PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

ersion v1.1 EPAS ID: PAT4534873

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

CONVEYING PARTY DATA

| Name | Execution Date |
|-----------|----------------|
| SOUNIL YU | 12/17/2015 |

RECEIVING PARTY DATA

| Name: | BANK OF AMERICA CORPORATION |
|-------------------|-----------------------------|
| Street Address: | 214 NORTH TRYON STREET |
| Internal Address: | MAILCODE: NC1-027-20-05 |
| City: | CHARLOTTE |
| State/Country: | NORTH CAROLINA |
| Postal Code: | 28255 |

PROPERTY NUMBERS Total: 2

| Property Type | Number |
|---------------------|----------|
| Application Number: | 15668233 |
| Application Number: | 15668221 |

CORRESPONDENCE DATA

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| ATTORNEY DOCKET NUMBER: | 6944USC1-C2-3075-3076 |
|-------------------------|--|
| NAME OF SUBMITTER: | PETER B. STEWART |
| SIGNATURE: | /Peter B. Stewart/ |
| DATE SIGNED: | 08/03/2017 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |

Total Attachments: 2

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PATENT REEL: 043190 FRAME: 0464

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PATENT REEL: 043190 FRAME: 0465

Firm No.: 014033.2569

PMN: 6944US1

COMBINED DECLARATION (37 CFR 1.63) AND ASSIGNMENT FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| Title of Invention | SYSTEM FOR DETERMINING EFFECTIVENESS AND ALLOCATION OF INFORMATION SECURITY TECHNOLOGIES |
|---|--|
| As the below | named inventor, I hereby declare that: |
| This declarati | :Xi The attached application, of |
| | ☐ United States application or PCT International application number |
| The above-io | lentified application was made or authorized to be made by me. |
| I believe tha | t I am the original inventor or an original joint inventor of a claimed invention in the application. |
| | nowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by sonment of not more than five (5) years, or both. |
| | ASSIGNMENT |
| State/Provin even date he hereby auth | Sounil Yu ("Assignor"), a citizen of The United States (Country), residing in Reston, Virginia (City, ce) have invented the above invention. If the following lines are blank, the above application was filed on erewith, otherwise, to comply with 37 C.F.R. §3.21 for recordal of this assignment, I, an assignor below, orize the attorneys for Bank of America to insert the filing date and application number below after they wn and prior to filing the recordation. |
| | U.S. Application No. 14/976743 filed Dec. 21, 2015 |
| of Delaware entire right, | ANK OF AMERICA CORPORATION ("Assignee"), a Corporation duly organized under the laws of the State, and having its offices and place of business at Charlotte, North Carolina, is desirous of acquiring the title and interest in and to the aforesaid inventions and in and to all applications and Letters Patent in the United States of America, and in any and all countries foreign thereto: |
| salary or pay acknowledg and legal rej America and Letters Pate | EFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including ment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby ed, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns presentatives, the full and exclusive right, title and interest for the territory of the United States of I all countries foreign thereto, and throughout the world and in space, (including the right to apply for in it in foreign countries in its own name and to claim any priority rights for such foreign applications to applications are entitled under international conventions, treaties, or otherwise), in and to said inventions |

[Page 1 of 2]

and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, reviews, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.

Firm No.: 014033.2569 PMN: 6944US1

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

inventor:

Sounil Yu

Signature: Samil 9

Date: December 17, 2015

[Page 2 of 2]

PATENT REEL: 043190 FRAME: 0467