504472406 07/25/2017

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4519108

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

CONVEYING PARTY DATA

| Name | Execution Date |
|-------------|----------------|
| YUN-GOO KIM | 07/18/2017 |
| GWANG-HA NA | 07/18/2017 |
| YUN-HA AN | 07/18/2017 |

RECEIVING PARTY DATA

| Name: | LG SILTRON INC. | |
|-----------------|--------------------------|--|
| Street Address: | 53 IMSU-RO | |
| City: | GUMI-SI GYEONGSANGBUK-DO | |
| State/Country: | KOREA, REPUBLIC OF | |
| Postal Code: | 39386 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
|---------------------|----------|--|
| Application Number: | 15544501 | |

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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LEWIS ROCA ROTHGERBER CHRISTIE LLP **Correspondent Name:**

Address Line 1: PO BOX 29001

Address Line 4: GLENDALE, CALIFORNIA 91209-9001

| ATTORNEY DOCKET NUMBER: | NUMBER: 142679/PCH/AAM | |
|----------------------------------|------------------------|--|
| NAME OF SUBMITTER: ALEX MARTINEZ | | |
| SIGNATURE: | /Alex Martinez/ | |
| DATE SIGNED: | 07/25/2017 | |

Total Attachments: 3

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> **PATENT** REEL: 043091 FRAME: 0650 504472406

INVENTOR'S DECLARATION AND ASSIGNMENT FOR PATENT APPLICATION

PATENT

Title of Invention: CONTROL SYSTEM AND CONTROL METHOD FOR DIAMETER OF SINGLE CRYSTAL INGOT

Docket No.: Application No.

INVENTOR'S DECLARATION

As a below named inventor, I hereby declare that:

This declaration is directed to the attached application unless the following is checked:

_X United States Application or PCT International Application Number PCT/KR2015/014588 filed on December 31, 2015.

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 above-identified application.

I have reviewed and understand the contents of the above-identified application, including the claims.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I 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.

ASSIGNMENT

In consideration of good and valuable consideration, the receipt of which is hereby acknowledged, the undersigned,

(1) KIM, Yun-Goo, NA, Gwang-Ha and AN, Yun-Ha;

HEREBY SELL(S), ASSIGN(S) AND TRANSFER(S) TO

(2) LG SILTRON INC.

having a place of business at

(3) 53 Imsu-ro Gumi-si Gyeongsangbuk-do 730-724, Republic of Korea (hereinafter called "ASSIGNEE") the entire right, title and interest in and to any and all improvements which are disclosed in the application for United States Letters Patent entitled (4) CONTROL SYSTEM AND CONTROL METHOD FOR DIAMETER OF SINGLE CRYSTAL INGOT

1 of 3

INVENTOR'S DECLARATION AND ASSIGNMENT FOR PATENT APPLICATION

| Application No.: | | | |
|---|---|-------------------------------------|--|
| which application executed herewith or was | l on even | | (LEWIS ROCA ROTHGERBER CHRISTIE |
| (a) executed on (5a); | | 1 1 | LLP,29001, Glendale, CA 91209-9001) is |
| (b) filed on (5b): | | į | hereby authorized to insert in (b) the specified |
| Application No.: | | | data, when known. |
| and an execusions, divisions, r | eissues, suc Il benefits un | istitutes. ider all in | nay be granted on said application, and any renewals or continuations of said applicatio iternational conventions for the protection of ements |
| It is hereby authorized and req Letters Patent, when granted, designee. | uested that to said ASSI | the Comi GNEE, it | missioner of Patents issue any and all of sa ts assigns or its successors in interest or its |
| renewal, and reissue patent ap | te undersign plications; e ASSIGNEE | ed will e: xecute a shall cor | hen requested, without charge to but at the xecute all divisional, continuing, substitute, Il rightful other papers; and generally do nsider desirable for aiding in securing and |
| KIM, Yun-Goo | | | <u> 2011 : 12 18</u> |
| Legal Name of Inventor | | | Date |
| NA, Gwang-Ha Legal Name of Inventor | | *********** | Date |
| Signature | | | |
| MW PAS1459163.7.4.01/19/17 6.26 PM | | | |

2 of 3

PATENT REEL: 043091 FRAME: 0652

| | | 2017, 7,18 | |
|--------------------------------------|--|------------|--|
| AN, Yun-Ha Legal Name of Inventor | | Date | |
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RECORDED: 07/25/2017