limitation the right to sue for past, present, or future infringement, misappropriation, or violation of any and all rights related to the above-identified patent application or applications and any of the foregoing, including the right to obtain and collect damages for past, present, or future infringement;

AUTHORIZE AND REQUEST the issuing authority to issue any and all United States and foreign patents granted on such Invention to the Assignee;

AUTHORIZE AND REQUEST that any attorney associated with U.S. Patent and Trademark Office (USPTO) Customer No. 46042 may (directly or through his/her designee) delete, insert, or alter any

**Assignment**

Assignors: Jie Yang et al.

Title: TOOL CASING DETECTION

Page 2 of 5

Docket No: 1880.417WO1

Client Ref. No. 2012-IP-057138 PCT/E-Billing 2012-IPRO-057138

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information related to the above-identified patent application or applications or any of the foregoing, after execution of this Assignment;

WARRANT AND COVENANT that no assignment, grant, mortgage, license or other agreement affecting the rights and property herein conveyed has been or shall be made to others by the Undersigned, and that the full right to convey the same as herein expressed is possessed by the Undersigned;

COVENANT, that when requested and without compensation, but at the expense of the Assignee, in order to carry out in good faith the intent and purpose of this Assignment, the Undersigned shall (1) execute all provisional, non-provisional, divisional, continuing (including continuation-in-part), substitute, renewal, reissue, and all other patent applications for the Invention; (2) execute all rightful oaths, declarations, assignments, powers of attorney and other papers for the Invention; (3) communicate to the Assignee all facts known to the Undersigned relating to the Invention and the history thereof; (4) cooperate with the Assignee in any interference, reexamination, reissue, opposition, dispute, or litigation involving any of the applications or patents for the Invention; and (5) take such further actions as the Assignee shall reasonably consider necessary or desirable for vesting title to such Invention in the Assignee, or for securing, maintaining and enforcing proper patent protection for the Invention;

COVENANT, that should any provision of this agreement be held unenforceable by an authority of competent jurisdiction, such a ruling shall not affect the validity and enforceability of the remaining provisions. To the extent that any such provision is found to be unenforceable, the Undersigned, when requested and without compensation shall act in good faith to substitute for such provision a new provision with content and purpose as close as possible to the provision deemed unenforceable.

THIS AGREEMENT IS TO BE BINDING on the heirs, assigns, representatives, and successors of the Undersigned, and is to extend to the benefit of the successors, assigns, and nominees of the Assignee.

AGREED as of the date of my signature below:

Assignment

Assignors: Jie Yang et al.

Title: TOOL CASING DETECTION

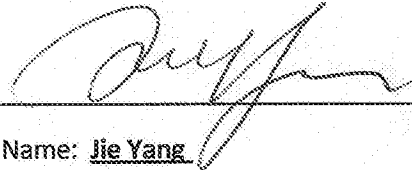
Page 3 of 5

Docket No: 1880.417WO1

Client Ref. No. 2012-IP-057138 PCT/E-Billing 2012-IPRO-057138

Assignor:

(Signature):



Name: Jie Yang

City/State: Paoli, PA

Date:

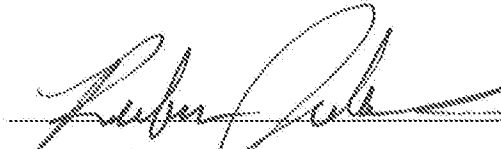
7/26/2013

Assignment  
Assignors: Jie Yang et al  
Title: TOOL CASING DETECTION  
Page 4 of 5

Docket No. 1880A17W01  
Client Ref. No. 2012-IP-057138 PCT/E-Billing 2012-IPRO-057138

Assignor:

(Signature):



Name: Rebecca Corina Jachmann

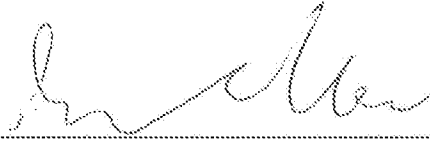
City/State: Downingtown, PA

Date:

7/16/2013

Assignor:

(Signature):



Name: Songhua Chen

City/State: Katy, TX

Date:

7/16/2013