PATENT ASSIGNMENT COVER SHEET

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

CONVEYING PARTY DATA

| Name | Execution Date |
|------------------|----------------|
| HIROAKI FUJII | 09/18/2013 |
| SATOSHI MUKOYAMA | 09/18/2013 |
| SOYA ARAKI | 09/18/2013 |
| HISANORI TSUBOI | 10/03/2013 |
| HIDETOMO MIYAKE | 10/03/2013 |
| TAKESHI YAMAMOTO | 10/25/2013 |

RECEIVING PARTY DATA

| Name: | SONY CORPORATION |
|-----------------|------------------------|
| Street Address: | 1-7-1 KONAN, MINATO-KU |
| City: | TOKYO |
| State/Country: | JAPAN |
| Postal Code: | 108-0075 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 16298572 |

CORRESPONDENCE DATA

Fax Number: (908)654-7866

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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LERNER, DAVID, LITTENBERG, KRUMHOLZ & MENTLIK, LLP **Correspondent Name:**

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| ATTORNEY DOCKET NUMBER: | SONYJP 3.3-3164 CCI |
|-------------------------|---------------------|
| NAME OF SUBMITTER: | KATHLEEN REYNOLDS |
| SIGNATURE: | /Kathleen Reynolds/ |
| DATE SIGNED: | 09/13/2019 |

Total Attachments: 4

PATENT REEL: 050366 FRAME: 0217

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Attorney Docket No. SONY Ref. No.: SP332030US01

REEL: 050366 FRAME: 0219

ASSIGNMENT

WHEREAS, I, as below named inventors, residing at the addresses stated next to our names, am a sole inventor (if only one name is listed below) or a joint inventor (if plural names are listed below) of certain new and useful improvements in DISPLAY

for which application for Letters Patent of the United States of America was executed by me on the date indicated next to my name and address:

AND WHEREAS, SONY CORPORATION, a Japanese corporation, with offices at 1-7-1 Konan, Minato-ku, Tokyo, Japan (hereinafter referred to as ASSIGNEE) is desirous of acquiring all interest in, to and under said invention, said application disclosing the invention and in, to and under any Letters Patent or similar legal protection which may be granted therefor in the United States and in any and all foreign countries;

NOW THEREFORE, in consideration of the sum of One Dollar (\$1,00), and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged. I, as a sole or joint inventor as indicated below, by these presents do hereby assign, sell and transfer unto the said ASSIGNEE, its successors, assigns, and legal representatives, the entire right, title and interest in the said invention, said application, including any divisions and continuations thereof, and in and to any and all Letters Patent of the United States, and countries foreign thereto, which may be granted for said invention, and in and to any and all priority rights and/or convention rights under the International Convention for the Protection of Industrial Property, Inter-American Convention Relating to Patents, Designs and Industrial Models, and any other international agreements to which the United States of America adheres, and to any other benefits accruing or to accrue to me with respect to the filing of applications for patents or securing of patents in the United States and countries foreign thereto, and I hereby authorize and request the Commissioner of Patents to issue the said United States Letters Patent to said ASSIGNEE, as the assignee of the whole right, title and interest thereto:

And I further agree to execute all necessary or desirable and lawful future documents, including assignments in favor of ASSIGNEE or its designee, as ASSIGNEE or its successors, assigns and legal representatives may from time-to-time present to me and without further remuneration, in order to perfect title in said invention, modifications, and improvements in said invention, applications and Letters Patent of the United States and countries foreign thereto;

And I further agree to properly execute and deliver and without further remuneration, such necessary or desirable and lawful papers for application for foreign patents, for filing subdivisions of said application for patent, and or, for obtaining any reissue or reissues of any Letters patent which may be granted for my aforesaid invention, as the ASSIGNEE thereof shall hereafter require and prepare at its own expense;

And I further agree that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said application, said invention and said Letters Patent and legal equivalents in foreign countries as may be known and accessible to me and will testify as to the same in any interference or litigation related thereto:

And I hereby covenant 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 I hereby authorize and request my attorney(s) of recorthe spaces that follow: International Application No.: PCT/I | d in this application to insert the serial number and filing date of this application in P2012/063344, International Filing Date: 2012/05/24 |
|--|--|
| This assignment executed on the dates indicated below. | |
| HIROAKI FUJII | |
| Name of first or sole inventor KANAGAWA, JAPAN | Execution date of U.S. Patent Application |
| Residence of First or sole inventor Horoaki Frajii Signature of first or sole inventor | September 18, 2013 Date of this assignment |
| Signature of first or sole inventor | Date of this assignment |
| SATOSHI MUKOYAMA | |
| Name of second inventor TOKYO, JAPAN | Execution date of U.S. Patent Application |
| Residence of second inventor | Semptember 18, 2013 Date of this assignment |
| Signature of second inventor | Date of this assignment |
| SOYA ARAKI | |
| Name of third inventor | Execution date of U.S. Patent Application |
| KANAGAWA, JAPAN | |
| Residence of third inventor | Sedember 18_ 2013_ |
| Signature of third inventor | Date of this/assignment PATENT |

Attorney Docket No. SONY Ref. No.:SP332030US01

ADDITIONAL INVENTOR(S)

| HISANORI TSUBOI | |
|--|--|
| Name of fourth inventor | Execution date of U.S. Patent Application |
| KANAGAWA, JAPAN | λ 6 |
| Residence of fourth inventor | |
| Hisamory Tsuboi | Oct. 3, 2013 |
| Signature of fourth inventor | Date of this assignment |
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| HIDETOMO MIYAKE | |
| Name of fifth inventor. | Execution date of U.S. Patent Application |
| KANAGAWA, JAPAN | |
| Residence of fifth inventor | 9 |
| Hidetomo Hiyake Signature of fifth inventor | Occ. Ach. 2013 Date of this assignment |
| Signature of fifth inventor | Date of this assignment |
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| The state of the s | THE SECRET SECRE |
| Name of sixth inventor | Execution date of U.S. Patent Application |
| Residence of sixth inventor | |
| Residence of Sixti Inventor | |
| Signature of sixth inventor | Date of this assignment |
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| Residence of seventh inventor | |
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| Signature of seventh inventor | Date of this assignment |
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| Name of eighth inventor | Execution date of U.S. Patent Application |
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| Residence of eighth inventor | |
| Signature of eighth inventor | anno anno anno anno anno anno anno anno |
| Signature of eighth inventor | Date of this assignment |
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| Name of ninth inventor | Execution date of U.S. Patent Application |
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| Residence of ninth inventor | |
| | |
| Signature of ninth inventor | Date of this assignment |

Attorney Docket No. SONY Ref. No.:SP332030US01

ASSIGNMENT

WHEREAS, I, as below named inventors, residing at the addresses stated next to our names, am a sole inventor (if only one name is listed below) or a joint inventor (if plural names are listed below) of certain new and useful improvements in DISPLAY

for which application for Letters Patent of the United States of America was executed by me on the date indicated next to my name and address;

AND WHEREAS, SONY CORPORATION, a Japanese corporation, with offices at 1-7-1 Konan, Minato-ku, Tokyo, Japan (hereinafter referred to as ASSIGNEE) is desirous of acquiring all interest in, to and under said invention, said application disclosing the invention and in, to and under any Letters Patent or similar legal protection which may be granted therefor in the United States and in any and all foreign countries:

NOW THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, I, as a sole or joint inventor as indicated below, by these presents do hereby assign, sell and transfer unto the said ASSIGNEE, its successors, assigns, and legal representatives, the entire right, title and interest in the said invention, said application, including any divisions and continuations thereof, and in and to any and all Letters Patent of the United States, and countries foreign thereto, which may be granted for said invention, and in and to any and all priority rights and/or convention rights under the International Convention for the Protection of Industrial Property, Inter-American Convention Relating to Patents, Designs and Industrial Models, and any other international agreements to which the United States of America adheres, and to any other benefits accruing or to accrue to me with respect to the filling of applications for patents or securing of patents in the United States and countries foreign thereto, and I hereby authorize and request the Commissioner of Patents to issue the said United States Letters Patent to said ASSIGNEE, as the assignee of the whole right, title and interest thereto;

And I further agree to execute all necessary or desirable and lawful future documents, including assignments in favor of ASSIGNEE or its designee, as ASSIGNEE or its successors, assigns and legal representatives may from time-to-time present to me and without further remuneration, in order to perfect title in said invention, modifications, and improvements in said invention, applications and Letters Patent of the United States and countries foreign thereto:

And I further agree to properly execute and deliver and without further remuneration, such necessary or desirable and lawful papers for application for foreign patents, for filing subdivisions of said application for patent, and or, for obtaining any reissue or reissues of any Letters patent which may be granted for my aforesaid invention, as the ASSIGNEE thereof shall hereafter require and prepare at its own expense:

And I further agree that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said application, said invention and said Letters Patent and legal equivalents in foreign countries as may be known and accessible to me and will testify as to the same in any interference or litigation related thereto;

And I hereby covenant 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 I hereby authorize and request my attorney(s) of record in this application to insert the serial number and filing date of this application in the spaces that follow: International Application No.: PCT/JP2012/063344 _____. International Filing Date: 2012/05/24 This assignment executed on the dates indicated below. HIROAKI FUJII Name of first or sole inventor Execution date of U.S. Patent Application KANAGAWA, JAPAN Residence of First or sole inventor Signature of first or sole inventor Date of this assignment SATOSHI MUKOYAMA Name of second inventor Execution date of U.S. Patent Application TOKYO, JAPAN Residence of second inventor Signature of second inventor Date of this assignment SOYA ARAKI Name of third inventor Execution date of U.S. Patent Application KANAGAWA, JAPAN Residence of third inventor Signature of third inventor Date of this assignment

ADDITIONAL INVENTOR(S)

| HISANORI TSUBOI | |
|---|---|
| Name of fourth inventor | Execution date of U.S. Patent Application |
| KANAGAWA, JAPAN Residence of fourth inventor | |
| Residence of Tourith inventor | |
| Signature of fourth inventor | Date of this assignment |
| | |
| HIDETOMO MIYAKE | |
| Name of fifth inventor | Execution date of U.S. Patent Application |
| KANAGAWA, JAPAN | •• |
| Residence of fifth inventor | |
| Signature of fifth inventor | Date of this assignment |
| | |
| TANDAMANA | |
| TAKESHI YAMAMOTO Name of sixth inventor | Execution date of U.S. Patent Application |
| TOKYO, JAPAN | Execution date of 0.5.1 atom Application |
| Residence of sixth inventor | 250 221 |
| Meshi Tamemoto | 25 la Oct. 2013 |
| Signature of sixth inventor | Date of this assignment |
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| Name of seventh inventor | Execution date of U.S. Patent Application |
| Name of seventh inventor Residence of seventh inventor | Execution date of U.S. Patent Application |
| Residence of seventh inventor | |
| | Execution date of U.S. Patent Application Date of this assignment |
| Residence of seventh inventor | |
| Residence of seventh inventor | Date of this assignment |
| Residence of seventh inventor | |
| Residence of seventh inventor Signature of seventh inventor Name of eighth inventor | Date of this assignment |
| Residence of seventh inventor Signature of seventh inventor Name of eighth inventor Residence of eighth inventor | Date of this assignment Execution date of U.S. Patent Application |
| Residence of seventh inventor Signature of seventh inventor Name of eighth inventor | Date of this assignment |
| Residence of seventh inventor Signature of seventh inventor Name of eighth inventor Residence of eighth inventor | Date of this assignment Execution date of U.S. Patent Application |
| Residence of seventh inventor Signature of seventh inventor Name of eighth inventor Residence of eighth inventor Signature of eighth inventor | Date of this assignment Execution date of U.S. Patent Application Date of this assignment |
| Residence of seventh inventor Signature of seventh inventor Name of eighth inventor Residence of eighth inventor | Date of this assignment Execution date of U.S. Patent Application |
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