

PATENT ASSIGNMENT COVER SHEET

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| NATURE OF CONVEYANCE: | ASSIGNMENT |
| CONVEYING PARTY DATA | |
| Name | Execution Date |
| ATSUSHI TAKEUCHI | 04/17/2015 |
| OSAMU MACHIDA | 04/17/2015 |
| AKIRA SHIMOFUKU | 04/17/2015 |
| RECEIVING PARTY DATA | |
| Name: | RICOH COMPANY, LTD. |
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| City: | TOKYO |
| State/Country: | JAPAN |
| Postal Code: | 143-8555 |
| PROPERTY NUMBERS Total: 1 | |
| Property Type | Number |
| Application Number: | 15695769 |
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| SIGNATURE: | /Yukiko Leggitt/ |
| DATE SIGNED: | 09/05/2017 |
| Total Attachments: 2 | |
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| source=15R-005D1Assignment#page2.tif | |

ASSIGNMENT

THIS ASSIGNMENT, by (1) Atsushi TAKEUCHI, (2) Osamu MACHIDA and (3) Akira SHIMOFUKU (hereinafter referred to as "Assignors"), residing at (1) Kanagawa, Japan, (2) Kanagawa, Japan, and (3) Kanagawa, Japan, respectively;

WHEREAS, Assignors have invented certain new and useful improvements in PRECURSOR SOL-GEL SOLUTION, ELECTROMECHANICAL TRANSDUCER ELEMENT, LIQUID DROPLET DISCHARGE HEAD, AND INKJET RECORDING APPARATUS,

(Application No. _____, filed _____)

set forth in a patent application for Letters Patent of the United States, either previously filed or executed concurrently herewith; and

WHEREAS, Ricoh Company, Ltd. (hereinafter referred to as "Assignee"), having offices at 3-6, Nakamagome 1-chome, Ohta-ku, Tokyo 143-8555 Japan, is desirous of acquiring the entire right, title and interest in and to said inventions and said application for Letters Patent of the United States, and in and to any Letters Patent of the United States to be obtained therefor and thereon;

NOW, THEREFORE, in consideration of One Dollar (\$1.00) and other good and sufficient consideration, the receipt of which is hereby acknowledged, Assignors have sold, assigned, transferred and set over, and by these presents do sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, the entire right, title and interest in and to the above-mentioned inventions and application for Letters Patent, and in and to any and all direct and indirect divisions, continuations, continued prosecutions, and continuations-in-part of said application, and any and all Letters Patent in the United States and all foreign countries which may be granted therefor and thereon, and reissues, reexaminations and extensions of said Letters Patent, and all rights under the International Convention for the Protection of Industrial Property, the same to be held and enjoyed by the Assignee, for its own use and benefit and the use and benefit of its successors, legal representatives and assigns, to the full end of the term or terms for which Letters Patent may be granted and/or extended, as fully and entirely as the same would have been held and enjoyed by Assignors, had this sale and Assignment not been made;

AND for the same consideration, Assignors hereby represent and warrant to Assignee, its successors legal representatives and assigns, that, at the time of execution and delivery of these presents, except for any rights, titles, and or interests that have arisen to Assignee under the law or that have already been transferred to Assignee, Assignors are the sole and lawful owners of the entire right, title and interest in and to said inventions and application for Letters Patent above-mentioned, and that the same are

unencumbered and that Assignors have good and full right and lawful authority to sell and convey the same in the manner herein set forth;

AND for the same consideration, Assignors hereby covenant and agree to and with Assignee, its successors, legal representatives and assigns, that Assignors will sign all papers and documents, take all lawful oaths, and do all acts necessary or required to be done for the procurement, maintenance, enforcement and defense of any Letters Patent and applications for Letters Patent for said inventions, without charge to Assignee, its successors, legal representatives, and assigns, whenever counsel of Assignee, or counsel of its successors, legal representatives and assigns shall advise; that any proceeding in connection with said inventions, or said patent application for Letters Patent, or any proceeding in connection with any Letters Patent or applications for Letters Patent for said inventions in any country, including but not limited to interference proceedings, is lawful and desirable; or, that any division, continuation or continuation-in-part of any application for Letters Patent, or any reissue, reexamination or extension of any Letters Patent, to be obtained thereon, is lawful and desirable;

AND Assignors hereby request that the Director of the United States Patent and Trademark Office issue said Letters Patent of the United States to Assignee, as Assignee of said inventions and the said Letters Patent to be issued thereon, for the sole use and benefit of Assignee, its successors, legal representatives and assigns;

AND Assignors hereby grant the following individuals the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document: All practitioners associated with the Customer Number 77464.

AND Assignors acknowledge an obligation of assignment of this invention to Assignee at the time the invention was made.

April 17, 2015
Date

Atsushi Takeuchi
Atsushi TAKEUCHI

April 17, 2015
Date

Osamu Machida
Osamu MACHIDA

April 17, 2015
Date

Akira Shimofuku
Akira SHIMOFUKU