

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5353905

|                                                                                                                                                                                                 |                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>SUBMISSION TYPE:</b>                                                                                                                                                                         | NEW ASSIGNMENT                       |
| <b>NATURE OF CONVEYANCE:</b>                                                                                                                                                                    | ASSIGNMENT                           |
| <b>CONVEYING PARTY DATA</b>                                                                                                                                                                     |                                      |
| <b>Name</b>                                                                                                                                                                                     | <b>Execution Date</b>                |
| ELLIOT HAMBURGER                                                                                                                                                                                | 02/02/2016                           |
| JONATHAN S. HARRIS                                                                                                                                                                              | 02/02/2016                           |
| JEFFREY A. LITVIN                                                                                                                                                                               | 02/02/2016                           |
| SAUHARD SAHI                                                                                                                                                                                    | 02/02/2016                           |
| JOHN D. VALOIS                                                                                                                                                                                  | 02/02/2016                           |
| ARA BASIL                                                                                                                                                                                       | 02/03/2016                           |
| <b>RECEIVING PARTY DATA</b>                                                                                                                                                                     |                                      |
| <b>Name:</b>                                                                                                                                                                                    | BLACKROCK FINANCIAL MANAGEMENT, INC. |
| <b>Street Address:</b>                                                                                                                                                                          | 400 HOWARD STREET                    |
| <b>City:</b>                                                                                                                                                                                    | SAN FRANCISCO                        |
| <b>State/Country:</b>                                                                                                                                                                           | CALIFORNIA                           |
| <b>Postal Code:</b>                                                                                                                                                                             | 94105                                |
| <b>PROPERTY NUMBERS Total: 1</b>                                                                                                                                                                |                                      |
| <b>Property Type</b>                                                                                                                                                                            | <b>Number</b>                        |
| Application Number:                                                                                                                                                                             | 15598641                             |
| <b>CORRESPONDENCE DATA</b>                                                                                                                                                                      |                                      |
| <b>Fax Number:</b>                                                                                                                                                                              | (650)938-5200                        |
| <i>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.</i> |                                      |
| <b>Phone:</b>                                                                                                                                                                                   | 2124302662                           |
| <b>Email:</b>                                                                                                                                                                                   | tquillin@fenwick.com                 |
| <b>Correspondent Name:</b>                                                                                                                                                                      | DANIEL R. BROWNSTONE                 |
| <b>Address Line 1:</b>                                                                                                                                                                          | FENWICK & WEST LLP                   |
| <b>Address Line 2:</b>                                                                                                                                                                          | 801 CALIFORNIA STREET                |
| <b>Address Line 4:</b>                                                                                                                                                                          | MOUNTAIN VIEW, CALIFORNIA 94041      |
| <b>ATTORNEY DOCKET NUMBER:</b>                                                                                                                                                                  | 22869-36158/US                       |
| <b>NAME OF SUBMITTER:</b>                                                                                                                                                                       | DANIEL R. BROWNSTONE, REG. NO. 46581 |
| <b>SIGNATURE:</b>                                                                                                                                                                               | /Daniel R. Brownstone 46581/         |
| <b>DATE SIGNED:</b>                                                                                                                                                                             | 01/31/2019                           |

**Total Attachments: 3**

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## ASSIGNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **BlackRock Financial Management, Inc.**, a Delaware corporation, having a place of business at 55 East 52<sup>nd</sup> Street, New York, NY 10055 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following provisional or non-provisional application filed under 35 U.S.C. § 111, design application filed under 35 U.S.C. § 171, international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION"):

- Application No. **15/011,250**, entitled "**RELIABLY UPDATING A MESSAGING SYSTEM**," filed on **January 29, 2016**, which claims priority from a provisional application, filed on January 29, 2015, now bearing US Application No. 62/109,512.

2. The entire worldwide right, title, and interest in and to:  
(a) the APPLICATION; (b) all applications claiming priority from the APPLICATION;  
(c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto that have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that the INVENTOR has not made and will not

|                |                                      |                    |             |
|----------------|--------------------------------------|--------------------|-------------|
| Title:         | RELIABLY UPDATING A MESSAGING SYSTEM |                    |             |
| Filed:         | January 29, 2016                     | Attorney Docket #: | 22869-31024 |
| Application #: | 15/011,250                           | Client Ref #:      |             |

hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office or other authority for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

By signing below, INVENTOR further attests to the following:

- The APPLICATION was made or authorized to be made by INVENTOR.
- INVENTOR believes that INVENTOR is the original inventor or an original joint inventor of a claimed invention in the APPLICATION.

INVENTOR hereby acknowledges that any willful false statement made in this document is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Name and Signature

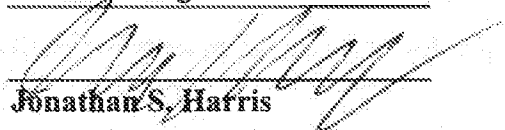


Elliot Hamburger

Date of Signature

2/2/2016

Name and Signature

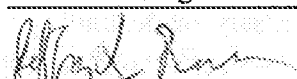


Jonathan S. Harris

Date of Signature

2/2/16

Name and Signature



Jeffrey A. Litvin

Date of Signature

2/2/16

Name and Signature



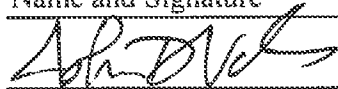
Sauhard Sahi

Date of Signature

2/2/2016

|                |                                      |                    |             |
|----------------|--------------------------------------|--------------------|-------------|
| Title:         | RELIABLY UPDATING A MESSAGING SYSTEM |                    |             |
| Filed:         | January 29, 2016                     | Attorney Docket #: | 22869-31024 |
| Application #: | 15/011,250                           | Client Ref #:      |             |

Name and Signature



John D. Valois

Date of Signature

2/2/2016

Name and Signature



Ara Basil

Date of Signature

2/3/16