502636009 01/15/2014

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

EPAS ID: PAT2682617

| SUBMISSION TYPE: | CORRECTIVE ASSIGNMENT |
|-----------------------|---|
| NATURE OF CONVEYANCE: | Corrective Assignment to correct the ASSIGNEE previously recorded on Reel 031919 Frame 0777. Assignor(s) hereby confirms the ASSIGNEE: FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V |

CONVEYING PARTY DATA

| Name | Execution Date |
|--|----------------|
| RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN | 11/26/2013 |

RECEIVING PARTY DATA

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| State/Country: | GERMANY |
| Postal Code: | 80686 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14115940 |

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| ATTORNEY DOCKET NUMBER: | 2011P09481WOUS |
|-------------------------|----------------|
| NAME OF SUBMITTER: | BARBARA QUINN |
| | |

PATENT REEL: 032020 FRAME: 0282

502636009

| Signature: | /Barbara Quinn/ | |
|--|--|--|
| Date: | 01/15/2014 | |
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EPAS ID: PAT2672715

| SUBMISSION TYPE | NEW ASSIGNMENT |
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| NATURE OF CONVEYANCE. | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
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| RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN | 11/26/2013 |

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| Property Type | Number |
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| NAME OF SUBMITTER: | BARBARA QUINN |
| Signature: | /Barbara Quinn/ |
| Date: | 01/08/2014 |

Total Attachments: 2

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| RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN | 11/26/2013 |

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| Name: | FRAUNHOFER GESELLSCHAFT ZUE FOERDERUNG DER ANGEWANDTEN FORSCHUNG E V. | |
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| Street Address: | HANSASTRASSE 27 C | |
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| Postal Code: | 80686 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14115940 |

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| ATTORNEY DOCKET NUMBER: | 2011P09481WOUS | |
| NAME OF SUBMITTER: | BARBARA QUINN | |
| Signature: | /Barbara Quinn/ | |
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ASSIGNMENT OF RIGHTS Company to Company

WHEREAS, (Rheinisch-Westfalische Technische Hochschule Aachen hereafter "Assignor") and Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e V (hereinafter "Assignee") (individually referred to as "Party" and collectively as "Parties")

Hereby, (I)(A) acknowledge they have entered into certain agreements (hereinafter referred to as "the Agreements") which set forth certain rights, limitations and obligations regarding inventions developed by or among Parties, and/or Intellectual Property owned by one or both of the Parties and the Parties agree that the terms of the Agreements apply to any and all inventions, or

(B)(i) Agree to the extent such Agreement(s) or similar legal document(s) failed or fails, in whole or part, to have assigned, sold or transferred the entire right (including priority rights), title and interest, in and for the United States and all foreign countries, in and to all inventions which are disclosed in an invention disclosure and/or in the below-identified application or application already filed for Letters Patent, or (ii) if no such agreement(s) exist assigning, selling or transferring any such right (including priority rights), title or interest; then for good and valuable consideration, Assignor now and hereby, effective Nunc Pro Tunc on the filling date of the below identified patent application(s), pending patent application(s) or granted Letter Patent(s), assigns, sell and transfers to Assignee, its successors, assigns and legal representatives, the entire right, (including all priority rights), title and interest in and for the United States and all foreign countries, in and to any and all inventions and improvements which are disclosed in the following identified; patent application(s), pending patent application(s) or granted Letter Patent(s) which are disclosed in the application for Letters Patent or granted patent, entitled:

Patent Application Title: SINGLE-CRYSTAL WELDING OF DIRECTIONALLY COMPACTED MATERIALS

Filing Date (MM/DD/YYYY): 04/13/2012 Filing Number: PCT/EP2012/056739

Internal Case Number(s): 2011P09481WOUS

and in and to said application or granted patents and all applications claiming priority to said application or granted patent, including, without limitation, and all divisional, continuing, substitute, renewal, reissue, and all other applications for Letters Patent which have been or shall be filled in the United States and all foreign countries on any of the inventions or improvements; and in and to all original and reissued patents which have been or shall be filed in the United States and all foreign countries on the inventions or improvements,

(II) Agree that the Assignee may apply for and receive Letters Patent for said improvements in its own name; and that, when requested, without charge to but at the expense of said Assignee, its successors, assigns and legal representatives, to carry out in good faith the intent and purpose of this assignment, the undersigned will execute all divisional, continuing, substitute, renewal, reissue, and all other patent applications on any and all the inventions or improvements, execute all rightful oaths, assignments, powers of attorney and other papers; communicate to said Assignee, its successors, assigns, and legal representatives, all facts known to the undersigned relating to the inventions or improvements and the history thereof; and generally do everything possible which said Assignee, its successors, assigns or legal representatives shall consider desirable for aiding in securing and

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Docket No.: 2011P09481WOUS

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maintaining proper patent protection for the inventions or improvements and for vesting title to the inventions or improvements and all applications for patents and all patents on the inventions or improvements, in said Assignee, its successors, assigns and legal representatives; and

(III) Covenant with said Assignee, its successors, assigns and legal representatives that no assignment, grant, mortgage, license or other agreement affecting the rights and property

herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

The Parties acknowledge and agree that the inventor(s) may have previously assigned its rights (including all and any priority rights) in one or more above-referenced applications for Letters Patents directly to a Party as directed by the other Party, consistent with the Agreements. Any such directed assignment shall remain in full force and effect and shall take precedence over this Assignment to the extent any conflict exists.

| Rheinisch-Westfällsche Technic hettliedeschufe Aachen Der Restor |
|--|
| Der Regor Der Kenzler Signature(s) der Rheinischen Hochschule Aachen |
| Name(s) Bram Wijlands |
| Title Head of Technology Transfer |
| Date26.11.2013 |
| Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V. |
| Signature(s) L. Alla |
| Name(s) Head of Patent Department |
| Fraunhofer-Gesellschaft zur Förder (1997) Tille der angewandten Forschung e.V. |
| Date Munich 0.9. BEZ. 2013 |

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