505822754 12/16/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5869584

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
SE-WOOK SEO	11/06/2019
JIN-HYUNG LIM	10/30/2019
CHEOL-SOO LEE	10/30/2019

RECEIVING PARTY DATA

Name:	LG CHEM, LTD.	
Street Address:	128, YEOUI-DAERO, YEONGDEUNGPO-GU	
City:	SEOUL	
State/Country:	KOREA, REPUBLIC OF	
Postal Code:	07336	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16623136

CORRESPONDENCE DATA

Fax Number: (202)739-3001

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: 2027393000

Email: patents@morganlewis.com, kathy.casavecchia@morganlewis.com

Correspondent Name: COLLIN W. PARK

Address Line 1: MORGAN, LEWIS & BOCKIUS LLP Address Line 2: 1111 PENNSYLVANIA AVENUE NW

Address Line 4: WASHINGTON, D.C. 20004

ATTORNEY DOCKET NUMBER:	121594-5099
NAME OF SUBMITTER:	ROBERT J. GOODELL
SIGNATURE:	/Robert J. Goodell/
DATE SIGNED:	12/16/2019

Total Attachments: 4

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PATENT 505822754 REEL: 051294 FRAME: 0307

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PATENT REEL: 051294 FRAME: 0308

COMBINED DECLARATION & ASSIGNMENT FOR UTILITY OR DESIGN APPLICATION		
Title	APPARATUS AND METHOD FOR ESTIMATING STATE OF SECONDARY BATTERY	
DECLARATION		
As a below nar	med inventor, I hereby declare that:	
This declaratio	on is directed to:	
The attached application, or		
⊠ ∪ 2019 .	J.S. application or PCT international application number PCT/KR2019/001106 filed on January 25,	
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 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.		
Note to Inventor: 37 C.F.R. § 1.63(c) states: A person may not execute an oath or declaration for an application unless that person has reviewed and understands the contents of the application, including the claims, and is aware of the duty to disclose to the Office all information known to the person to be material to patentability as defined in § 1.56.		
ASSIGNMENT		
WHEREAS, I ha	ave made an invention described and/or claimed in the above-identified application; and	
WHEREAS, LG CHEM , LTD ., a corporation of the Republic of Korea whose post office address is 128 , Yeoui-daero , Yeongdeungpo-gu , Seoul , 07336 , Republic of Korea (hereinafter referred to as the "Assignee"), is desirous of securing the entire right, title, and interest in and to this invention in all countries throughout the world, and in and to the application of United States Letters Patent on this invention and the Letters Patent to be issued upon this application;		
NOW THEREFORE, be it known that, for good and valuable consideration the receipt of which from the Assignee is hereby acknowledged, I have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, and its lawful successors and assigns, my entire right, title, and interest in and to this invention and this application, and all divisions, and continuations thereof, and all Letters Patent of the United States which may be granted thereon, and all reissues thereof, and all rights to claim priority on the basis of such		

AND, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any agreement in conflict with this Assignment;

the terms of this Assignment;

applications, and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, and all extensions, renewals, and reissues thereof; and I hereby authorize and request the Director of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent of this invention to the Assignee, and its successors and assigns, in accordance with

AND, I HEREBY further covenant and agree that I will, without further consideration, communicate with the Assignee,

Morgan, Lewis & Bockius LLP

COMBINED DECLARATION & ASSIGNMEN	T FOR UTILITY OR DESIGN APPLICATION	
AND, I HEREBY covenant that I have the full right to convey not executed and will not execute any agreement in conflic	the interest assigned by this Assignment and the	ave
AND, I HEREBY further covenant and agree that I will, without and its successors and assigns, any facts known to me respesign all lawful papers when called upon to do so, execute and desirable to perfect the title to this invention in said Assigner continuation, and reissue applications, make all rightful oath Assignee, and its successors and assigns, to obtain and enforunited States and any foreign country, it being understood the shall be borne by the Assignee, and its successors and assigns.	ecting this invention, and testify in any legal proceed deliver any and all papers that may be necessaled, and its successors or assigns, execute all divisors and generally do everything possible to aid the proper patent protection for this invention in that any expense incident to the execution of the constitution of the execution of the execu	eeding, iry or onal,
IN TESTIMONY WHEREOF, I have hereunto set my hands.		
First Inventor (Full Legal Name): SEO, Se-Wook Signature:	Date: 2019 - 11-6	
Second Inventor (Full Legal Name): LIM, Jin-Hyung Signature:	Date:	
Third Inventor (Full Legal Name): LEE, Cheol-Soo	Date:	
Fourth inventor (Full Legal Name):	Date:	
ifth Inventor (Full Legal Name): ignature:	Date:	
ixth Inventor (Full Legal Name): Ignature:	Date:	
eventh Inventor (Full Legal Name): ignature:	Date:	

Morgan, Lewis & Bockius LLP

PATENT REEL: 051294 FRAME: 0310

C	OMBINED DECLARATION & ASSIGNMENT FOR UTILITY OR DESIGN APPLICATION
Title	APPARATUS AND METHOD FOR ESTIMATING STATE OF SECONDARY BATTERY
DECLARATION	
As a below nar	ned inventor, I hereby declare that:
This declaratio	n is directed to:
П	he attached application, or
∑ u 2019.	J.S. application or PCT international application number <u>PCT/KR2019/001106</u> filed on <u>January 25,</u>
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 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.	
Note to Inventor: 37 C.F.R. § 1.63(c) states: A person may not execute an oath or declaration for an application unless that person has reviewed and understands the contents of the application, including the claims, and is aware of the duty to disclose to the Office all information known to the person to be material to patentability as defined in § 1.56.	
ASSIGNMENT	
WHEREAS, I ha	eve made an invention described and/or claimed in the above-identified application; and
WHEREAS, LG CHEM, LTD., a corporation of the Republic of Korea whose post office address is 128, Yeoui-daero, Yeongdeungpo-gu, Seoul, 07336, Republic of Korea (hereinafter referred to as the "Assignee"), is desirous of securing the entire right, title, and interest in and to this invention in all countries throughout the world, and in and to the application of United States Letters Patent on this invention and the Letters Patent to be issued upon this application;	
NOW THEREFORE, be it known that, for good and valuable consideration the receipt of which from the Assignee is hereby acknowledged, I have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, and its lawful successors and assigns, my entire right, title, and interest in and to this invention and this application, and all divisions, and continuations thereof, and all Letters Patent of the United States	

the terms of this Assignment; AND, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any agreement in conflict with this Assignment;

which may be granted thereon, and all reissues thereof, and all rights to claim priority on the basis of such applications, and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, and all extensions, renewals, and reissues thereof; and I hereby authorize and request the Director of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent of this invention to the Assignee, and its successors and assigns, in accordance with

AND, I HEREBY further covenant and agree that I will, without further consideration, communicate with the Assignee,

Morgan, Lewis & Bockius LLP

COMBINED DECLARATION & ASSIGNMENT FOR UTILITY OR DESIGN APPLICATION

AND, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any agreement in conflict with this Assignment;

AND, I HEREBY further covenant and agree that I will, without further consideration, communicate with the Assignee, and its successors and assigns, any facts known to me respecting this invention, and testify in any legal proceeding, sign all lawful papers when called upon to do so, execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, and its successors or assigns, execute all divisional, continuation, and reissue applications, make all rightful oaths and generally do everything possible to aid the Assignee, and its successors and assigns, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee, and its successors and assigns.

IN TESTIMONY WHEREOF, I have hereunto set my hands.	
First Inventor (Full Legal Name): SEO, Se-Wook	
Signature:	Date:
Second Inventor (Full Legal Name): LIM, Jin-Hyung	the section of the se
Signature:	Date: <u>30.0CT</u> , 2019
Third Inventor (Full Legal Name): LEE, Cheol-Soo	-10
Signature:	Date: 30.007.2019.
Fourth Inventor (Full Legal Name):	
Signature:	Date:
Fifth Inventor (Full Legal Name):	
Signature:	Date:
Sixth Inventor (Full Legal Name):	Control of the Contro
Signature:	Date:
Seventh Inventor (Full Legal Name):	
Signature:	Date:

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Confidential

RECORDED: 12/16/2019

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