504702147 12/22/2017

PATENT ASSIGNMENT COVER SHEET

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

CONVEYING PARTY DATA

| Name | Execution Date |
|----------------|----------------|
| HEE-CHANG PARK | 12/11/2017 |
| DONG-WON YUN | 12/11/2017 |
| JUN-HO SEO | 12/11/2017 |
| JUNSEOK NAM | 12/11/2017 |
| MI-YEON LEE | 12/11/2017 |
| JEONG-SOO KIM | 12/11/2017 |

RECEIVING PARTY DATA

| KOREA INSTITUTE OF MACHINERY & MATERIALS |
|--|
| 156, GAJEONGBUK-RO, YUSEONG-GU, |
| DAEJEON |
| KOREA, REPUBLIC OF |
| 34103 |
| INDUSTRIAL COOPERATION FOUNDATION OF CHONBUK NATIONAL UNIVERSITY |
| 567 BAEKJE-DAERO, DEOKJIN-GU, JEOLLABUK-DO |
| JEONJU-SI |
| KOREA, REPUBLIC OF |
| 54896 |
| |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 15739418 |

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: 703-263-9390

Email: lex1233@lexipgroup.com
Correspondent Name: LEX IP MEISTER, PLLC

Address Line 1: 5180 PARKSTONE DRIVE, SUITE 175

Address Line 4: CHANTILLY, VIRGINIA 20151

504702147 REEL: 044471 FRAME: 0695

PATENT

| ATTORNEY DOCKET NUMBER: | PPP20173085US |
|--|---------------|
| NAME OF SUBMITTER: | JONGWON KIM |
| SIGNATURE: | /jwkim/ |
| DATE SIGNED: | 12/22/2017 |
| This document serves as an Oath/Declaration (37 CFR 1.63). | |

Total Attachments: 4

source=PPP20173085US_DEC_ASSIGN#page1.tif source=PPP20173085US_DEC_ASSIGN#page2.tif source=PPP20173085US_DEC_ASSIGN#page3.tif source=PPP20173085US_DEC_ASSIGN#page4.tif

> PATENT REEL: 044471 FRAME: 0696

COMBINED DECLARATION AND ASSIGNMENT (37 CFR 1.63)

As the below named inventor, I hereby declare that this Declaration is directed to:

TITLE: DUAL FREQUENCY POWER-DRIVEN INDUCTIVELY COUPLED PLASMA TORCH, AND APPARATUS FOR GENERATING NANOPARTICLE USING THE SAME

| the specification of which: (complete (a), (b) or (c)) (a) [] is attached hereto. | |
|--|-------------|
| (b) [] was filed in the U.S. Patent & Trademark Office on and was amended on | |
| (c) [x] was described and claimed in PCT International Application ? 2016 and as amended under PCT Article on (if any). | |
| The above-identified application was made or authorized to be made inventor or an original joint inventor of a claimed invention in the application. | , |
| WHEREAS, | |
| ASSIGNEE: KOREA INSTITUTE OF MACHINERY & MATERI ADDRESS: 156, Gajeongbuk-Ro, Yuseong-Gu, Daejeon 34103, Repu | |

ASSIGNEE: INDUSTRIAL COOPERATION FOUNDATION OF CHONBUK NATIONAL UNIVERSITY

ADDRESS: 567 Baekje-daero, Deokjin-gu, Jeonju-si, Jeollabuk-do 54896, Republic of Korea

are desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent that may be granted therefore in the United States and its territorial possessions and in any and all foreign countries.

NOW, THEREFORE, in consideration of the sum of FIVE DOLLARS (\$5.00), the receipt whereof is hereby acknowledged, and for other good and valuable consideration, I, by these presents do sell, assign and transfer unto said ASSIGNEE, the full and exclusive right to the said invention in the United States and its territorial possessions and in all foreign countries (including the right to claim priority under the terms of the International Convention and other relevant International Treaties and Arrangements from the aforesaid application) and the entire right, title and interest in and to any and all Letters Patent which may be granted therefor in the United States and its territorial possessions and in any and all foreign countries and in and to any and all divisions, reissues, continuations, substitutions and renewals thereof.

I hereby authorize and request the Patent Office Officials in the United States and its territorial possessions and any and all foreign countries to issue any and all of said Letters Patent, when granted, to said ASSIGNEE as the assignee of my entire right, title and interest in and to the same, for the sole use and behoof of said ASSIGNEE, its (his) successors and assigns, to the full end of the term for which said Letters Patent may be granted, as fully and entirely as the same would have been held by me had this Assignment and sale not been made.

Further, I agree that I will communicate to said ASSIGNEE or its (his) representatives any facts known to me respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, substitute, renewal and reissue applications, execute all necessary assignment papers to cause any and all of said Letters Patent to be issued to said ASSIGNEE, make all rightful oaths, and, generally do everything possible to aid said ASSIGNEE, its (his) successors and assigns, to obtain and enforce proper protection for said invention in the United States and its territorial possessions and in any and all foreign countries.

Page 1 of 2

I hereby acknowledge 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.

Address all correspondence and telephone calls to LEX IP MEISTER, PLLC., 5180 Parkstone Drive, Suite 175, Chantilly, Virginia 20151; Telephone: (703) 263-9390; Fax: (703) 263-9361, Customer No. 66390.

| LINOI HAAL | ENIUM: | | | |
|------------|----------------|-----|--|---|
| Signature: | Hee-Chang PARK | | Date: <u>/11/2017</u> | ~ · · · · · · · · · · · · · · · · · · · |
| SECOND IN | VENTOR: | 1 | | |
| Signature: | Dong-Won YUN | Mr. | Date: \ \rangle \int \ \langle \lang | - - |
| THIRD INV | ENTOR: | | | |
| Signature: | Jun-Ho SEO | | Date: | - : |
| FOURTH I | VENTOR: | | | |
| Signature: | Junseok NAM | | Date: | |
| FIFTH INV | ENTOR: | | | |
| Signature: | Mi-Yeon LEE | | Date: | ₹ |
| SIXTH INV | ENTOR: | | | |
| Signature: | Jeong-Soo KIM | | Date: | · |

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| the specification of which: (complete (a), (b) or (c)) (a) [] is attached hereto. |
|--|
| (b) [] was filed in the U.S. Patent & Trademark Office on and assigned Serial No.: |
| and was amended on (if applicable). |
| (c) [x] was described and claimed in PCT International Application No. PCT/KR2016/006719 filed on June 23 |
| 2016 and as amended under PCT Article on (if any). |
| 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. |
| WHEREAS, |
| ASSIGNEE: KOREA INSTITUTE OF MACHINERY & MATERIALS ADDRESS: 156, Gajeongbuk-Ro, Yuseong-Gu, Daejeon 34103, Republic of Korea |

ASSIGNEE: INDUSTRIAL COOPERATION FOUNDATION OF CHONBUK NATIONAL UNIVERSITY

ADDRESS: 567 Baekje-daero, Deokjin-gu, Jeonju-si, Jeollabuk-do 54896, Republic of Korea

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I hereby authorize and request the Patent Office Officials in the United States and its territorial possessions and any and all foreign countries to issue any and all of said Letters Patent, when granted, to said ASSIGNEE as the assignee of my entire right, title and interest in and to the same, for the sole use and behoof of said ASSIGNEE, its (his) successors and assigns, to the full end of the term for which said Letters Patent may be granted, as fully and entirely as the same would have been held by me had this Assignment and sale not been made.

Further, I agree that I will communicate to said ASSIGNEE or its (his) representatives any facts known to me respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, substitute, renewal and reissue applications, execute all necessary assignment papers to cause any and all of said Letters Patent to be issued to said ASSIGNEE, make all rightful oaths, and, generally do everything possible to aid said ASSIGNEE, its (his) successors and assigns, to obtain and enforce proper protection for said invention in the United States and its territorial possessions and in any and all foreign countries.

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| FIRST INV | ENTOR: | | |
|------------|------------------|----------------------|---------------|
| Signature: | Hee-Chang PARK | Date: | |
| SECOND II | NVENTOR: | | |
| Signature: | Dong-Won YUN | Date: | |
| THIRD INV | ENTOR: | | |
| Signature: | Jun-Ho SEO | Date: | |
| FOURTH II | NVENTOR: | | ************* |
| Signature: | Junseok NAM A | Date: 20/917 /3号 //4 | |
| FIFTH INV | ENTOR: | | |
| Signature: | Mi-Yeon LEE V5-7 | Date: 247 + 12 - 11 | |
| SIXTH INV | ENTOR: | | |
| Signature: | Jeong-Soo KIM | Date: | |

Page 2 of 2