503209205 03/09/2015

PATENT ASSIGNMENT COVER SHEET

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

CONVEYING PARTY DATA

| Name | Execution Date |
|------------------|----------------|
| MATTHEW M. KROPF | 03/03/2015 |

RECEIVING PARTY DATA

| Name: | PITTSBURGH, UNIVERSITY OF - OF THE COMMONWEALTH SYSTEM OF HIGHER EDUCATION |
|-------------------|--|
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| Postal Code: | 15260 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14635741 |

CORRESPONDENCE DATA

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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.

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PARTONY & ACCOUNTED A

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| NAME OF SUBMITTER: | HENRY E. BARTONY, JR. | |
|--------------------|--|--|
| SIGNATURE: | /Henry E. Bartony, Jr., Reg. No. 34,772/ | |
| DATE SIGNED: | 03/09/2015 | |

Total Attachments: 2

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PATENT 503209205 REEL: 035111 FRAME: 0345

ASSIGNMENT

WHEREAS, **MATTHEW M. KROPF**, a citizen and resident of the United States of America, whose address is 138 Congress St., Bradford, Pennsylvania 16701 United States of America, (hereinafter referred to as ASSIGNOR), have invented and own a certain invention or inventions related to

PROPPANTS FOR HYDROCARBON RECOVERY

which is/are described in a US Non-Provisional Patent Application filed on **March 2, 2015** under application No **14/635,741**,

WHEREAS, University of Pittsburgh - Of the Commonwealth System of Higher Education, a non-profit corporation of the Commonwealth of Pennsylvania, organized and existing under the laws of the State of Pennsylvania and having a place of business at 200 Gardner Steel Conference Center, Thackeray & O'Hara Streets, Pittsburgh, Pennsylvania 15260 (hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire interest in, to and under said invention(s) and in, to and under Letters Patent or similar legal protection to be obtained therefor in the United States and in any and all foreign countries.

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN, be it known that In consideration of the rights and obligations of the ASSIGNOR under the University of Pittsburgh Patent Policy and Procedure and of the payment by ASSIGNEE to ASSIGNOR of the sum of One Dollar (\$1.00), the receipt of which is hereby acknowledged, and for other good and valuable consideration, ASSIGNOR hereby sells, assigns and transfers to ASSIGNEE the full and exclusive right, title and interest to said invention(s) in the United States and its territorial possessions and in all foreign countries, said application, and any and all issued Letters Patent or similar legal protection in the United States and its territorial possessions and in any and all foreign countries to be obtained for said invention(s) by said application or any continuation, divisional, renewal, substitute or reissue thereof or any legal equivalent thereof in a foreign country for the full term or terms for which the same may be granted.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks and any corresponding foreign officer to issue to ASSIGNEE, its successors, assigns and legal representatives, any and all United States and foreign Letters Patent on said invention(s).

ASSIGNOR hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment and sale; and

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ASSIGNOR further covenants that when requested, without charge to, but at the expense of ASSIGNEE, that ASSIGNOR will: 1) promptly execute and deliver to ASSIGNEE or its legal representative any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said invention(s), said Letters Patent and said equivalents thereof in any foreign country which may be necessary or desirable to carry out the purposes thereof; 2) execute, for all countries, all divisions, reissues, reexaminations, continuations, renewals, extensions and all other patent applications on any and all of said invention(s); 3) communicate all facts known to ASSIGNOR relating to said invention(s), said application, said Letters Patent and legal equivalents in foreign countries and the history thereof; 4) testify in all legal proceedings; and 5) generally do everything possible which Assignee, its successors, assigns and representatives shall consider desirable for aiding in securing, maintaining and/or enforcing ASSIGNEE'S rights and patent protection in said invention(s), and for vesting title therein in ASSIGNEE, its successors, assigns and legal representatives.

ASSIGNOR further agrees that ASSIGNEE shall have and hold the interests assigned to the full ends of the terms of said Letters Patent and any and all divisions, reissues, reexaminations, continuations, renewals, and/or extensions thereof, respectively, as fully and entirely as the same would have been held and enjoyed by ASSIGNOR had this assignment not been made.

This Assignment of Invention is effective as of March 2, 2015

IN WITNESS WHEREOF, I / WE have hereunto set hand and seal on dates given

below

Date: 2/3/2015

Signature of ASSIGNOR Matth

NOTE: No witnessing, notarization or legalization is necessary. If the assignment is notarized or legalized, then it will only be prima facie evidence of execution. 35 USC 261.

PATENT REEL: 035111 FRAME: 0347